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Significance Testing at Sites 41FY170 and 41FY509, Fayette County, Texas

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Significance Testing at Sites 41FY170 and 41FY509, Fayette County, Texas

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**SIGNIFICANCE TESTING
AT SITES 41FY170 and 41FY509,
FAYETTE COUNTY, TEXAS**

G.R. DENNIS PRICE

OCTOBER 1991

TEXAS DEPARTMENT OF TRANSPORTATION
HIGHWAY DESIGN DIVISION
AUSTIN, TEXAS

ABSTRACT/MANAGEMENT SUMMARY

The State Department of Highways and Public Transportation (SDHPT) conducted archaeological significance testing at Sites 41FY170 and 41FY509 which are within the right-of-way proposed improvements to State Highway 71 in the vicinity of Plum, a community in Fayette County. As the construction will use federal funding, the testing was undertaken under the guidelines of the National Historic Preservation Act of 1966 and its implementing regulations, 36CFR, Part 800, and the National Environmental Policy Act.

Testing at Site 41FY170 revealed both prehistoric and historic artifacts. The prehistoric artifacts, none of which are temporally or culturally diagnostic, indicate that the area was used for the selection and preliminary reduction of chert gravels which occur naturally on the ridge. No stratification within the cultural zone was observed, nor were any cultural features observed. The historic artifacts appear to represent a thin sheet midden of domestic remains, probably dating to the late 1800s and associated with a historic structure on the property.

Test excavations at Site 41FY509 revealed large quantities of cultural debris. However, most consisted of lithic fragments which could not be associated with a particular temporal period or specific cultural group; and those few artifacts that were temporally diagnostic indicated that the site had been occupied (at least intermittently) over a long period of time (from the Paleoindian/Archaic Transition through the Nearchaic), and that there was neither stratigraphic nor horizontal separation of artifacts from different time periods. No cultural features were located.

Based on the results of the test excavations and subsequent laboratory analysis of recovered materials, neither of the sites is considered to meet the criteria for significance defined in 36CFR, Part 60.4.

Based on these assessments, no additional cultural research is recommended prior to construction activities.

Although there is little or no probability for the presence of significant areas of undisturbed buried cultural remains, there is a slight possibility that small, isolated cultural features may still be present within the area, and thus such features may be encountered during earth-moving operations. Machine operators/supervisors should be alerted to the possibility of such features. If features are encountered, construction should be stopped until qualified archaeologists have had an opportunity to assess the remains.

The probability of encountering such remains is considered too low to warrant archaeological monitoring.

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SECTION 1 - INTRODUCTION AND BACKGROUND

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Manning Formations, the Eocene and Oligocene (?) Whitsett Formation, and the Miocene Catahoula Formation and Oakville Sandstone. The deposits are composed predominantly of sandstones, clays, and siltstones. The Yegua Formation includes some chert, the Caddell Formation includes black chert, and the Oakville Sandstone also includes chert pebbles (ibid). The deposits weather to form soils that are generally sandy on the surface and clayey in the subsoil. The deposits have been eroded to form gently rolling to hilly terrain, with surface elevations rising to almost 500 feet NGVD.

Vegetationally, the sites are within the Post Oak Savannah (Thomas 1975). Naturally dominant trees are post oak (Quercus stellata) and blackjack oak (Quercus marilandica). The understory includes native grasses such as little bluestem (Schizachyrium scoparium var. frequens), Indiangrass, switchgrass (Panicum virgatum), purpletop (Tridens flavus), silver blustem (Bothriochloa saccharoides), Texas wintergrass, and species of Chasmanthium.

Fauna of the area is that of the Texan Biotic Province (Blair 1950). This is a transitional zone between the Austroriparian Province of the woodlands of East Texas to the east and the grasslands of the Balconian Province of the Edwards Plateau to the west. Within the project area, fauna is probably more like that of the woodlands than the grasslands. Present-day mammalian species include white-tailed deer, coyote, bobcat, raccoon, ringtail, opossum, cottontail rabbit, fox squirrel, badger, fox, least shrew, striped skunk, plains pocket gopher, and various mice and rats (Davis 1978). Avifauna includes vultures, hawks, quail, killdeer, doves, woodpeckers, larks, swallows, bluejays, crows, thrushes, meadowlarks, red-winged blackbirds, grackles, and sparrows. The floodplain of the Colorado River would support egrets, herons, bitterns, gallinules, snipe, and migrant species such as geese and ducks (Robbins, Bruun, and Zim 1966). The Colorado River would also have supported various aquatic species such as fish and mussels. In the past, species such as bison, turkey, and passenger pigeon may also have been present in the area.

PREVIOUS AREA RESEARCH

The following paragraphs briefly document previous archaeological research in Fayette County, as revealed by records checks undertaken at the Texas Historical Commission (THC), the Texas Archeological Research Laboratory (TARL), and the Texas Department of Transportation.

The earliest research was undertaken in 1930, when the University of Texas conducted a brief survey in Travis, Bastrop, and Fayette counties (Wilson 1930). No discrete sites were located in Fayette County, though a large scatter of artifacts covering three hills (site #10) south of the Colorado River was noted.

Further research was not undertaken until the early 1960s when the Texas Archeological Salvage Project conducted a survey within the proposed Columbus Bend Reservoir. This survey resulted in the documentation of 40 prehistoric sites (41FY1-41FY40) in Fayette County. Most of these sites consisted of lithic scatters, some of which also included shell or bone. The survey indicated occupation of the area from Paleoindian to Late Prehistoric times (Nunley 1963).

During the remainder of the 1960s only sporadic research was undertaken in Fayette County. This included the recording of several sites reported by amateur collectors and excavation at 41FY42 (the Frisch Auf! Site), where burials were found with associated Scallorn points and an antler tine smoother (Hester and Collins 1969). This was the first reported association of burials and Scallorn points in central Texas, and the site was included as a representative component of the Central Texas Austin Phase by Prewitt (1981).

Based on analysis of artifacts (including Clovis, Plainview, Angostura, Bulverde, Pedernales, Langtry-like, Gary-Like, Montell, Lange, and Tortugas dart points) recovered from 41FY59 (the Meier Site), Meier and Hester (1972) identified influences from Central and Southern Texas complexes. They further postulated a distinct cultural complex adapted to the area of Fayette County, which included relatively large ratios of projectile points with long, expanding stems, notched points with slightly flared stems, large numbers of unifacial and bifacial gouges, and pick and chisel-like bifaces.

The 1970s witnessed the beginning of cultural resources management activities undertaken as a result of federal environmental legislation. Within Fayette County this legislation has led to a considerable amount of research, generally associated with four major project groupings: improvements to highways, in particular SH 71; the Fayette Power Plant and associated facilities such as transmission lines; the proposed Cummins Creek Lignite Project; and the proposed LCRA Colorado Coastal Plains Project, a reconsideration of the Columbus Bend Reservoir.

Survey of proposed highway improvements began in 1973, and to date has resulted in the recording of numerous prehistoric quarry and lithic reduction sites. Testing or data recovery excavation was conducted at Sites 41FY57, 41FY58, and 41FY61 (Keller 1974); 41FY25, the Black Hopper Site (Fullem 1977); 41FY135, the Sandbur Site (Young 1979); 41FY107, 41FY108, 41FY109, and 41FY111 (Young 1981); 41FY98 (Goode 1983a); 41FY141, 41FY151, 41FY152 (Goode 1983c); 41FY421, 41FY422, and 41FY424 (Goode 1984a); and 41FY111 (Wormser 1987).

Excavations at 41FY58 (Keller 1974) revealed shallow, disturbed deposits, overlying natural gravels. Large amounts of thermally fractured chert and lithic debitage were recovered from the site, but only two diagnostic artifacts, a Pedernales dart point and a Darl dart point, were found. Other artifacts recovered from the site by local collectors included large, crudely worked bifaces, retouched flakes, and a number of finely worked unifaces. Test excavations at 41FY57 and 41FY61 apparently also revealed similar results.

Site 41FY25, the Black Hopper Site (Fullem 1977) is a terrace site adjacent to Cedar Creek, a tributary of the Colorado River. Excavation revealed disturbed/mixed components which included both Archaic dart points (Bulverde, Yarbrough, Marshall, Godley, Ensor, Fairland, Palmillas, Wells, Marcos, and Lange) and Neolithic Scallorn arrowpoints among abundant debitage and fire-cracked rocks. Only four unifacially retouched flakes were recovered. As the site was in a transition area between the Central Texas, East Texas, and Coastal Plain cultural areas, Fullem tried to determine cultural influences by comparison of the Archaic projectile points with those from surrounding areas. This led to the conclusion that 54% had Central Texas traits, 16% had East Texas traits, and 29% had mixed traits. Analysis and statistical comparison

of the ratio of blade width to stem width of Neolithic Scallorn points from the site and from surrounding areas led Fullem to speculate on the existence of four distinct sociocultural systems in the Neolithic: the area north and east of the Brazos River (East Texas); the Balcones Escarpment between the Brazos and Nueces rivers (Central Texas); the Coastal Plain north of the Nueces River; and the Coastal Plain south of the Nueces River.

The Sandbur Site, 41FY135, is located on a ridge toe at the margin of the Colorado River floodplain. Cultural deposits extended to depths of over 2 meters and ranged in age from Paleoindian through late Neolithic, though no distinct cultural stratigraphy was observed, and horizons appeared to be mixed. Prehistoric features included chert cobble hearths, a mussel shell lens, and a pit which included bison ribs and a Perdiz arrowpoint fragment. Over 100 arrowpoints or fragments, 84 prehistoric potsherds, and 146 dart points were recovered, along with numerous other bifaces and lithic debitage. Two new dart point types were provisionally described, Sandbur and Fayette. The Sandbur type was viewed as being a possible local Ensor point derivative, while the Fayette point was viewed as a Lange derivative (Young 1979).

Testing at Sites 41FY107, 41FY108, and 41FY109 revealed that those portions of the sites within highway rights-of-way had been virtually destroyed, though deposits at 41FY111 were believed to warrant additional research (Young 1981). Subsequent excavation at 41FY111 revealed a shallow cultural deposit, apparently representative of a quarry area on which primary lithic reduction took place (Wormser 1987).

Testing at 41FY98, the Alfred W. Young Site, revealed two distinct areas. The first included burned rocks, lithic debitage, and dart points (a lanceolate point, a Pedernales-like dart point in outline alone, and a dart point stem with similarities to a Bulverde) of the Early, Middle, and possibly Late, Archaic, in a mixed context. The other area included three hearths, with diagnostic artifacts (Ensor and Scallorn points) of the Late Archaic and Neolithic in overlying, mixed deposits (Goode 1983a). Goode (1983c) believed that the diagnostic from this site were probably "more closely aligned with an indigenous regional development than with any adjacent cultures."

Testing of Sites 41FY141, 41FY151, 41FY152, and 41FY153, all located within a mile of each other, revealed that all of the sites were confined to surface scatters of burned rock and lithic debitage (Goode 1983c). The only diagnostic artifacts consisted of three arrowpoint fragments from 41FY141.

Sites 41FY421, 41FY422, and 41FY424 are all on uplands (Goode 1984a). Site 41FY421, a lithic procurement and campsite, yielded large quantities of lithic debitage and thermally altered chert and quartzite, but only two temporally diagnostic artifacts, a Scallorn arrowpoint, and a small, late dart point. A hearth feature was also recorded. Site 41FY422, a lithic procurement and habitation site, also yielded large amounts of debitage and tools broken during manufacture. Diagnostic artifacts included an Angostura point fragment, 2 Pedernales dart points, several Darl-like dart points, 2 Fairland-like dart points and 4 Scallorn arrowpoints. Some 25 hearths were also recorded, but none included sufficient charcoal for radiocarbon dating. Site 41FY424 was apparently a lithic procurement and campsite which yielded large quantities of thermally altered stone (but no hearth features), and quantities of lithic debitage, none of which was diagnostic.

A survey of the proposed Fayette Power Plant (Jackson and Skelton 1975) recorded 19 prehistoric and 12 historic sites. The prehistoric sites (16 terrace sites and three upland sites) were generally located near deposits of fist-sized gravels, and consisted of surface, or near surface, lithic scatters which included extremely large quantities of thermally fractured chert and percussion-chipped debitage, but few diagnostic artifacts. Diagnostics included Bulverde, Lange, Pedernales, and Williams dart points, markers of the Central Texas Middle Archaic. Skelton (1977) later tested six of the prehistoric sites (41FY65, 41FY67, 41FY70, 41FY71, 41FY74, and 41FY78), and Carter and Ragsdale (1976) tested three of the historic sites (41FY87, 41FY94, and 41FY95).

Testing at 41FY65 revealed only 106 lithic artifacts, of which one was a Lange-like dart point. At 41FY67, five burned rock concentrations were identified. These were not believed to be the remains of aboriginal annealing processes, but were possibly indirectly associated with the process. No bone, shell, ash, or charcoal was associated with the features. Many other fire-cracked rocks were also recovered. Diagnostic artifacts included one Scallorn arrowpoint, and Bulverde, Ensor, Marshall, and Pedernales dart points. It was concluded that the site was probably a lithic procurement and reduction site, used mainly during the Archaic, and probably associated with the Central Texas, Clear Fork, Round Rock, San Marcos, and Twin Sisters phases. At 41FY70 (the Mills Site), no features were identified, but the 4186 lithic items recovered included an Edgewood and three Marshall dart points. It was concluded that the site was a tool manufacturing station, probably associated with the Central Texas, San Marcos Phase. Site 41FY71 produced only 987 lithic artifacts, including three Ensor dart points. It was concluded that the site was a lithic procurement and reduction site, probably associated with the Central Texas, Twin Sisters Phase. Site 41FY74 (the Cedar Bridge Site) included three separate areas or concentrations. Two of the areas apparently dated to the Archaic, but were highly disturbed. Thus, testing was confined to the third area (Area C). This revealed four features including bison bone, one of which also included a Perdiz arrowpoint and another of which included a Clifton point and a Perdiz point. A total of 43 arrowpoints and fragments (of which only seven were complete) was recovered from the site, and analysis of these led to the conclusion that Clifton points were in fact a manufacturing stage in the production of Perdiz points. In addition to lithic tools, over 500 potsherds of the type Leon Plain were recovered, as were three cut-rib bone tools. It was concluded that this area of the site represented a single, short-term encampment, probably associated with the Neolithic Toyah phase. At 41FY78 (the Baca Site), seven hearths and four shallow pits were identified. Arrowpoints recovered included one Perdiz, five Granbury, and five Scallorn, with statistical analysis indicating that the Granbury points were probably a manufacturing stage in the production of Scallorn points. Dart points recovered included seven Darl, five Ensor, and "a hodge-podge" of points which included Angostura, Castroville, Fairland, Gower, Marshall, Pedernales, Williams, and Yarbrough. It was concluded that the site had been occupied intermittently over a long time period, probably as a lithic procurement and reduction site. General conclusions reached suggested: that the area was used by cultural groups from different areas, but that the data did not allow for specific comparisons; that it was very speculative that the area constituted a distinctive intermediate culture; and that the materials most closely represented assemblages of the Central Texas cultural area (Skelton 1977).

Surveys of transmission lines and other facilities associated with the Fayette Power Plant include: the Tie Point to Holman Transmission Line, which identified five historic sites in Fayette County (Dibble and Freeman 1979); miscellaneous transmission lines, which identified seven previously recorded prehistoric sites and located an additional 20 prehistoric sites, mostly thin midden and lithic scatters, in Fayette County (Laurens, Guy, and Prewitt 1979); the Fayette to Lytton Springs Transmission Corridor, which identified 24 prehistoric sites (14 lithic scatters, 8 lithic scatters with burned rock, and 2 quarry stations) and 16 historic sites in Fayette County (Kenmotsu and Freeman 1980); various overhead power distribution lines, which identified five previously recorded prehistoric sites and located an additional 11 prehistoric sites (mainly lithic scatters and procurement areas) and three historic sites in Fayette County (Pevey and Van Cleve 1981); the Fayette to Glidden transmission corridor, which recorded one prehistoric site in Fayette County (Kenmotsu 1981); the Fayette to Salem Transmission Corridor, which located a sparse lithic scatter in Fayette County (Robinson 1982); proposed ash disposal areas, which recorded two new prehistoric, light lithic scatters and a historic house (Nightengale 1983); two distribution lines, which did not locate any sites (Espey, Huston, and Associates, Inc. 1987a); a distribution line, access road, and substation, which recorded two historic sites (Espey, Huston, and Associates, Inc. 1989); and the Winchester to Salem Transmission Line, which identified three previously recorded prehistoric sites and located an additional 10 prehistoric sites (in total two campsites, three lithic scatters, and eight procurement sites) and one historic site in Fayette County (Espey, Huston, and Associates, Inc. 1990). Test excavations were also conducted at Sites 41FY165 and 41FY178 located within the Fayette to Lytton Springs Transmission Corridor (Brown and Kenmotsu 1980). At 41FY165, a thin lithic scatter, identified as an apparent quarry or primary lithic reduction area, produced only 26 artifacts, one a crude biface. Site 41FY178 produced 468 lithic artifacts, including three arrowpoints (one Scallorn-like, one Fresno, and one possible Fresno) and was identified as a small temporary camp associated with the Austin Focus.

Initial survey of 13,288 acres associated with the proposed Cummins Creek Lignite Prospect identified 56 prehistoric sites (51 adjacent to creeks and five on more remote uplands) and 34 historic sites (Nightengale and Jackson 1983). The prehistoric sites, most of which were not discretely datable, were broken down into: light scatters without features (41 sites, with two Archaic, two Early-Late Archaic, one Middle Archaic, and two late prehistoric components recognized); light scatters with features (five sites, with one Middle Archaic and one Middle-Late Archaic component recognized); and lithic scatters (10 sites, with one Early Archaic, one Middle Archaic, and one Late Archaic component recognized). The cultural sequence represented by the sites appeared to be similar to that of the Central Texas area.

Additional survey of another approximately 10,100 acres located an additional 77 sites with prehistoric components and 29 sites with historic components (Nightengale, Jackson, and Moncure 1985). As previously, most of the prehistoric sites consisted of light scatters of stone-flaking debris, stone tools, and burned rock of undetermined cultural affiliation along creek terraces and lower slopes of basin drainages. They were broken down into: light scatters without features (51 sites, with three late Paleo/Early Archaic, four Early Archaic, ten Middle Archaic, five Late Archaic, and four late Prehistoric components); light scatters with features (19 sites, with one Late

Paleo/Early Archaic, two Early Archaic, four Middle Archaic, two Late Archaic, and three Late Prehistoric components); light scatters with gravel outcrops (four sites); and lithic scatters (three sites). Again, the artifacts appear to have indicated a Central Texas cultural affiliation.

Preliminary testing of 17 sites recorded during the survey of the Cummins Creek Prospect was apparently also undertaken (Nightengale n.d.)

Further research associated with the Cummins Creek Lignite Prospect (Kotter et al. 1991) identified and recorded four prehistoric lithic scatters of undetermined age and eight historic sites. Testing was undertaken at eight historic sites (41FY400, 41FY413, 41FY418, 41FY419, 41FY445, 41FY446, 41FY447, and 41FY448) and four prehistoric sites (41FY264, 41FY336, 41FY362, and 41FY442). Testing at 41FY264 revealed two features consisting of flat concentrations of burned rocks, one of which yielded a radiocarbon date of 1920 ± 60 B.P. Diagnostic points, from both the original surface collection and testing, included the following dart points: one Darl, three Ensor, two Ensor manufacturing failures, one Travis, one untyped, and two Pedernales manufacturing failures. The text also mentions that one of the Ensor points was reclassified with the provisional Sandbur type. It was concluded (Kotter et al. 1991) that the site represented three occupational episodes: 1) the Clear Fork to Round Rock phases of the Middle Archaic; 2) the Uvalde and Twin Sisters phases of the Late Archaic; and 3) the Driftwood Phase of the Late Archaic. Each of the occupational episodes was thought to represent small seasonal encampments. At 41FY336, no features were identified and diagnostic artifacts were limited to a Nolan point, and an untyped point, tentatively dated to the Middle Archaic. The site was interpreted as a small seasonal campsite. Analysis of artifacts recovered from 41FY362 suggested that the site was occupied on four occasions: 1) during the Early Archaic Jarrell Phase (based on one Uvalde and two Hoxie dart points); 2) the Middle Archaic San Marcos Phase (based on a Williams point); 3) the Late Archaic Driftwood Phase (based on two Sandbur and one Darl dart points), when hide processing seems to have been a major occupation; and 4) during the Late Prehistoric (based on an untyped arrowpoint fragment). Analysis of artifacts from 41FY442 indicated lithic processing during the Late Archaic Driftwood Phase, based on the recovery of a Mahomet dart point and two Mahomet manufacturing failures; and possible occupation during the succeeding Twin Sisters Phase, based on a small, Ensor-like dart point.

Research for the proposed Lower Colorado River Authority, Colorado Coastal Plain Project was undertaken by New World Research in 1983 (Keller and Campbell 1984). Research included revisitation of previously recorded sites within the project area and intensive survey of sample areas. Subsurface testing was also undertaken. In the Fayette County portion of the project, 35 previously recorded prehistoric sites were revisited, and 13 new prehistoric and 2 new historic sites were identified. As with previous surveys and research in the area, very few diagnostic artifacts were recovered. Of the 48 prehistoric sites visited in Fayette County, only six sites yielded diagnostic artifacts (41FY13/14, a Scallorn arrowpoint; 41FY6, a Tortugas dart point; 41FY22, an Abasolo point; 41FY34, a Pedernales point; 41FY35, a Bulverde point; and 41FY36, a Palmillas point).

Other miscellaneous researches include: investigations at Sites 41FY105 and 41FY106 on Monument Hill (Whitsett 1976); an archaeological survey of the

City of Carmine (Fox 1980); a survey of La Grange airport (Lynn 1981); a survey of proposed gas distribution lines (Day 1981); and a survey of the Sales Lateral Gas Pipeline, which located a prehistoric site (a lithic scatter with burned rocks, mussel shell, and bone fragments) and a historic cemetery (Espey, Huston, and Associates, Inc. 1987b). Dibble (1977) reported on test excavations at 41FY105 and Wilson (1979) reported briefly on 41FY53, a site which includes Paleoindian (Clovis and Plainview points), Archaic (Pedernales points), and Neolithic (Scallorn and Perdiz points) components in apparently good stratigraphic contexts. Other sites have been reported as the result of non-formally reported surveys.

CULTURAL BACKGROUND

Kelley (1955) postulated a transition zone between the Balcones Escarpment and Coastal Texas, which includes Fayette County. Many subsequent researchers (in particular Meier and Hester 1972, Fullem 1977, Skelton 1977, and Goode 1983b, 1984b, 1989) have addressed this issue by attempting to identify specific influences from differing cultural areas or by attempting to identify specific locally derived cultural adaptations or developments. However, despite some indications of influence from East Texas (e.g., dart point types such as Gary, Ellis, Kent, Wells, and Yarbrough), Coastal Texas (e.g., marine shell), and South Texas (e.g., Tortugas points), and some evidence of the development of local diagnostic artifact types (lanceolate, Fayette, and Sandbur dart points), research in Fayette County has yet to provide sufficient information on which to base a detailed prehistoric cultural sequence.

As the majority of diagnostic artifacts indicate a much greater relationship with Central Texas cultural development than with other areas, it appears logical to use the Central Texas cultural sequence as a general comparative sequence for the present project area.

Research in central Texas has led to the development of numerous chronological frameworks over the years (e.g., Pearce 1932, Sayles 1935, Kelley 1947, 1955, Suhm et al. 1954, Johnson et al. 1962, Weir 1976), the latest and most detailed being that proposed by Prewitt (1981).

Paleoindian Stage (pre-8500 B.P.)

The Paleoindian Stage, representing the earliest documented stage of human presence in the area, traditionally has been viewed as a way of life in which relatively small groups of people subsisted by following, hunting, and living off of large late-Pleistocene mammals such as mammoth and bison. However, more recent thought suggests that such a lifestyle is merely the most evident aspect of a number of subsistence practices that have been preserved for us to identify. Diagnostic artifacts include fluted Clovis and Folsom points, and unfluted Plainview points. Such points have been recovered from apparently good stratigraphic contexts at sites such as 41FY53 and 41FY59, and also from 41FY135, in Fayette County.

Archaic Stage (8500-1250 B.P.)

The Archaic Stage is perceived as being based on a subsistence strategy of hunting and gathering, relying on a wider range of resources within more geographically constrained areas than those utilized during the preceding Paleo-

Indian Stage. The population is still believed to have been nomadic, perhaps following a fairly regular route to take maximum advantage of seasonal resources. The Archaic Stage has been divided into three temporal periods, Early, Middle, and Late, which have been subdivided into phases in Central Texas.

Early Archaic

The Early Archaic (8500-4600 B.P.) is perceived as a period where widely scattered groups relied more on collecting and gathering than on hunting. A wide range of dart point types has been viewed as evidence of little contact between groups and regions.

Circleville Phase (8500-7000 B.P.) The diagnostic points of this phase (Angostura, Golondrina, Meserve, and Scottsbluff) reflect a continuation of Paleoindian lithic technology. Other tools include Clear Fork gouges, miscellaneous bifaces, drills, scrapers, and gravers. Recognized features include large and medium basin-shaped, stone-lined hearths and mussel shell concentrations. Subsistence had adapted to exploitation of post-Pleistocene flora (as evidenced by grinding stones) and fauna (deer and other small mammals); freshwater mussels were also collected (Prewitt 1981:77). Within Fayette County, Angostura points have been reported from 41FY59, 41FY78, 41FY135, 41FY314, and 41FY422. Golondrina points have been reported from 41FY135, and a Meserve point has been reported from 41FY327.

San Geronimo Phase (7000-6000 B.P.) Diagnostic projectile points of this phase include Gower, Hoxie, and Wells. They differ markedly in outline from the preceding types, while still retaining a number of the earlier technological attributes. Other artifacts include Clear Fork gouges, Guadalupe gouges, miscellaneous bifaces, and scrapers. Features may include large and medium basin-shaped, stone-lined hearths. Subsistence data is sparse, but is assumed to be typically Archaic (Prewitt 1981:78). Within Fayette County a Gower point has been reported from 41FY78, Hoxie points have been reported from 41FY362, and Wells points have been reported from 41FY25, 41FY135, and 41FY354.

Jarrell Phase (6000-5000 B.P.) This phase is identified archaeologically by diagnostic point types such as Andice, Bell, Martindale, and Uvalde. Other tools include Clear Fork gouges, miscellaneous bifaces, scrapers, and grinding stones. Recognized features include large, flat hearths. In addition to vegetal resources, which appear to have been the main subsistence base, mussels were collected and utilized, and limited use of bison has also been documented (Prewitt 1981:78). Within Fayette County, Andice points have been reported from 41FY135 and 41FY341, a Bell point has been reported from 41FY135, and Uvalde points have been reported from 41FY356 and 41FY362.

Oakalla Phase (5000-4600 B.P.) Diagnostic point types of this phase include triangular Baird and Taylor points; Clear Fork gouges also occur. This period appears to mark the beginnings of burned rock middens in Central Texas, normally associated with the processing of vegetal resources. Large flat hearths and medium basin-shaped hearths also occur. Freshwater mussels were also apparently utilized (Prewitt 1981:78, 79). Baird and Taylor points have apparently been recognized in the Fayette County area. Triangular Tortugas points also have been identified (from Sites 41FY6, 41FY59, and

41FY135) and have been seen as evidence of a South Texas influence on the area. However, Tortugas points in South Texas appear to date later than the Baird and Taylor points.

Goode (1989:73) notes that although Central Texas types such as Gower, Hoxie, Uvalde, Wells, Andice/Bell, and Baird/Early Triangular dart points are fairly common in the area, locally developed types, or sub-types, constitute "a significant to major percentage of these [Early Archaic] assemblages." In particular, slender lanceolate forms, both stemmed and unstemmed, appear to predominate in the early part of the period.

Influence from East Texas may also be seen in the identification of Yarbrough points from Sites 41FY25, 41FY78, and 41FY135.

Middle Archaic

The Middle Archaic (4600-2250 B.P.) is a period in which the dominant feature in Central Texas is the burned-rock midden (consisting of burned limestone fragments), usually interpreted as indicative of extensive vegetal food processing. Specific foods believed associated with the burned-rock middens include acorns (Weir 1976, Creel 1986) and sotol and other desert plants (Pearce 1919, Greer 1965). Although oak trees are prevalent in the Fayette County area, limestone is not, and burned-rock middens have not been recognized. However, it is possible that the very large quantities of thermally fractured chert observed in the Fayette County area could represent a local form (though theoretically considerably more dangerous) of burned-rock midden. Large numbers of projectile points indicate that hunting was also of probably equal importance, with deer being the main quarry (Weir 1976), and bison being absent from the area for most of the period.

Clear Fork Phase (4600-4000 B.P.) The Clear Fork Phase is identified by diagnostic projectile points such as Nolan and Travis. Other tool types include Clear Fork gouges, bifaces, scrapers, strangulated scrapers, and grinding stones. Burned-rock middens are the only recognized features (Prewitt 1981:79). Goode (1989:74) notes that Nolan/Travis forms in the Fayette County area are relatively rare [being reported only from Sites 41FY264, 41FY327, and 41FY336], with regional derivatives of the general Travis form being more common. He further notes the presence of contracting stemmed points (an East Texas influence) with increasing frequency around La Grange and to the east.

Marshall Ford Phase (4000-3400 B.P.) This phase appears to represent a continuation of the preceding, but is recognizable by the Bulverde dart point (Prewitt 1981:79). Goode (1989:74) notes that classic Bulverde points are rare in the Fayette County area, while local derivatives with straight/contracting stems, some of which may be influenced by East Texas types, are abundant. Within Fayette County, Bulverde points have been reported from 41FY25, 41FY35, 41FY67, and 41FY353.

Round Rock Phase (3400-2600 B.P.) The Round Rock Phase appears to represent the peak of burned-rock midden use in Central Texas. The diagnostic artifact is the Pedernales point. Other tools include bifaces, unifaces, and grinding stones. In addition to burned-rock middens, medium and small basin-shaped hearths have also been identified. Subsistence appears to have

included both vegetal foods, deer, and freshwater mussels (Prewitt 1981:80). Pedernales points are common in the Fayette County area, perhaps indicative of a greater influence from Central Texas than in preceding phases. Goode (1989:74) also notes the presence of Dawson and Gary points (East Texas types) in the east of the area. Gary points have been reported from Sites 41FY34, 41FY53, 41FY58, 41FY59, 41FY67, 41FY78, 41FY98, 41FY135, 41FY274, 41FY310, 41FY314, 41FY321, 41FY353, and 41FY422 in Fayette County.

San Marcos Phase (2600-2250 B.P.) The San Marcos Phase is identified by dart point types Marshall, Williams, and Lange. Other artifacts include bifaces, scrapers, small concave unifaces, grinding stones, and marine shell artifacts. Features include burned-rock middens, large flat hearths, medium and small basin-shaped hearths, and freshwater mussel shell concentrations. Subsistence should also have benefitted from the return of bison to the central Texas area (Prewitt 1981:80). Marshall points have been reported from Sites 41FY25, 41FY67, 41FY70, 41FY78, and 41FY319. Williams points have been reported from Sites 41FY78 and 41FY362, and Lange points have been reported from Sites 41FY25, 41FY59, and 41FY65. A local type, Fayette, based on six points recovered from the Sandbur Site (41FY135), and possibly a regional variant of the Lange type, has been provisionally proposed (Young 1979), and would also appear to date to this time period.

Late Archaic

The Late Archaic (2250-1250 B.P.) appears to be a period when there was an increasing reliance on vegetal foodstuffs, perhaps the result of decreasing numbers of bison, particularly after the Uvalde Phase. Mussel collecting was also undertaken, but not apparently on a large scale. Burned-rock middens apparently cease to accrete.

Uvalde Phase (2250-1750 B.P.) This phase is identified by point types Castroville, Marcos, and Montell. Other artifact types include bifaces, unifaces, and grinding stones. There is no data on features. Subsistence includes both hunting (bison being common in this phase) and gathering, with the latter perhaps slightly more important. Mussels were also collected (Prewitt 1981:81). Within Fayette County, Castroville points have been reported from 41FY78 and 41FY135, Marcos points have been reported from 41FY25 and 41FY135, and a Montell point has been reported from 41FY59. Fairland points, probably also dating to this phase, have been reported from 41FY25, 41FY78, and 41FY422.

Twin Sisters Phase (1750-1400 B.P.) The Twin Sisters Phase is recognized by Ensor projectile points and Erath and San Gabriel bifaces. Tools similar in appearance to the Clear Fork gouge are also present. Other artifacts include perforators, gravers, large and small concave unifaces, scrapers, grinding stones, boat stones, marine shell gorgets, and freshwater shell pendants. Features include large, medium, and small basin-shaped hearths, burned clay/charcoal lenses and pits, mussel shell caches, and isolated flexed burials. Subsistence appears to have relied primarily on gathering, with lesser emphasis on hunting (by this time bison had apparently left the central Texas area again), and also with lesser reliance than previous periods on mussel gathering (Prewitt 1981:81). Within Fayette County, Ensor points have been reported from Sites 41FY25, 41FY67, 41FY71, 41FY78,

41FY98, 41FY135, and 41FY264. Also within the Fayette County area, a diagnostic of this period may be the Sandbur point, provisionally defined from 28 specimens at the Sandbur Site, 41FY135 (Young 1979), and also reported from Sites 41FY274 and 41FY362.

Driftwood Phase (1400-1250 B.P.) The Driftwood Phase is recognized by Mahomet projectile points and Hare bifaces. Other artifacts include miscellaneous bifaces, small concave unifaces, gravers, grinding stones, freshwater mussel shell pendants, bone beads, and bone awls. Features include medium and small basin-shaped hearths, burned clay/charcoal lenses and pits, and isolated flexed burials. Subsistence appears to rely heavily on gathering (Prewitt 1981:82). The only site within Fayette County reported to include Mahomet points is 41FY442. However, Darl points have been reported from Sites 41FY58, 41FY78, 41FY135, 41FY264, and 41FY362, while Darl-like points have been reported from 41FY135, 41FY319, 41FY321, 41FY360, and 41FY422.

Neolithic Stage

The Neolithic Stage (1250-200 B.P.) is recognizable by the presence of arrowpoints, associated with the introduction of the bow and arrow, which replaced the atlatl. Two phases have been identified, the Austin Phase and the Toyah Phase.

Austin Phase (1250-650 B.P.) This phase is identified by Scallorn and Granbury arrowpoints, and Friday bifaces. Other artifacts include miscellaneous bifaces, Clear Fork gouges, scrapers, small concave unifaces, grinding stones, bone awls, ulna flakers, bone beads, and marine shell beads and pendants. Features include large, medium, and small basin-shaped hearths, and burned clay/charcoal lenses and pits. Flexed, or semi-flexed, burials are known from the period in both cemetery and isolated grave contexts. Some of the burials were cremated prior to interment. Subsistence appears to have remained similar to that of the preceding Late Archaic period, with an apparent concentration on gathering, though the increased presence of deer bones in sites of this phase may indicate a greater reliance on the hunting of deer (Prewitt 1981:83). Examples of Austin Phase sites in Fayette County include Frisch Auf!, 41FY42 (Hester and Collins 1969), where Scallorn points were first found associated with burials in Central Texas, and 41FY78, where Skelton (1977) concluded statistically that Granbury points were a preform stage of Scallorn points. Other sites from which Scallorn and Granbury points have been reported include 41FY13/14, 41FY53, 41FY67, 41FY98, 41FY135, 41FY178, 41FY421, and 41FY422.

Toyah Phase (650-200 B.P.) The Toyah Phase is recognized by Perdiz and Clifton arrowpoints, Covington bifaces, four-edged, bevelled bifaces, and undecorated ceramics (Leon Plain). Other artifacts include end scrapers, drills, grinding stones, freshwater mussel shell pendants, bone beads, bone awls, ulna flakers, and miscellaneous bison bone tools (bison once again having returned to the central Texas area). Known features include large flat hearths, large and medium basin-shaped hearths, burned clay/charcoal lenses, and pits. Semi-flexed burials occur in both cemeteries and as isolated interments. Perdiz and Clifton arrowpoints frequently found with burials apparently indicate warfare rather than grave goods. Subsistence during this phase appears to differ markedly from that of the preceding phase, with reliance on bison hunting being of equal, or greater importance than

collecting/gathering activities. Maize was also used to supplement the diet, but it is not sure whether this was acquired by trade from neighboring groups or grown locally (Prewitt 1981:83). Within Fayette County, Perdiz points have been found associated with bison bone at Sites 41FY74 and 41FY135. From specimens recovered at 41FY74, Skelton (1977) statistically demonstrated that Clifton points were in fact a preform stage of Perdiz points. Perdiz points have also been reported from 41FY53 and 41FY78. Leon plain ceramics have been reported from 41FY74, 41FY135, and 41FY363.

PREVIOUS INVESTIGATIONS

Site 41FY170 was originally recorded by Virginia Wulfkuhle and LaVerne Herrington in 1979. The site, south of State Highway 71 and largely within a pasture setting, was recorded as a multi-component site with a prehistoric lithic scatter and a historic structure with associated artifacts. The prehistoric lithic scatter covered an area of either 5 acres (Herrington's field notes) or 10 acres (site form). Artifacts were observed in about half of the rodent burrows observed, and artifacts were noted to be particularly abundant along the driveway to the historic structure, where the midsection of a long projectile point was found. A unifacial projectile point (the outline resembles a Scallorn arrowpoint) was also recovered from the site. The historic structure, located about 80 meters south of SH 71, was reported as "a dog trot made of sawn lumber probably dating to the late 1800's or the very early part of the 1900's" (Herrington, field notes). A depression north of the structure was tentatively identified as a storm shelter or cistern, possibly indicative of an earlier structure. An outbuilding and a historic dump were also noted.

In January 1980, Wulfkuhle and Herrington revisited the site when surface visibility was better. More historic artifacts were observed, a historic dump was located, and the prehistoric lithic scatter was better defined. They concluded that the entire hilltop area was a site; that the densest area of prehistoric artifacts was south of the house (away from the highway); that one area east-southeast of the house might contain human burials; and that historic materials appeared to be concentrated west, south, and east of the house. An accompanying topographic quadrangle indicates a dense concentration of prehistoric artifacts southwest of the house, and a historic dump southeast of the house. A collapsed cistern or well is depicted northwest of the house, and a possible prehistoric burial area is depicted east-northeast of the house. The cultural feature depicted closest to the highway is the collapsed cistern or well, which is some 50 meters from the highway.

A surface survey of the site was conducted by U. K. Kleinschmidt in 1982. A sketch map indicates that only one flake was found north of the house (approximately 50 meters from the highway, and close to the western boundary of the property). More prehistoric artifacts and debitage were apparently located south of the house, away from the highway.

SITE SETTING

The site is located on an east-northeast-trending ridge end, approximately 1.5 miles south of the present channel of the Colorado River (Figure 1-1). An unnamed intermittent stream trends northeast along the southern margin of the ridge end, before turning north to flow into the Colorado River. The ridge rises from an elevation of about 290 feet NGVD at the edge of the Colorado River floodplain to a maximum elevation of about 330 feet NGVD. Thus, given an absence of high or dense vegetation, the ridge would give a good view across the floodplain to the river.

Geologic deposits on which the site is located are depicted as Pleistocene fluviatile terrace deposits (Qt) on the Geologic Atlas of Texas, Sequin Sheet (Bureau of Economic Geology 1974).

Soils on the higher portions of the site have been mapped as Straber loamy fine sand, 1-5% slopes by the Soil Conservation Service (mapping information on file at the SCS office in La Grange). Soils on the steeper slopes around the periphery of the site have been mapped as Straber gravelly loamy fine sand, 5-8% percent slopes. The Straber series consists of somewhat poorly drained, very permeable soils on uplands. They have pale brown and very pale brown loamy fine sandy surface layers about 14 inches thick, light yellowish brown and light gray clayey subsoils that are mottled with light gray and red, and very pale brown to yellow limy substrata. Soils adjacent to the intermittent stream along the southern boundary of the site have been mapped as Warda loam, occasionally flooded. The Warda series consists of deep, moderately well drained soils in floodplains of drainageways. The surface layer is dark brown clay loam about 8 inches thick. The underlying layers to a depth of 60 inches are dark brown clay loam in the upper part and light brownish gray loam in the lower part. Soils adjacent to the stream along the eastern boundary of the site have been mapped as Wilson clay loam, 0-1% percent slopes. The Wilson series consists of very deep, somewhat poorly drained, nearly level to gently sloping soils of uplands and terraces, which formed in alkaline clayey alluvium or marine clays. The surface layer is very dark gray silt loam about 5 inches thick. The subsoil is silty clay, very dark gray in the upper part and grayish brown in the lower part. Below 65 inches the soil is olive gray silty clay.

Vegetation on that portion of the site within the additional highway right-of-way consisted of a copse of live oak trees (with trunks up to 77 inches in diameter) with an understory of pasture grasses, wildflowers, and poison ivy. Shrubs and bushes were growing adjacent to the fenceline marking the present right-of-way limit.

ADDITIONAL RIGHT-OF-WAY AND ANTICIPATED IMPACTS

In the vicinity of Site 41FY170 (approximately between project survey stations 23+00 and 31+50), the additional right-of-way crosses the northern periphery of the site. From station 23+00 to station 30+50, the additional right-of-way will consist of a 25-foot-wide strip adjacent to the south side of the present right-of-way. From station 30+50, the width increases. Additional right-of-way will also be acquired north of the existing highway, but this is beyond the reported limits of the site. The additional right-of-way slopes down to the east and the north, with an erosional gully, draining to the north, cutting across at approximate survey station 26+30 (Figure 2-1).

Proposed improvements within the site vicinity will involve construction of a retaining wall within the present right-of-way (where a drainage ditch is presently located), and pruning of the live oaks within the additional right-of-way. Thus, impacts to the additional right-of-way, and the periphery of Site 41FY170, will be minimal.

METHODOLOGY

Field Investigations

All field investigations were confined to the proposed additional highway right-of-way, with the exception of inspection of the cut banks of the drainage ditch adjacent to the south side of the highway. The area was walked

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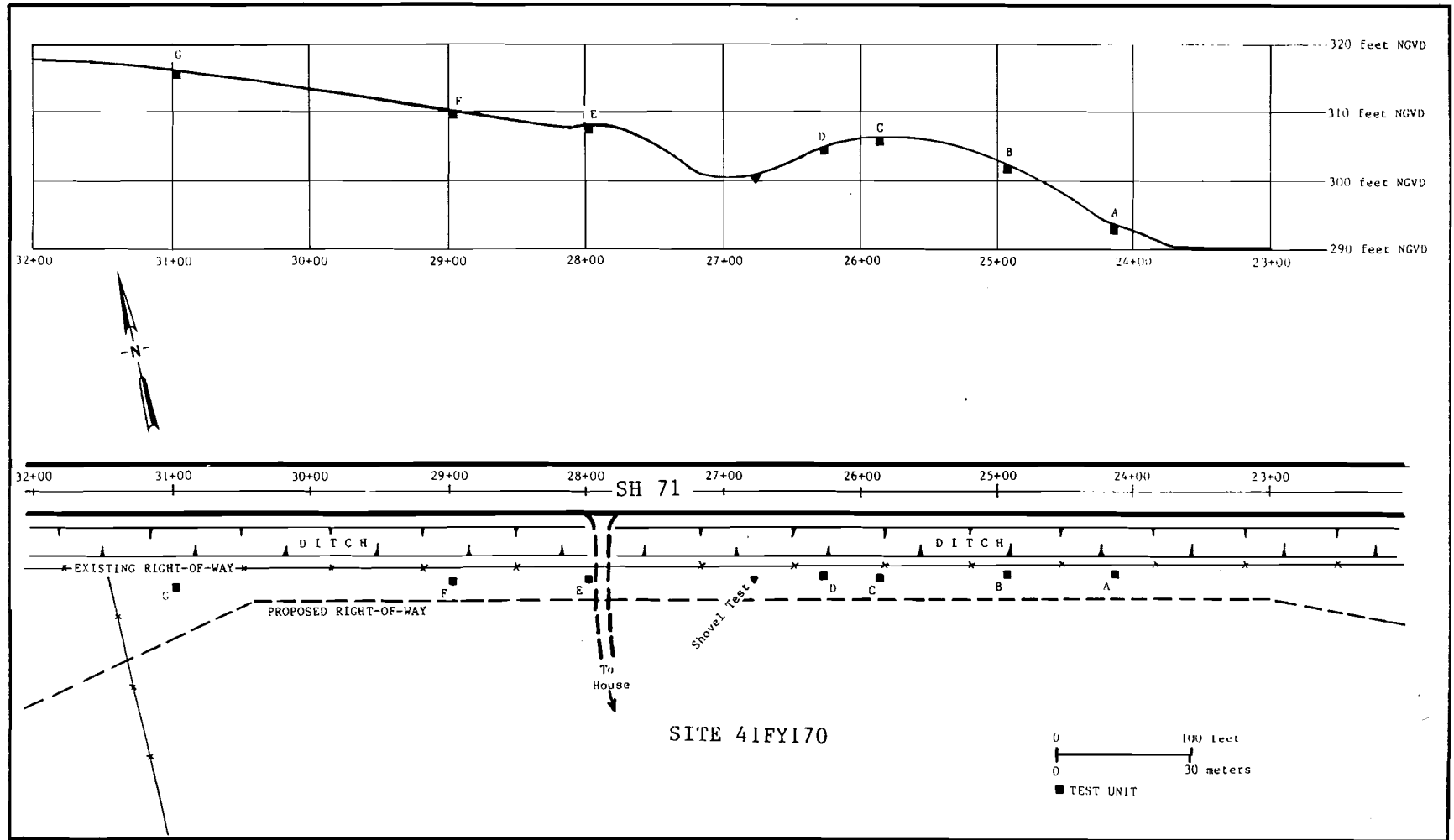


Figure 2-1. Site 41FY170, plan, and profile along additional right-of-way.

over and bare soil patches and backdirt from ant nests and other disturbances were inspected for evidence of cultural remains in an attempt to identify the most promising areas for testing.

Testing consisted of a series of seven 1 meter x 1 meter test units (Test Units A-G) spaced along the approximate midline of the additional right-of-way (Figure 2-1). These were located to test not only the most likely looking area of prehistoric occupation (the ridge east of the erosional gully, between survey stations 24+75 and 26+50 where Test Units B, C and D were placed), but also, in general, the entire length of the additional right-of-way in the reported site vicinity. Exact location of test units was influenced to avoid as much as possible the root systems of the live oaks.

Each of the Test Units was excavated in arbitrary levels, the first level of each unit being 15 cm in thickness and the subsequent levels generally being 10 cm in thickness. Table 2-1 summarizes the levels excavated in each unit. An additional shovel test was excavated in the gully, at survey station 26+78. Depth of this hole reached approximately 40 cm, with the water table being encountered at a depth of about 10 cm.

Table 2-1
Test Units and Depths of Levels Excavated

Test Unit	Depths (in cm)								
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
A	0-15	15-25	25-35	////////	////////	////////	////////	////////	////////
B	0-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	////////
C	0-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85-95
D	0-15	15-25	25-35	35-45	45-55	////////	////////	////////	////////
E	0-15	15-25	25-35	35-45	45-55	55-65	65-75	////////	////////
F	0-15	15-25	25-35	35-45	////////	////////	////////	////////	////////
G	0-15	15-30	30-40	////////	////////	////////	////////	////////	////////

Fill from each level was screened through 1/4-inch hardware cloth, and artifacts recovered from the screen were bagged by individual level. The floors of individual levels were checked for evidence of cultural features. Excavations were continued until two successive levels had been dug that did not yield cultural materials. The only exception was Test Unit A, where the water table was encountered at a depth of about 30 cm. Additional shovel testing was later conducted in the southwest corner of this unit below the level of the formally excavated levels, and in many of the other units. Walls of each unit were checked for evidence of cultural features. At least one wall was then photographed and drawn. Finally units were backfilled.

After completion of the Test Units, they were mapped relative to the datum line established for the highway project. Elevations of the existing surface along the approximate centerline of the additional right-of-way were also determined (Figure 2-1).

Laboratory Analysis

Laboratory analysis followed standard procedures. Each level of each Test Unit was assigned an individual lot number. Materials recovered from the screen were washed, labelled with the appropriate lot number and catalogued. Analysis consisted of sorting artifacts first by material, and then subdividing according to functional or morphological characteristics. These subgroups were then compared with previously defined artifact types in order to try to establish temporal and cultural affiliations, and to determine the kinds of activities that were undertaken at the site.

Following individual artifact analysis, the data were synthesized with field observations concerning stratigraphy and features, and compared with our present knowledge of the cultural background of the area to determine whether additional research would be likely to yield significant new information to further our understanding of the prehistory of the area.

FIELD OBSERVATIONS

Surface Observations

No artifacts were observed on the grass-covered ground surface, along the driveway to the historic structure, on the surfaces of ant nests, or in the cut banks of the ditch adjacent to the highway.

Examination of ant nests revealed much paler soil west of the driveway to the historic structure (survey station 27+80) than to the east. Soil appeared particularly dark on the ridge between survey stations 24+75 and 26+50, and this was considered to be the most likely area of prehistoric occupation.

It was noticed that the surface of the driveway to the historic structure was slightly above the level of the adjacent natural ground surface, and that the surface was gravel-covered while gravels were not observed on ant nests. It was thus concluded that material had been imported and placed on the driveway to raise it above the general ground surface. It is thus likely that the artifacts observed along the driveway by Wulfkuhle and Herrington were imported with the driveway fill.

Stratigraphy

Profiles of the west walls of the Test Units are depicted in Figure 2-2. No obvious cultural stratigraphy was observed in any of the profiles. Individual profiles are briefly discussed below.

Test Unit A

As noted earlier, a high water table halted excavation of Test Unit A. The surface layer consisted of dark gray (10YR4/1, dry) sandy loam with gravels to a depth of approximately 28 cm. Between depths of 28 and 45 cm,

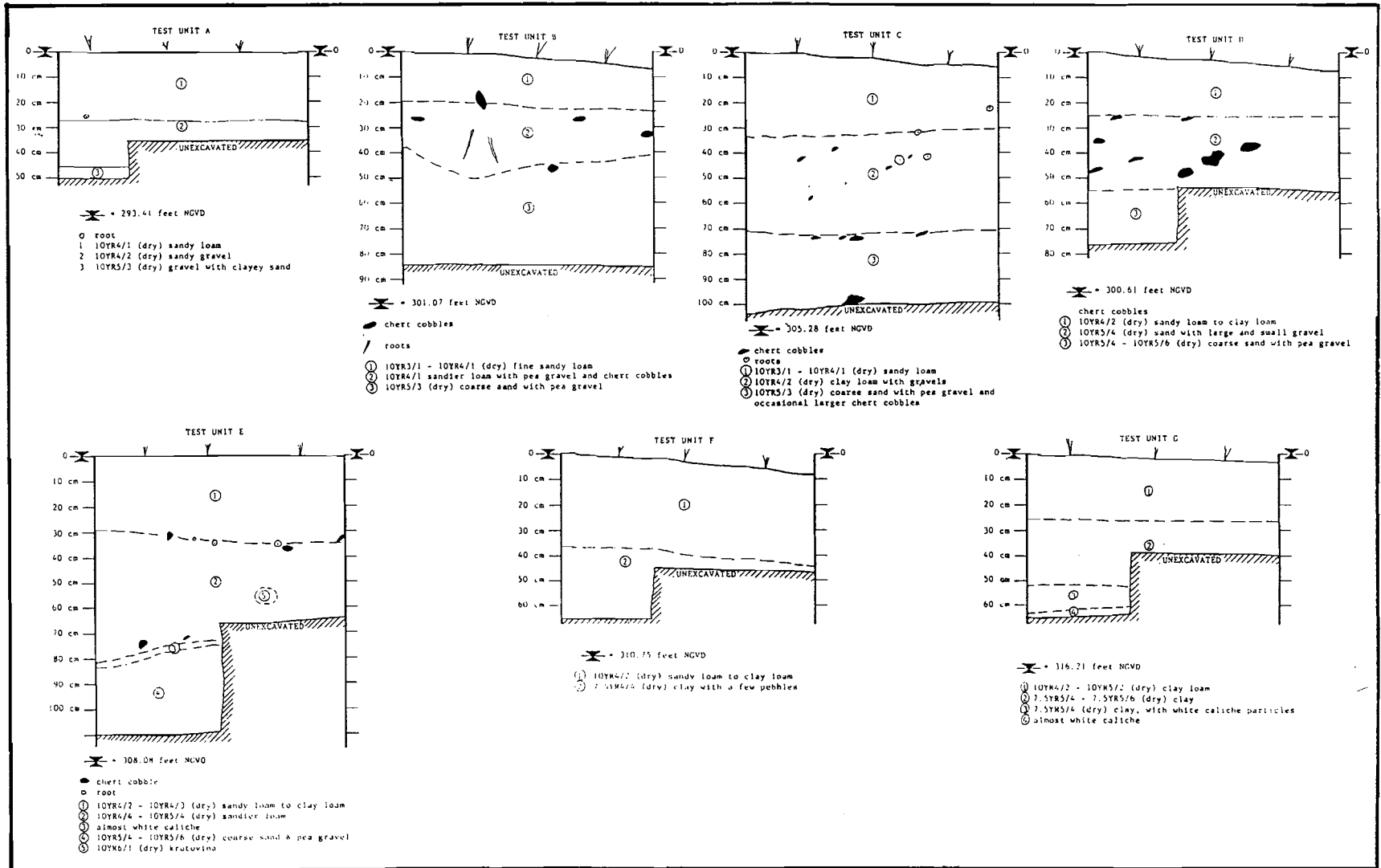


Figure 2-2. Site 41FY170, profiles of west walls of Test Units.

deposits consisted of dark grayish brown (10YR4/2, dry) sandy gravel. Below was brown (10YR5/3, dry) clayey sand with gravel. Prehistoric artifacts, in sparse quantities, were recovered from all levels excavated. These reached a depth of 35 cm. Historic glass also was recovered from a depth of 35 cm.

Test Units B, C, and D

The profiles revealed by these three units were all similar in texture, though colors varied somewhat. The surface layer, extending to depths of between 20 and 30 cm, consisted of very dark gray to dark grayish brown (10YR3/1 to 10YR4/2, dry) fine sandy loam to clay loam. The second layer, extending to depths of between 40 and 70 cm, consisted of dark gray to yellowish brown (10YR4/1 to 10YR5/4, dry), sandier loam with pea gravel and brown chert cobbles, up to 15 cm in diameter. The third layer, extending to depths of over 100 cm, consisted of a brown to yellowish brown (10YR5/3 to 10YR5/6, dry), coarse sand with pea gravel. Prehistoric artifacts were recovered from the two upper strata, with the greatest quantities being recovered from a depth of between 15 and 25 cm below the surface in all three units. Artifacts in lower levels appear to have been migrating downwards, rather than originating from distinct lower cultural horizons. Artifacts were noticeably less frequent in Test Unit D, and the soil colors were somewhat lighter than those of Test Units B and C. The lighter color of deposits in Test Unit D is probably closer to the natural color of the soil, which was identified by the Soil Conservation Service as Straber gravelly loamy fine sand.

Test Unit E

The surface layer consisted of approximately 30 cm of dark grayish brown to brown (10YR4/2 to 10YR4/3, dry) sandy loam to clay loam. The second layer, extending to a depth of about 80 cm, consisted of dark yellowish brown to yellowish brown (10YR4/4 to 10YR5/4, dry), sandier loam. A circular patch of light gray sand in the second layer was interpreted as either an animal burrow or a decayed tree root hole. The third layer consisted of a 3-cm-thick layer of almost white caliche-looking material. The fourth layer, which extended to a depth of over 110 cm, consisted of yellowish brown (10YR5/4 to 10YR5/6, dry), coarse sand with pea gravel. This last level corresponds to the third layer in Test Units B, C, and D. Only two prehistoric artifacts were recovered from this unit, both from the first layer.

Test Unit F

The surface layer, which extended to a depth of about 40 cm, consisted of dark grayish brown (10YR4/2, dry), sandy loam, becoming clayier with depth. The second layer, which extended to a depth of over 60 cm, consisted of brown (7.5YR4/4, dry), clay with a few small pebbles. A number of historic artifacts were recovered from the surface layer, mainly from the upper 15 cm. No prehistoric artifacts were recovered from this unit.

Test Unit G

The surface layer, which extended to a depth of about 25 cm, consisted of dark grayish brown to grayish brown (10YR4/2 to 10YR5/2, dry) clay loam. The second layer, which extended to a depth of about 50 cm, consisted of brown to strong brown (7.5YR5/4 to 7.5YR5/6, dry) clay. The third layer, about 10 cm

thick, consisted of brown (7.5YR5/4) clay with small, white caliche particles. The fourth layer, barely reached, consisted of almost white caliche. No cultural materials were recovered from this unit.

Features

No cultural features were observed during the excavation of the Test Units, nor were any observed in the cleaned floors or walls of the units.

ARTIFACT DESCRIPTIONS

Artifacts recovered from the site are summarized in Table 2-2, and described below.

Prehistoric

Bifaces

Three thick bifaces or biface fragments were recovered from the site. They are probably uncompleted artifacts that were discarded during manufacture, at the blank or roughout stage, shortly after removal of virtually all of the cortex material. All of the flake scars are relatively large. One artifact (Figure 2-3:a) is a medial fragment. Material is a dark grayish brown chert, with spherical inclusions about 2-4 mm in diameter. Dimensions are: length, 4.2 cm; width, 4.4 cm; thickness, 2.2 cm. The second artifact (Figure 2-3:b) is made of a light gray and dark grayish brown banded chert. Dimensions are: length, 7.4 cm; width, 5.6 cm; thickness, 2.6 cm. The final artifact (Figure 2-3:c) has a cross section suggesting that the artifact was intended to be a Guadalupe gouge. Material is light gray, grainy chert. Dimensions are: length, 13.5 cm; width, 7.5 cm; thickness, 3.7 cm. None of the bifaces can be assigned to a specific temporal period or cultural affiliation.

Flakes

Ninety-one flakes were recovered from the site, 2 possibly utilized, 6 primary flakes, 45 with some cortex, and 38 without any cortex. All included evidence of a striking platform and/or bulb of percussion. One of the possibly utilized flakes (Figure 2-4:a) retains cortex over much of one face, and exhibits minor flaking along one slightly convex edge. The other possibly utilized flake (Figure 2-4:b) also retains cortex over much of one face, and exhibits minor flake scars along one short concave edge section. The remaining flakes all appear to be debitage produced during the reduction of cobble cores. None of the flakes are temporally or culturally diagnostic. All appear to be from locally obtained cherts.

Chips

Thirty-five chips were recovered from the site, 1 with cortex and 34 without. The chips represent distal fragments of flakes, or shatter resulting as a byproduct of flaking. None of the chips include evidence of a striking platform or bulb of percussion. All appear to be of locally obtained cherts. None is temporally or culturally diagnostic.

Table 2-2
Site 41FY170, Artifact Summary

	Test Unit							TOTAL
	A	B	C	D	E	F	G	
<u>Prehistoric</u>								
<u>Chert, chipped</u>								
Biface, thick	-	-	3	-	-	-	-	3
Flakes, utilized	-	1	1	-	-	-	-	2
Flakes, primary	-	1	1	4	-	-	-	6
Flakes, with cortex	6	5	33	1	-	-	-	45
Flakes, without cortex	-	9	29	-	-	-	-	38
Chips, with cortex	-	1	-	-	-	-	-	1
Chips, without cortex	1	8	23	-	2	-	-	34
Chunks	-	-	2	-	-	-	-	2
Cores	-	-	5	-	-	-	-	5
Cobbles, shaped	-	1	4	-	-	-	-	5
Cobbles, tested	-	1	1	-	-	-	-	2
Cobbles, split	1	-	3	-	-	-	-	4
Shatter, thermal	13	54	161	10	-	-	-	238
<u>Quartzite</u>								
Shatter, thermal	-	1	3	-	-	-	-	4
<u>Historic</u>								
<u>Ceramics</u>								
Semi-porcelain	-	-	-	-	-	1	-	1
Whiteware	-	-	-	-	-	2	-	2
Yellowware	-	-	-	-	-	1	-	1
<u>Glass</u>								
aqua, blue	1	-	-	-	-	-	-	1
brown/amber	-	-	-	-	-	2	-	2
clear	-	-	-	-	-	3	-	3
green	-	-	-	-	-	1	-	1
<u>Iron</u>								
nail, cut	-	-	-	-	-	1	-	1
sheet metal	-	-	-	-	-	1	-	1
<u>Paint</u>								
yellow	-	-	-	-	-	1	-	1
<u>Sandstone</u>								
burned	-	-	-	-	-	6	-	6
<u>Miscellaneous</u>								
<u>Snails</u>								
<u>Mesodon thyroidus</u>	-	3	-	-	-	-	-	3
unidentified fragments	-	2	-	-	-	-	-	2

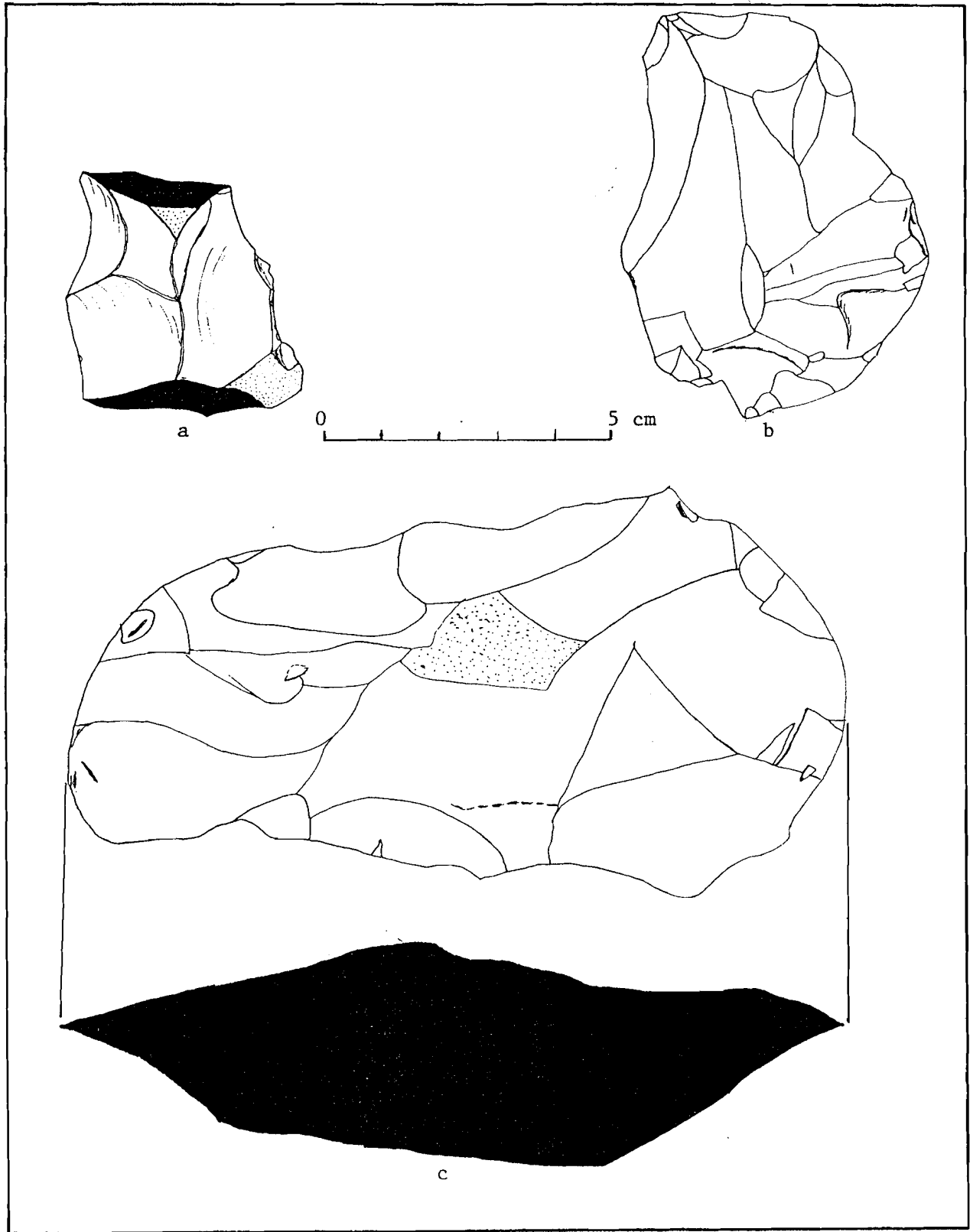


Figure 2-3. Site 41FY170, artifacts, thick bifaces.

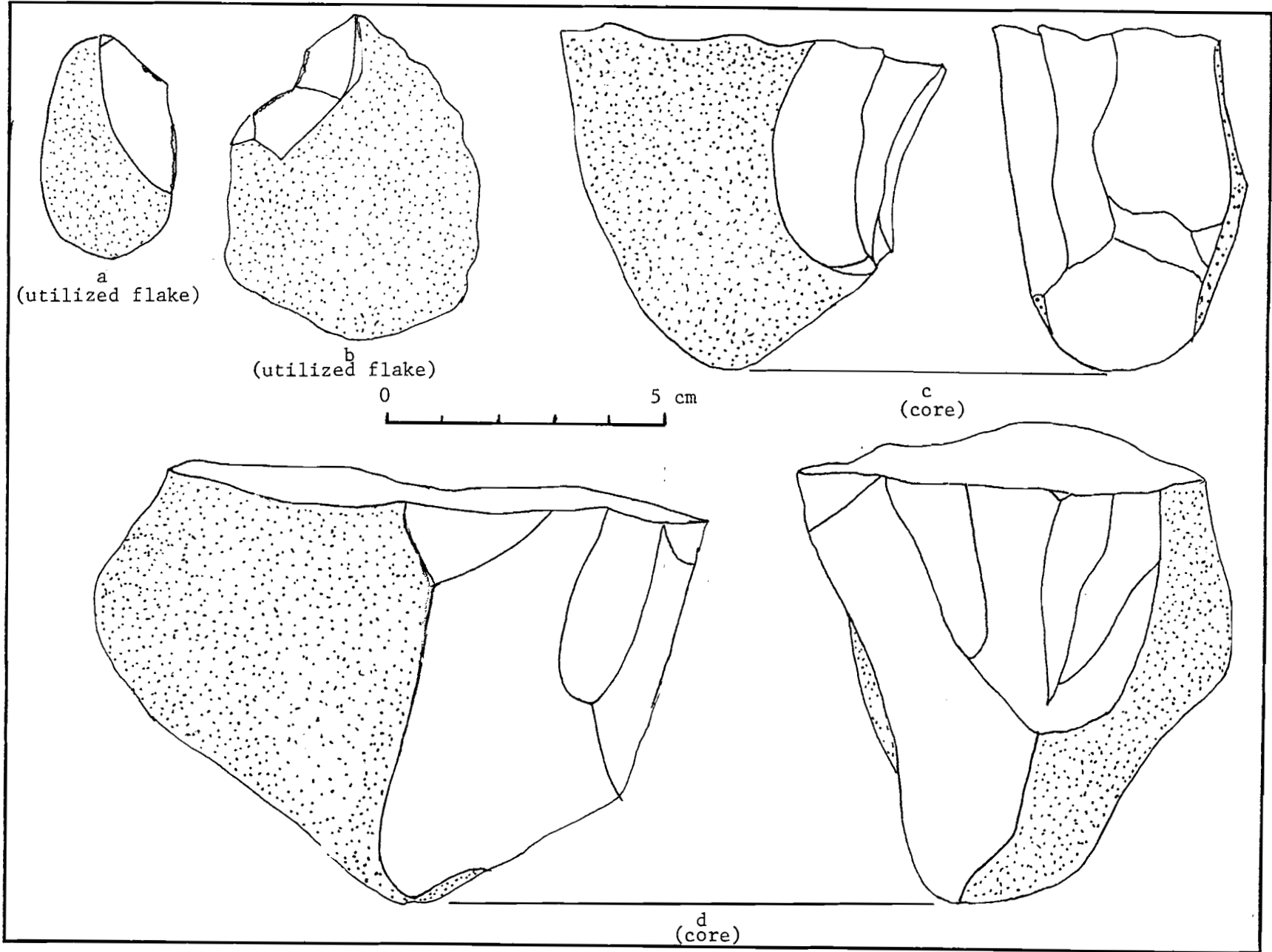


Figure 2-4. Site 41FY170, artifacts, utilized flakes and cores.

Chunks

Two angular, blocky fragments of chert were identified only as chunks. Neither is temporally nor culturally diagnostic.

Cores

Five chert cobble fragments were identified as cores or core fragments. These artifacts (Figure 2-4:c,d) consisted of cobbles which were split to produce a platform, from which subsequent flakes were struck around the periphery of the cobble. The function of these cores appears to have been as a source for flakes, though the limited number of flake removal scars suggests that the cores were abandoned as unsuitable. None of the cores or core fragments are either temporally or culturally diagnostic. All appear to be of locally obtained cherts. The material and overall dimensions of each core are listed in Table 2-3.

Table 2-3
Site 41FY170, Cores, Material, and Dimensions

Unit- Level	Material	Dimensions (cm)		
		L	W	T
C-2	light gray chert with quartzite inclusions	5.6 x	6.3 x	6.1
C-2	banded, light and dark gray chert	5.1 x	6.1 x	2.5
C-3	very dark grayish brown, with white inclusions	5.8 x	7.0 x	5.6
C-3	grayish brown and pink chert, with inclusions	5.2 x	5.1 x	1.8
C-5	brown and gray chert, with small inclusions	6.9 x	10.6 x	7.1

Cobbles, Shaped and Tested

Seven chert cobbles with varying numbers of flake removal scars were identified as early discards along a testing/manufacture sequence in which cobbles were gradually reduced to form a finished artifact. All retain cortex over at least 50% of the surface. Two tested cobbles each had up to five flakes removed, usually from one end, and usually in a bifacial fashion. Five shaped cobbles each had more than five flakes removed, again usually from one end and in a bifacial manner. All of the cobbles appear to be from locally occurring gravels. None are temporally or culturally diagnostic. Materials and dimensions are summarized in Table 2-4.

Cobbles, Split

Four large chert fragments could only be classified as split cobble fragments. They are neither temporally nor culturally diagnostic.

Thermal Shatter

Two hundred thirty-eight fragments of thermally broken/shattered chert and four thermally broken fragments of quartzite were recovered from the site and assigned to the prehistoric era because of their association with other prehistoric materials. None are temporally or culturally diagnostic.

Table 2-4
Site 41FY170, Cobbles, Shaped and Tested; Material and Dimensions

Unit-Level Material		Dimensions (cm)		
		L	W	T
		<u>Tested Cobbles</u>		
B-1	grayish brown chert	7.9 x 5.1 x 3.5		
C-3	light grayish brown and gray chert	6.4 x 6.0 x 3.9		
		<u>Shaped Cobbles</u>		
B-2	very dark grayish brown chert	5.4 x 5.6 x 2.2		
C-2	very pale brown chert	6.9 x 8.0 x 3.4		
C-3	grayish brown chert with small white inclusions	11.0 x 7.1 x 7.5		
C-3	mottled light gray and white chert	10.3 x 8.3 x 5.1		
C-3	light gray chert	8.3 x 6.5 x 4.5		

Historic

Ceramics

Four historic ceramic sherds were recovered, one semi-porcelain sherd, two whiteware sherds, and one yellowware sherd.

The semi-porcelain sherd is an undecorated edge fragment, apparently from a vertical-walled mug, jug, or other similar vessel, with an outside mouth diameter of approximately 9 cm. The fragment does not include any maker's mark. The sherd cannot be discretely dated; however, semi-porcelain probably dates post-1850 (Godden 1974:249).

One of the whiteware fragments is from a plate, saucer, or shallow dish. It includes a small fragment of a foot-ring, calculated to have been about 5.5 cm in diameter. There are no other decorative features or maker's marks present. The other whiteware sherd is a smaller fragment that exhibits curvature in two planes, suggesting that it was from a cup. There are no decorative features or maker's marks present. Whiteware came into production in the 1820s (Price 1979:11) and continues to be produced today. For north central Texas, Moir (1988:257) suggests a date range of 1840 to 1910 for whitewares with a pale blue tinge to the glaze, and a range of 1890 to the present for whitewares with no evidence of blue in the glaze. The two sherds from this site do not have any evidence of blue in the glaze, and are believed to post-date 1890.

The yellowware sherd appears to be from a bowl, and includes vestiges of an apparent foot-ring. The fragment is too small to calculate any diameters. Exterior decoration includes fragments of horizontal, brown-and-white bands. Yellowware was introduced in the late 1820s, reached a production peak in the 1860s and 1870s, and was still in production in the 1930s. However, the apparent foot-ring would indicate a date of post-1860 (Leibowitz 1985:9,10).

Glass

Seven glass fragments were recovered from the Test Units, 1 aqua blue, 2 brown or amber, 3 clear, and 1 green.

The aqua blue, or unbleached, glass fragment was initially identified as a base fragment from a large bottle or jug. However, closer inspection revealed vestiges of two side walls meeting at an angle of about 75°. The original shape of the vessel could not be ascertained. The fragment does not include any diagnostic manufacturing features.

The two brown, or amber sherds, are from a panel bottle with chamfered ends. Neither sherd exhibits any embossed lettering or any mold marks. Both fragments are heavily patinated. They may be from a bitters or patent medicine bottle, which were common between 1862 and 1906 (Klamkin 1971:103)

The three clear glass fragments are all small and apparently from bottles. None include any maker's marks or diagnostic manufacturing features. They are somewhat patinated, but do not show evidence of discoloration. The fact that the glass has been apparently decolorized indicates a manufacture date of post-1880, when manganese was popularly introduced as a decolorizing agent (Munsey 1970:55). However, manganese glass generally turns purple with time, indicating that these sherds were probably decolorized later than about 1916, when other decolorizing agents were used.

The green glass sherd is from a bottle. It does not include any maker's marks or diagnostic manufacturing features. The sherd is heavily patinated with a silvery white patina, indicating that the bottle was used for champagne (John W. Clark, personal communication).

Iron

The iron cut nail has a stamped head and a length of 2 inches. Such nails were commonly used for light framing, clapboarding, bevel siding, and wood grounds. The type postdates 1830 (Walker 1971:73, 74).

The iron sheet metal has a thickness of 0.5 mm. It does not include any diagnostic features.

Paint

The yellow paint is not diagnostic, but probably originated from a can of paint that was allowed to dry out.

Sandstone

The burned sandstone fragments are not temporally diagnostic, and were only categorized as historic because of their association with other historic artifacts.

Miscellaneous

The shells of Mesodon thyroideus (snail) and unidentified shell fragments are naturally occurring.

ARTIFACT DISTRIBUTION

The list of artifacts (Table 2-2) summarizes artifact counts from each Test Unit. With the exception of two flakes from Test Unit E, which could have originated from fill imported for the driveway, all of the prehistoric artifacts were confined to Test Units A through D. These units were on, or adjacent to, the ridge where dark soil was exposed on the surface of ant nests, between survey stations 23+75 and 26+50. The greatest concentration of prehistoric artifacts came from Test Unit C, on the highest part of the ridge within the right-of-way. Historic artifacts were recovered primarily from Test Unit F, with one glass sherd recovered from Test Unit A.

Within Test Unit A, prehistoric artifacts were recovered from all three levels excavated (Table 2-5). However, a large historic glass sherd was also recovered from the base of Level 3. Thus, it is likely that the prehistoric artifacts are not in situ.

In Test Unit B, prehistoric artifacts were most concentrated in Level 2 (Table 2-6), with artifact counts gradually decreasing through successive levels until sterile deposits were reached in Level 6. Artifacts in the lower levels have probably been percolating downward through natural processes such as tree root growth and animal/insect burrowings.

In Test Unit C, prehistoric artifacts were most concentrated in Levels 2 and 3 (Table 2-7), with respectable artifact counts also recovered from Levels 4 and 5. This unit, on the high part of the ridge, has probably suffered less from erosion than other units, and Levels 2 through 5 probably represent the true extent of the original prehistoric occupation zone/disturbance zone.

Only a few prehistoric artifacts were recovered from Test Unit D, with the greatest concentration coming from Level 2 (Table 2-8).

Artifacts from Test Unit E, which was placed just west of the driveway to the historic structure, may well have originated from fill imported for the driveway. One chip was recovered from Level 1, and the other chip, from Level 3 (Table 2-9), may have been taken down through the soil by natural processes.

Only historic artifacts were recovered from Test Unit F (Table 2-10). The majority were recovered from the first level. The two brown glass fragments, one from Level 1 and the other from Level 2, both appear to be from the same bottle, indicating that there was a single historic stratum.

No artifacts were recovered from Test Unit G.

Table 2-5
Site 41FY170, Artifacts, Test Unit A

	Level		
	1	2	3
<u>Prehistoric</u>			
<u>Chert, chipped</u>			
Flakes, with cortex	-	4	2
Chips, without cortex	-	-	1
Cobbles, split	-	-	1
Shatter, thermal	3	5	5
<u>Historic</u>			
<u>Glass</u>			
Aqua, blue, bottle base	-	-	1

Table 2-6
Site 41FY170, Artifacts, Test Unit B

	Level							
	1	2	3	4	5	6	7	8
<u>Prehistoric</u>								
<u>Chert, chipped</u>								
Flakes, utilized	-	1	-	-	-	-	-	-
Flakes, primary	-	-	1	-	-	-	-	-
Flakes, with cortex	2	3	-	-	-	-	-	-
Flakes, without cortex	-	7	2	-	-	-	-	-
Chips, with cortex	-	-	1	-	-	-	-	-
Chips, without cortex	-	5	-	1	2	-	-	-
Cobble, shaped	-	1	-	-	-	-	-	-
Cobbles, tested	1	-	-	-	-	-	-	-
Shatter, thermal	10	34	6	2	2	-	-	-
<u>Quartzite</u>								
Shatter, thermal	-	1	-	-	-	-	-	-
<u>Miscellaneous</u>								
<u>Snails</u>								
<u>Mesodon thyroidus</u>	3	-	-	-	-	-	-	-
unidentified fragments	2	-	-	-	-	-	-	-

Table 2-7
Site 41FY170, Artifacts, Test Unit C

	Level								
	1	2	3	4	5	6	7	8	9
<u>Prehistoric</u>									
<u>Chert, chipped</u>									
Biface, thick	-	1	1	-	1	-	-	-	-
Flakes, utilized	-	-	-	-	1	-	-	-	-
Flakes, primary	-	-	-	-	-	1	-	-	-
Flakes, with cortex	1	7	11	8	4	2	-	-	-
Flakes, without cortex	-	8	3	9	8	1	-	-	-
Chips, without cortex	-	10	2	3	7	-	1	-	-
Chunks	-	-	-	1	1	-	-	-	-
Cores	-	2	2	-	1	-	-	-	-
Cobbles, shaped	-	1	3	-	-	-	-	-	-
Cobbles, split	1	-	2	-	-	-	-	-	-
Cobbles, tested	-	-	1	-	-	-	-	-	-
Shatter, thermal	7	55	32	31	22	13	1	-	-
<u>Quartzite</u>									
Shatter, thermal	-	-	-	3	-	-	-	-	-

Table 2-8
Site 41FY170, Artifacts, Test Unit D

	Level				
	1	2	3	4	5
<u>Prehistoric</u>					
<u>Chert, chipped</u>					
Flakes, primary	-	3	1	-	-
Flakes, with cortex	-	1	-	-	-
Shatter, thermal	4	4	2	-	-

Table 2-9
Site 41FY170, Artifacts, Test Unit E

	Level						
	1	2	3	4	5	6	7
<u>Prehistoric</u>							
<u>Chert, chipped</u>							
Chips, without cortex	1	-	1	-	-	-	-

Table 2-10
Site 41FY170, Artifacts, Test Unit F

	Level			
	1	2	3	4
<u>Historic</u>				
<u>Ceramics</u>				
Semi-porcelain	1	-	-	-
Whiteware	2	-	-	-
Yellowware	1	-	-	-
<u>Glass</u>				
brown	1	1	-	-
clear	2	1	-	-
green	-	1	-	-
<u>Iron</u>				
nail, cut	1	-	-	-
sheet metal	1	-	-	-
<u>Paint</u>				
yellow	1	-	-	-
<u>Sandstone</u>				
burned fragments	6			

SUMMARY AND DISCUSSION

Testing at Site 41FY170 revealed both prehistoric and historic artifacts. The prehistoric component appeared to be confined to the ridge between survey stations 23+75 and 26+50. The artifacts, none of which are temporally or culturally diagnostic, indicate that the area was utilized for the selection and preliminary reduction of chert gravels which occur naturally on the ridge. No stratification within the cultural zone was observed, nor were any cultural features observed.

The historic artifacts were largely confined to one Test Unit, at approximate survey station 29+00. The artifacts appear to represent a thin sheet midden of domestic remains, probably dating to the late 1800s and associated with the historic structure on the property.

It is believed that prehistoric artifacts observed and recovered from the driveway to the historic structure by previous surveyors were imported to the area with gravels used for surfacing the driveway.

SECTION 3 - INVESTIGATIONS AT SITE 41FY509

PREVIOUS INVESTIGATIONS

Site 41FY509 was recorded in 1989 as a result of a cultural resources survey of the Plum Bypass carried out by the State Department of Highways and Public transportation. The site was reported to consist of a surface scatter of cultural materials extending for a distance of at least a quarter of a mile along the right-of-way. Trenches cut by the landowner revealed cultural materials extending to depths of 40 to 50 cm below the surface. Materials observed or recovered from the site include a lanceolate dart point that was thought to be Early Archaic in age, burned rock, chert flakes, cores, bifaces and tested cobbles.

SITE SETTING

Site 41FY509 is located on a broad, mesa-like ridge which forms a part of the southern wall of the Colorado River alluvial valley (Figure 1-1). The present Colorado River meanders in a channel which trends to the southeast some 2 miles northeast of the ridge. Elevation of the ridge surface is above 360 feet NGVD (USGS 1958 La Grange West 7.5' topographic quadrangle), some 60 feet above the general level of the alluvial valley floor. Thus the ridge gives a good view over the valley floor.

Geologic deposits on the ridge surface have been mapped as belonging to the Eocene Manning Formation (Bureau of Economic Geology 1974). These are described as consisting of clay, sandstone, and bentonite. However, observed surface deposits consist of gravels, probably of the Willis Formation. The Willis Formation includes gravel, sand, silt, and clay. Gravels are mostly siliceous, with some petrified wood. The sand is poorly sorted, fine to very coarse. The clay is silty and light yellowish gray in color.

Soils of Fayette County have been mapped recently by the Soil Conservation Service, but the data has not been published. Field maps checked at the Soil Conservation Service office in La Grange depict Straber gravelly loamy fine sand, 1-5 percent slopes on the eastern portion of the site (roughly east of project survey station 397+50) and Carmine extremely gravelly loamy fine sand, 1-5 percent slopes on the western portion of the site. The Straber series consists of somewhat poorly drained, very permeable soils on uplands. They have pale brown and very pale brown loamy fine sandy surface layers about 14 inches thick, light yellowish brown and light gray clayey subsoils that are mottled with light gray and red, and very pale brown to yellow limy substrata. The Carmine series consists of deep, somewhat poorly drained, very slowly permeable soils on uplands. They have pale brown to very pale brown sandy surface layers 20-40 inches thick. The subsoil is gray to light gray sandy clay that grades to white sandy clay loam.

At the time of the investigations, vegetation within the right-of-way consisted predominantly of pasture grasses. Numerous oak tree stumps were present along the eastern portion of the site, and some had clearly been burned out. Examination of a 1949 aerial photograph in the La Grange Soil Conservation Service office revealed that trees (apparently oaks) had also been present on the western portion of the site. The spacing of the trees appeared to conform more to an open woodland setting than a parkland setting.

PROPOSED RIGHT-OF-WAY AND ANTICIPATED IMPACTS

The proposed right-of-way across the site, with a width of between 260 and 320 feet, will be completely new. Two eastbound lanes and two westbound lanes will be constructed. The surface of the roadways will be from 5-30 feet below the existing ground surface. Thus, impacts to the site are anticipated to be extensive.

METHODOLOGY

Field Investigations

All field investigations with the exception of one Test Unit were confined to the proposed right-of-way. The area was walked over and cut banks of existing trenches and the gravel pit were examined for evidence of buried cultural deposits. Bare soil patches, backdirt from ant nests and other disturbances were also inspected for evidence of cultural remains in an attempt to identify the most promising areas for testing.

Testing consisted of a series of sixteen 1 meter x 1 meter test units (Test Units A-P). Locations of these units are depicted in Figure 3-1. They were located to test not only the most likely area of prehistoric occupation (the western portion of the site as recorded, between project survey stations 405+00 and 409+00 approximately), but also, in general, the entire right-of-way in the reported site vicinity.

Each of the Test Units was excavated in arbitrary levels. These were generally 10 cm in thickness, but some of the later levels were dug in 15-cm increments. Table 3-1 summarizes the levels excavated in each unit.

Fill from the levels was screened through 1/4-inch hardware cloth. Large quantities of thermal shatter and natural gravels were present, and because of the generally wet nature of the fill, it was difficult to identify artifacts in the field. Thus, all materials that did not pass through the screen, with the exception of obviously natural gravels, were bagged by individual level and returned to the laboratory for further processing.

The floors of individual levels and walls of each unit were checked for evidence of cultural features. At least one wall of each unit was then photographed and drawn. Finally, all units were backfilled.

A Gradall was used to excavate an area where the landowner, Mr. Schweinle, mentioned that a hole had appeared and which he thought might have been the location of a historic well.

Profiles were drawn of sections of existing trenches, dug by the landowner within the right-of-way. Walls of an operational gravel pit, also within the right-of-way, were frequently examined for evidence of cultural features and for diagnostic artifacts.

After completion of the Test Units, they were mapped relative to the datum line established for the highway project, and surface elevations of the southwest corner of each unit were also established. Locations of the gravel pit edge and other trenches were also plotted. A contour map of the site (Figure

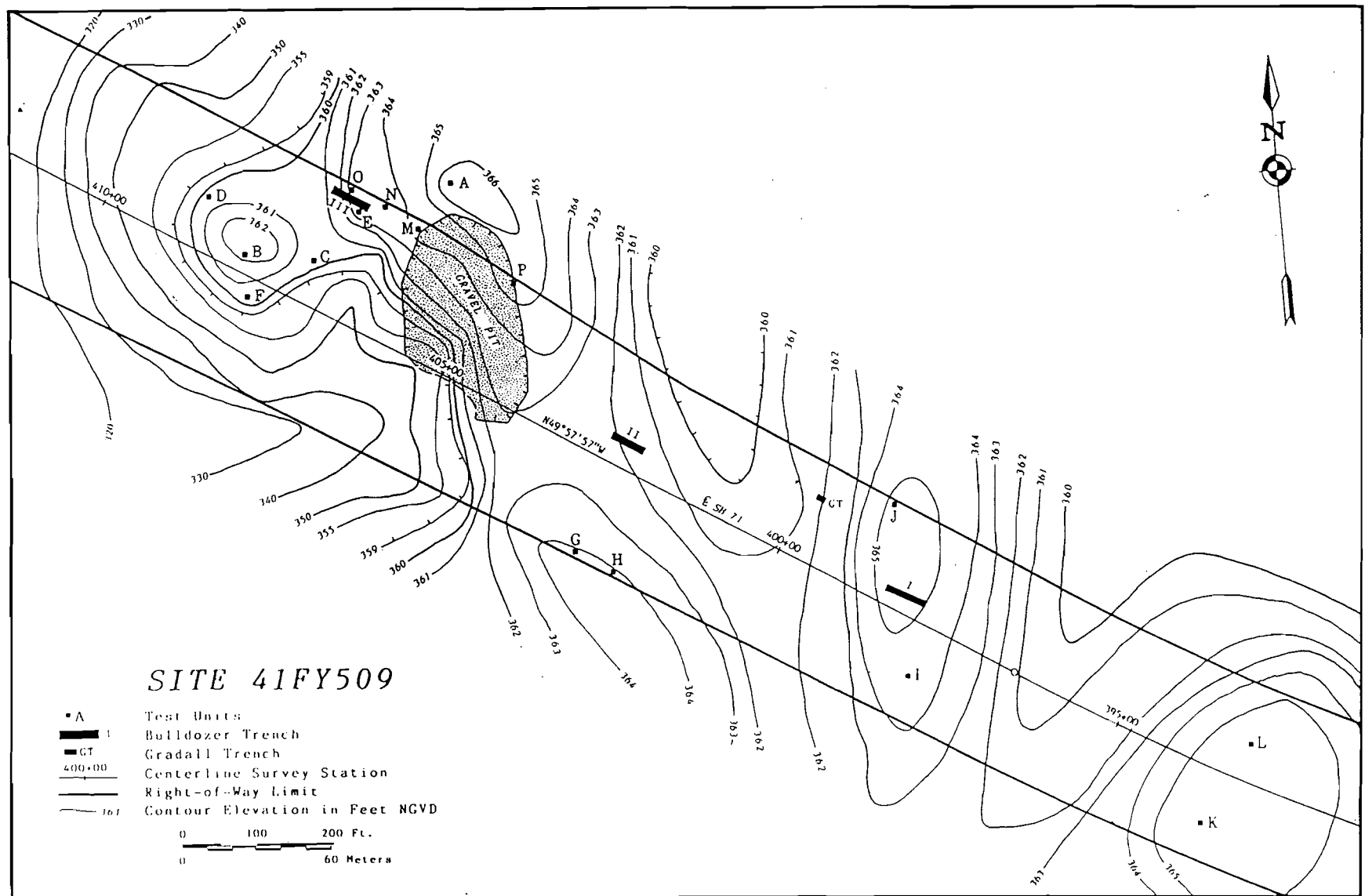


Figure 3-1. Site 41FY509, contour map showing locations of test units.

Table 3-1
Test Units and Depths of Levels Excavated

Test Unit	Depths (in cm)							
	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
A	0-10	10-20	20-30	30-40	40-50	50-60	////////	////////
B	0-10	10-20	20-30	30-40	40-50	50-60	60-70	////////
C	0-10	10-20	20-30	30-40	40-50	50-60	////////	////////
D	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
E	0-10	10-20	20-30	30-40	40-50	50-60	////////	////////
F	0-10	10-20	20-30	30-40	////////	////////	////////	////////
G	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
H	0-10	10-20	20-30	30-40	40-50	50-60	////////	////////
I	0-10	10-20	20-30	30-40	40-50	////////	////////	////////
J	0-10	10-20	20-30	30-40	40-50	50-60	////////	////////
K	0-10	10-20	20-30	30-40	40-50	////////	////////	////////
L	0-10	10-20	////////	////////	////////	////////	////////	////////
M	0-10	10-20	20-30	30-40	40-50	////////	////////	////////
N	0-15	15-30	30-40	////////	////////	////////	////////	////////
O	0-10	10-20	20-30	30-45	////////	////////	////////	////////
P	0-10	10-20	20-30	30-45	////////	////////	////////	////////

3-1) was prepared using elevations obtained from the project right-of-way mapping.

During the significance testing, it became apparent that during the evenings people were searching for artifacts in the cut banks of the operational gravel pit. The collection of Michael Quackenbusch, who was authorized by the landowner to collect from the site, was viewed and photographed.

Laboratory Analysis

Laboratory analysis followed standard procedures. Each level of each Test Unit was assigned an individual lot number and materials were washed. Natural

gravels were discarded. Thermally fractured chert fragments were sorted by size, weighed, and then discarded. The remaining artifacts were labelled with the appropriate lot number, sorted, and catalogued. Artifacts were sorted first by material, and then they were subdivided according to functional or morphological characteristics. These subgroups were then compared with previously defined artifact types in order to try to establish temporal and cultural affiliations, and the kinds of activities that were undertaken at the site.

Following individual artifact analysis, the data were synthesized with field observations concerning stratigraphy and features, and compared with our present knowledge of the cultural sequence of the area to determine whether additional research would be likely to yield significant new information to further our understanding of that cultural sequence.

TESTING RESULTS

Surface Observations

Surface observations concerning the site are described commencing at the eastern end of the site and working west. As noted above, vegetation within the right-of-way consisted predominantly of pasture grasses. East of approximate highway survey station 404+00, the landowner had removed the 5-10 cm of topsoil with its Coastal Bermuda grass. Within this area, grasses were relatively sparse, affording good surface visibility. Fractured cherts were observed on the surface, increasing in frequency from east to west, and more concentrated on the higher portions of the right-of-way (in the vicinity of survey stations 393+00, 398+00, and 402+00). Bulldozer trenches had been excavated to depths of over 1 meter at survey stations 398+25 (Trench I) and 402+50 (Trench II). These revealed apparently natural stratigraphy consisting of brown sandy loam overlying coarse sandy gravel, which in turn overlay red clays.

Gravel was being actively excavated from the right-of-way between survey stations 404+00 and 406+00. The depth of the pit increased from less than 4 feet in depth along its southeast corner to over 10 feet in depth at the northwestern corner. The cut walls revealed a 40-50-cm-thick layer of dark brown, almost black, fine sandy loam with large amounts of thermally fractured cherts and less frequent artifacts overlying a strong brown to red coarse sandy gravel, which in turn overlay a yellowish red to red clay. A natural layer of large gravels (about 10 cm in diameter) was observed just below the dark surface layer.

West of the gravel pit and along the northern half of the right-of-way the land rose, with a slight but prominent knoll just beyond the northern limit of the right-of-way at survey station 406+00, and another slightly lower knoll within the right-of-way at station 408+00. This area was fairly densely vegetated with pasture grasses, wildflowers, occasional opuntia cactus, and other thorny bushes. Occasional oak tree limbs were also present. A bulldozer trench (Trench III) was present just west of the gravel pit, revealing a profile similar to that observed in the gravel pit walls. Beyond survey station 409+00, and from the approximate centerline of the right-of-way, the land sloped down steeply, and was vegetated with mixed oaks and other hardwoods.

Bulldozer Trench I

The profile of Bulldozer Trench I (Figure 3-2) revealed an approximately 30-cm-thick surface layer, Stratum 1, of brown (10YR5/3, dry), sandy loam. The second layer, Stratum 2, about 18 cm in thickness, consisted of pale brown (10YR6/3, dry), coarse sand. The third layer, Stratum 3, about 20 cm in thickness, consisted of red (2.5YR4/6, dry) clay, with coarse sand and gravels up to 2 cm in diameter. The fourth layer, Stratum 4, about 25 cm in thickness, consisted of mottled, red (2.5YR4/6, dry) clay and white caliche, with gravels up to 8 cm in diameter. The fifth layer, Stratum 5, at least 30 cm in thickness, consisted of red (2.5YR5/6, dry) clay, with coarse sand and gravels up to 2 cm in diameter. An apparent krotovina (tree root hole or animal burrow) was present in the surface layer. The profile appeared to be natural, with no obvious evidence of cultural strata.

Bulldozer Trench II

The profile of Bulldozer Trench II (Figure 3-2) revealed an approximately 15-cm-thick surface layer, Stratum 1, of brown (10YR5/3, dry), sandy loam. The second layer, Stratum 2, about 45 cm in thickness, consisted of light yellowish brown (10YR6/4, dry), coarse sand with gravels, generally less than 5 cm in diameter. The third layer, Stratum 3, about 50 cm in thickness, consisted of strong brown (7.5YR5/6, dry), coarse sand with gravels up to 8 cm in diameter. Traces of tree roots were observed descending into the third layer from the second layer. The profile appeared to be natural, with no obvious evidence of cultural strata.

Bulldozer Trench III

The profile of Bulldozer Trench III (Figure 3-2) revealed an approximately 50-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), fine sandy loam with numerous thermally fractured chert fragments. A Bulverde-like dart point was recovered from this layer during cleaning of the profile. The second layer, Stratum 2, about 20 cm in thickness, consisted of mixed lenses of dark grayish brown (10YR4/2, dry), fine sandy loam and strong brown (7.5YR5/6, dry), sandy gravel. The upper part of the layer was marked by chert gravels 7-8 cm in diameter, while underlying gravels were generally less than 5 cm in diameter. The final layer, Stratum 3, of which about 20 cm was exposed, consisted of strong brown (7.5YR5/6) sandy gravel, with pea-sized gravels. The surface layer clearly contained cultural materials, but no stratification was observed within the layer. The large chert gravels at the surface of the second layer appeared to be natural, correlating with similar gravels observed at that level in the walls of the gravel pit. The remainder of the second layer appeared to be of mixed materials from the overlying and underlying layers, with the mixing apparently having been caused by animals or tree roots.

Test Unit A

The profiles of Test Unit A (Figure 3-3), revealed an approximately 50-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), gravelly loamy fine sand, with numerous fragments of thermally fractured chert. The underlying layer, Stratum 2, of which about 20 cm was exposed, consisted of

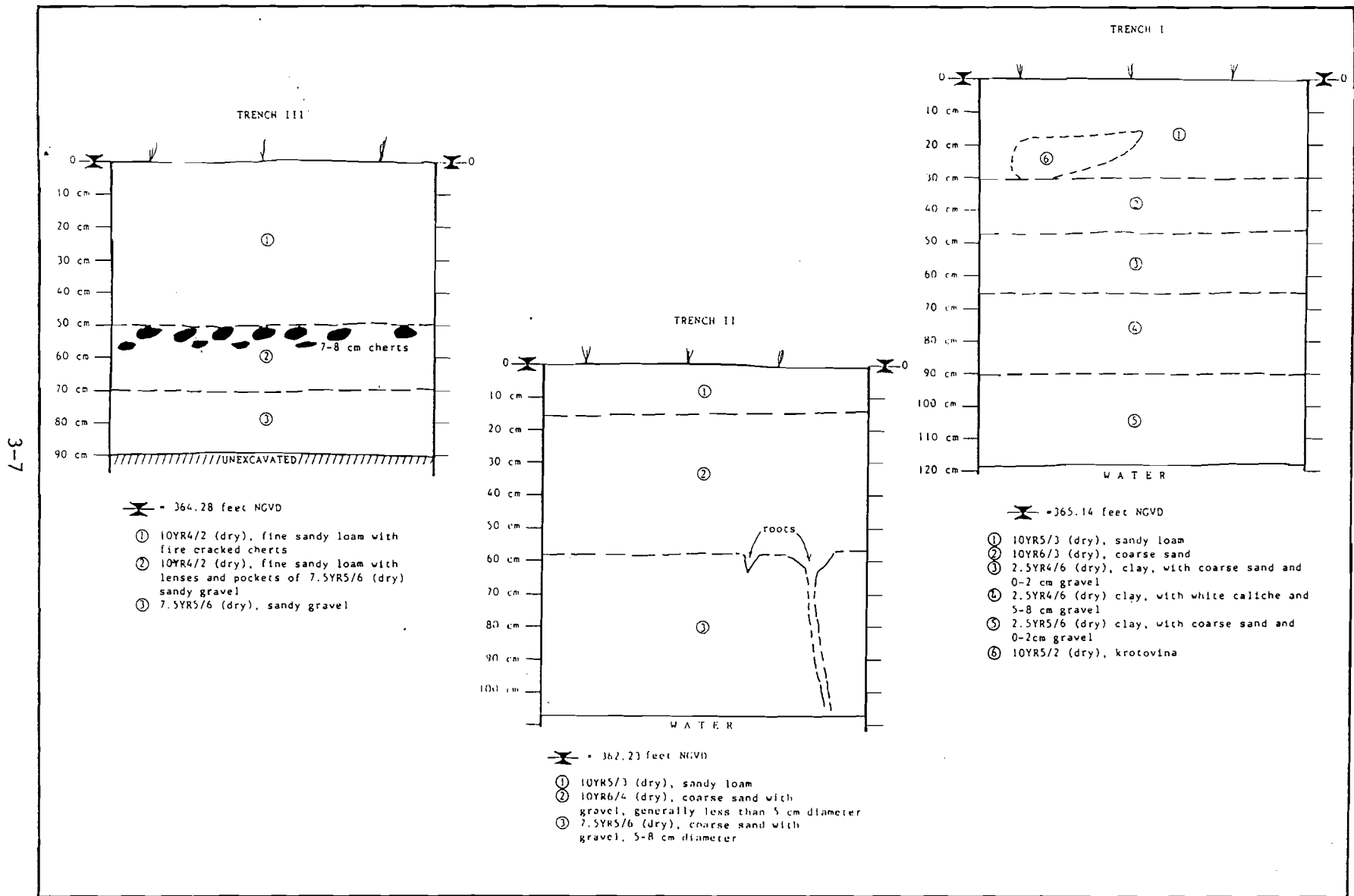


Figure 3-2. Site 41FY509, profiles of bulldozer trenches.

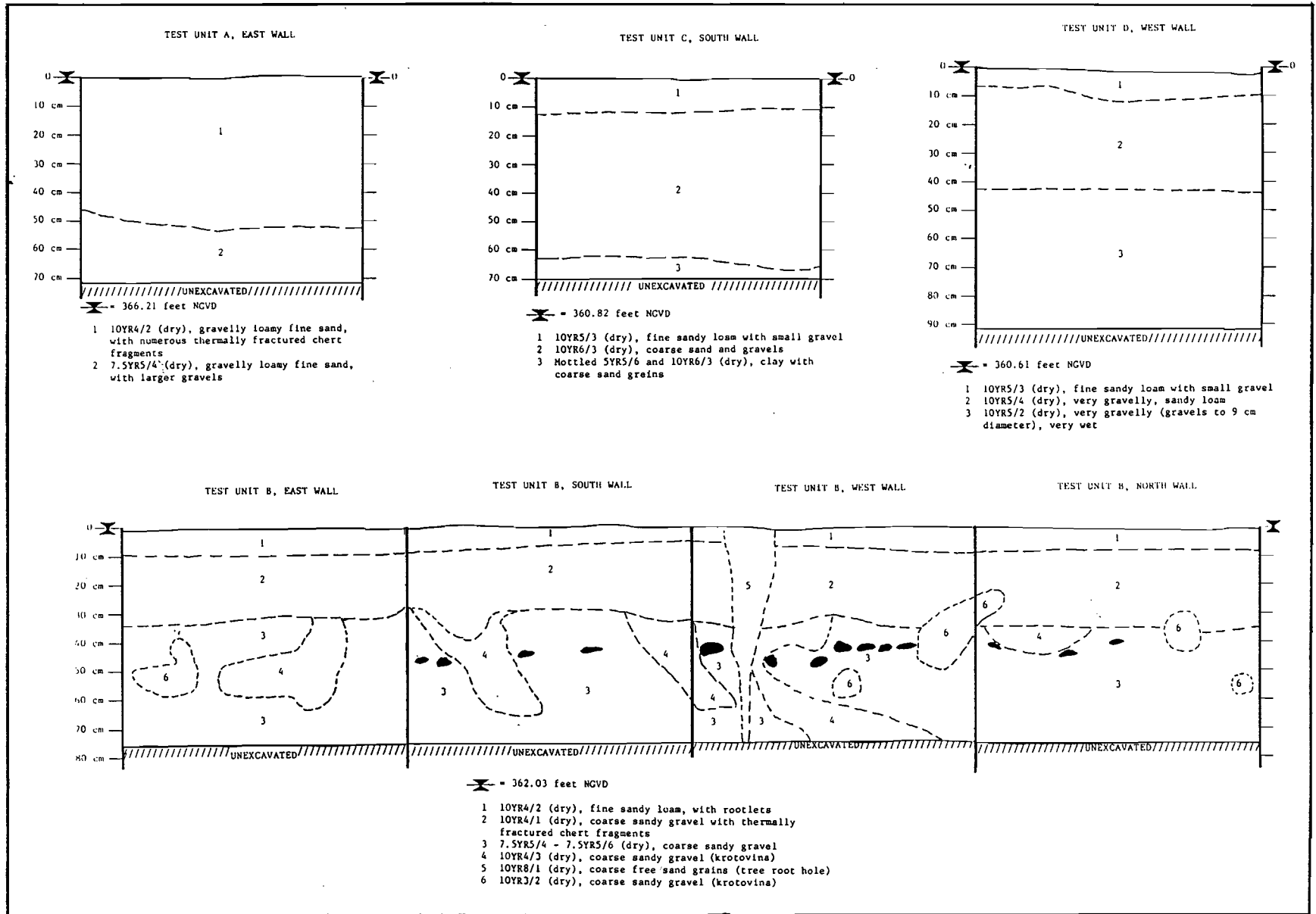


Figure 3-3. Site 41FY509, profiles of Test Units A through D.

brown (7.5YR5/4, dry), gravelly loamy fine sand, with larger gravels than the surface layer, and no thermally fractured chert fragments. The surface layer clearly contained cultural materials, but no internal stratification was observed.

Artifacts recovered from Test Unit A are listed in Table 3-2. With the exception of the glass sherd from Level 1, all of the artifacts are pre-historic in origin. None of them are temporally diagnostic, and thus they cannot help to determine whether any cultural stratigraphy is present. Both artifact counts and weights of thermal shatter increase to a maximum in Level 4 (the last complete level of the surface artifact bearing layer, Stratum 1), and then sharply decrease:

Level:	1	2	3	4	5	6
Number of artifacts:	244	561	607	969	137	0
Weight of thermal shatter:	2939	5273	5514	14973	1013	0

Table 3-2.
Site 41FY509, Artifacts, Test Unit A

Description	Level						TOTAL
	1	2	3	4	5	6	
<u>Prehistoric,</u>							
<u>Chert</u>							
Dart Points, untyped fragments	-	-	-	1	-	-	1
Knives/Thin Bifaces	-	1	1	-	-	-	2
Gouges, Clear Fork Tools	-	-	-	1	-	-	1
Gouges, Guadalupe-like	-	-	-	1	-	-	1
Bifaces, medium thickness	-	-	1	1	-	-	2
Bifaces, thick	-	-	-	1	-	-	1
Cobbles, cortex removed	-	-	-	1	-	-	1
Cobbles, cortex partially removed	-	1	-	-	1	-	2
Edge-modified flakes	8	12	6	18	1	-	45
Flakes, primary, larger than 2 cm	1	1	-	4	1	-	7
Flakes, primary, smaller than 2 cm	-	3	-	5	-	-	8
Flakes, secondary, larger than 2 cm	6	13	15	16	5	-	55
Flakes, secondary, smaller than 2 cm	2	7	4	96	1	-	110
Flakes, interior, larger than 2 cm	23	55	38	53	16	-	185
Flakes, interior, smaller than 2 cm	53	110	129	175	20	-	487
Chips, larger than 2 cm	10	37	35	38	13	-	133
Chips, smaller than 2cm	124	299	324	543	70	-	1360
Chunks, larger than 2 cm	6	8	8	7	1	-	30
Chunks, smaller than 2 cm	11	14	45	6	8	-	84
Hammerstones	-	-	1	2	-	-	3
Thermal shatter, larger than 10 cm	-	-	-	2312	-	-	2312
Thermal shatter, 2 - 10 cm diameter	1595	3300	3737	10237	761	-	19630
Thermal shatter, smaller than 2 cm	1344	1973	1777	2424	252	-	7770
<u>Historic</u>							
<u>Glass</u>							
Amber	1	-	-	-	-	-	1

Test Unit B

The profiles of Test Unit B (Figure 3-3) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of dark grayish brown (10YR4/2, dry), fine sandy loam with rootlets. The second layer, Stratum 2, about 25 cm in thickness, consisted of dark gray (10YR4/1, dry), coarse sandy gravel with thermally fractured chert fragments, and other cultural materials. The third layer, Stratum 3, consisted of brown to strong brown (7.5YR5/4 to 7.5YR5/6, dry), coarse sandy gravel. A number of disturbances were evident in the profiles. Brown (10YR4/3, dry), coarse sandy gravel patches, Stratum 4, and very dark grayish brown (10YR3/2, dry), coarse sandy gravel patches, Stratum 6, were apparently caused by burrowing animals, while a white (10YR8/1, dry) patch of free, coarse, sand, Stratum 5, was apparently filling a hole from a tree root.

Artifacts were collected from all levels of the unit (Table 3-3), though no obvious cultural stratigraphy was observed. The lower levels were clearly disturbed by natural soil processes, and these were interpreted as being responsible for the presence of artifacts in the lower levels.

Table 3-3.
Site 41FY509, Artifacts, Test Unit B.

Description	Level							TOTAL
	1	2	3	4	5	6	7	
<u>Prehistoric,</u>								
<u>Chert</u>								
Arrowpoints, Scallorn	1	-	1	-	-	-	-	2
Dart Points, Pedernales	-	-	-	1	-	-	-	1
Dart Points, untyped fragments	-	-	-	-	1	-	-	1
Knives/Thin Bifaces	-	-	1	-	-	1	-	2
Gouges, Clear Fork Tools	-	-	-	-	1	-	-	1
Bifaces, medium thickness	3	1	-	-	1	-	-	5
Bifaces, thick	-	1	-	1	-	2	-	4
Cobbles, cortex removed	-	2	-	-	-	-	-	2
Cobbles, cortex partially removed	1	1	1	1	2	1	-	7
Edge-modified flakes	11	8	4	2	-	-	-	25
Flakes, primary, larger than 2 cm	5	4	2	2	2	3	-	18
Flakes, primary, smaller than 2 cm	3	4	-	1	1	1	2	12
Flakes, secondary, larger than 2 cm	8	18	14	6	11	8	2	67
Flakes, secondary, smaller than 2 cm	10	11	7	-	-	3	5	36
Flakes, interior, larger than 2 cm	24	33	25	11	10	15	8	126
Flakes, interior, smaller than 2 cm	71	102	55	44	33	41	19	365
Chips, larger than 2 cm	30	18	9	16	17	7	6	103
Chips, smaller than 2cm	271	378	225	174	180	116	106	1450
Chunks, larger than 2 cm	4	16	12	4	2	10	3	51
Chunks, smaller than 2 cm	33	48	38	12	7	15	16	169
Thermal shatter, larger than 10 cm	-	521	-	2010	1558	-	-	4089
Thermal shatter, 2 - 10 cm diameter	2349	4354	2034	6518	3935	1573	407	21170
Thermal shatter, smaller than 2 cm	1715	2114	1166	796	631	540	368	7330
<u>Faunal</u>								
Mussel shell	-	-	2	-	-	-	-	2

Analysis of the artifacts in the laboratory does, however, indicate that some stratigraphy may be present as both the Scallorn arrowpoints were found in levels above the Pedernales dart point and the untyped fragment. It must be pointed out, however, that both Levels 4 and 5 were observed to be highly disturbed by natural processes, and, therefore, the depth of the dart points could just as well be a result of these disturbances as it could be the result of natural stratigraphy. Similarly, the depth of the Scallorn arrowpoint in Level 3 may have been the result of downward migration through natural processes.

Artifact counts and weights of thermal shatter do not show parallel paths of increase and decrease by level, artifact numbers peak in Level 2, while thermal shatter exhibits a minor peak in Level 2 and a major peak in Level 4:

Level:	1	2	3	4	5	6	7
Number of artifacts:	475	645	394	275	268	223	167
Weight of thermal shatter:	4064	6989	3200	9324	6124	2113	775

The peak of thermal shatter coincides with the junction of the darker layers, Stratum 2 (Figure 3-3), and the underlying lighter colored layer, Stratum 3. Artifact concentrations are considerably greater above this interface than below it, perhaps further evidence that artifacts in the lower levels are the result of natural disturbances, rather than representing a discrete cultural stratum.

Test Unit C

The profiles of Test Unit C (Figure 3-3) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3, dry), fine sandy loam with pea gravels. The second layer, Stratum 2, about 50 cm in thickness, consisted of pale brown (10YR6/3, dry), coarse sand with gravels and thermally fractured chert fragments. The final layer, Stratum 3, of which less than 10 cm was exposed, consisted of mottled, yellowish red (5YR5/6, dry) and pale brown (10YR6/3, dry) clay, with coarse quartz sand grains. Cultural material was found throughout the first two layers, though the greatest concentration appeared to be at the top of the second layer. The difference between the upper two layers was believed to be the result of natural soil processes, rather than being evidence of cultural stratification.

Laboratory analysis of recovered materials (Table 3-4) did not reveal any temporally diagnostic types to indicate any cultural stratigraphy. The charcoal from Level 2 was hard and also included incompletely carbonized wood. It was, therefore, concluded that this was historic in origin, rather than prehistoric. It also indicated some historic disturbance as deep as Level 2, and possibly into Level 3.

Artifact counts and weights of thermal shatter do not show completely parallel paths of increase and decrease by level, artifact numbers peak in Level 2, while thermal shatter peaks in Level 3. Both, however, show steep declines below Level 3:

Level	1	2	3	4	5	6
Number of artifacts:	397	601	463	244	79	14
Weight of thermal shatter:	2113	5470	8535	1530	445	227

Table 3-4
Site 41FY509, Artifacts, Test Unit C

Description	Level						TOTAL
	1	2	3	4	5	6	
<u>Prehistoric,</u>							
<u>Chert</u>							
Dart Points, untyped fragments	2	1	-	-	-	-	3
Bifaces, medium thickness	1	-	1	-	-	-	2
Bifaces, thick	1	-	-	-	-	-	1
Cobbles, cortex removed	-	1	-	-	-	-	1
Cobbles, cortex partially removed	-	1	-	-	-	-	1
Edge-modified flakes	1	4	1	3	-	-	9
Flakes, primary, larger than 2 cm	2	6	1	-	-	-	9
Flakes, primary, smaller than 2 cm	-	1	-	-	-	2	3
Flakes, secondary, larger than 2 cm	8	27	17	8	1	-	61
Flakes, secondary, smaller than 2 cm	-	10	2	1	-	-	13
Flakes, interior, larger than 2 cm	21	41	24	15	9	2	112
Flakes, interior, smaller than 2 cm	53	89	71	44	13	4	274
Chips, larger than 2 cm	16	23	23	9	2	-	73
Chips, smaller than 2cm	264	352	292	139	43	6	1096
Chunks, larger than 2 cm	3	9	8	7	4	-	31
Chunks, smaller than 2 cm	25	36	22	18	7	-	108
Hammer stones	-	-	1	-	-	-	1
Thermal shatter, larger than 10 cm	-	-	267	-	-	-	267
Thermal shatter, 2 - 10 cm diameter	1107	4040	7260	950	202	97	13656
Thermal shatter, smaller than 2 cm	1006	1430	1008	580	243	130	4397
<u>Charcoal</u>	-	23gm	1frag	-	-	-	23gm

Both the artifact peak and the thermal shatter peak occur within a relatively light colored layer, Stratum 2 (Figure 3-3). Historic charcoal was also found within this layer, perhaps the result of burning out tree stumps. The relatively light color of the stratum was interpreted as being the result of water percolation through the gravelly layer.

Test Unit D

The profiles of Test Unit D (Figure 3-3) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3, dry), fine sandy loam with pea gravel. The second layer, Stratum 2, about 30 cm in thickness, consisted of yellowish brown (10YR5/4, dry), very gravelly sandy loam, with gravels generally up to 5 cm in diameter. The third layer, Stratum 3, of which about a 50-cm thickness was exposed, consisted of grayish brown (10YR5/2, dry), very gravelly, coarse sand, with gravels reaching diameters of up to 9 cm. This third layer was extremely wet during excavation. Cultural material was recovered from throughout the profile. Differences observed in the profiles did not appear to represent cultural stratification; rather it was considered that the unit was somewhat disturbed, and that color differences were largely the result of water percolation and standing water tables.

Laboratory analysis of recovered material (Table 3-5) did not reveal any temporally diagnostic artifacts, with the exception of the Guadalupe-like gouge fragment from Level 3 (which may date to the Early Archaic), to indicate any cultural stratigraphy.

Table 3-5
Site 41FY509, Artifacts, Test Unit D

Description	Level								TOTAL
	1	2	3	4	5	6	7	8	
<u>Prehistoric,</u>									
<u>Chert</u>									
Gouges, Guadalupe-like	-	-	1	-	-	-	-	-	1
Bifaces, medium thickness	1	-	-	-	-	-	-	-	1
Bifaces, thick	-	1	-	1	1	-	-	-	3
Cobbles, cortex removed	-	-	-	-	1	1	-	-	2
Cobbles, cortex partially removed	-	-	-	-	1	2	-	-	3
Cobble fragments, trimmed	-	-	-	-	-	2	-	-	2
Edge-modified flakes	10	8	7	6	4	3	-	2	40
Flakes, primary, larger than 2 cm	3	3	3	2	-	-	5	-	16
Flakes, primary, smaller than 2 cm	-	1	3	6	-	-	1	-	11
Flakes, secondary, larger than 2 cm	11	10	16	8	15	5	4	4	73
Flakes, secondary, smaller than 2 cm	3	6	12	3	-	7	-	-	31
Flakes, interior, larger than 2 cm	6	22	34	24	22	25	22	5	180
Flakes, interior, smaller than 2 cm	4	67	82	59	37	57	29	11	406
Chips, larger than 2 cm	5	13	22	17	10	9	7	1	84
Chips, smaller than 2cm	15	235	350	171	180	88	105	25	1309
Chunks, larger than 2 cm	4	8	9	13	8	8	7	3	70
Chunks, smaller than 2 cm	21	45	41	12	19	17	3	2	160
Thermal shatter, 2 - 10 cm diameter	1085	1033	1782	1083	1596	1910	1683	303	10475
Thermal shatter, smaller than 2 cm	1152	1145	1311	991	639	639	510	231	6618

Both artifact counts and weights of thermal shatter show peaks in Level 3:

Level:	1	2	3	4	5	6	7	8
Number of artifacts:	83	419	580	322	298	224	183	53
Weight of thermal shatter:	2237	2178	3093	2074	2235	2549	2193	534

Comparison of the artifact and thermal shatter peaks with the profile (Figure 3-3), indicates that they occur within the second observed soil layer Stratum 2, a relatively light colored, gravelly horizon. Concentration of artifacts in this light colored horizon supports the hypothesis that the darker color of the underlying layer resulted from standing water.

Test Unit E

The profiles of Test Unit E (Figure 3-4) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of dark grayish brown (10YR4/2, dry), fine sandy loam with thermally fractured chert fragments. The second layer, Stratum 2, about 20 cm in thickness, consisted of grayish brown (10YR5/2, dry), gravelly fine sandy loam, with thermally fractured chert

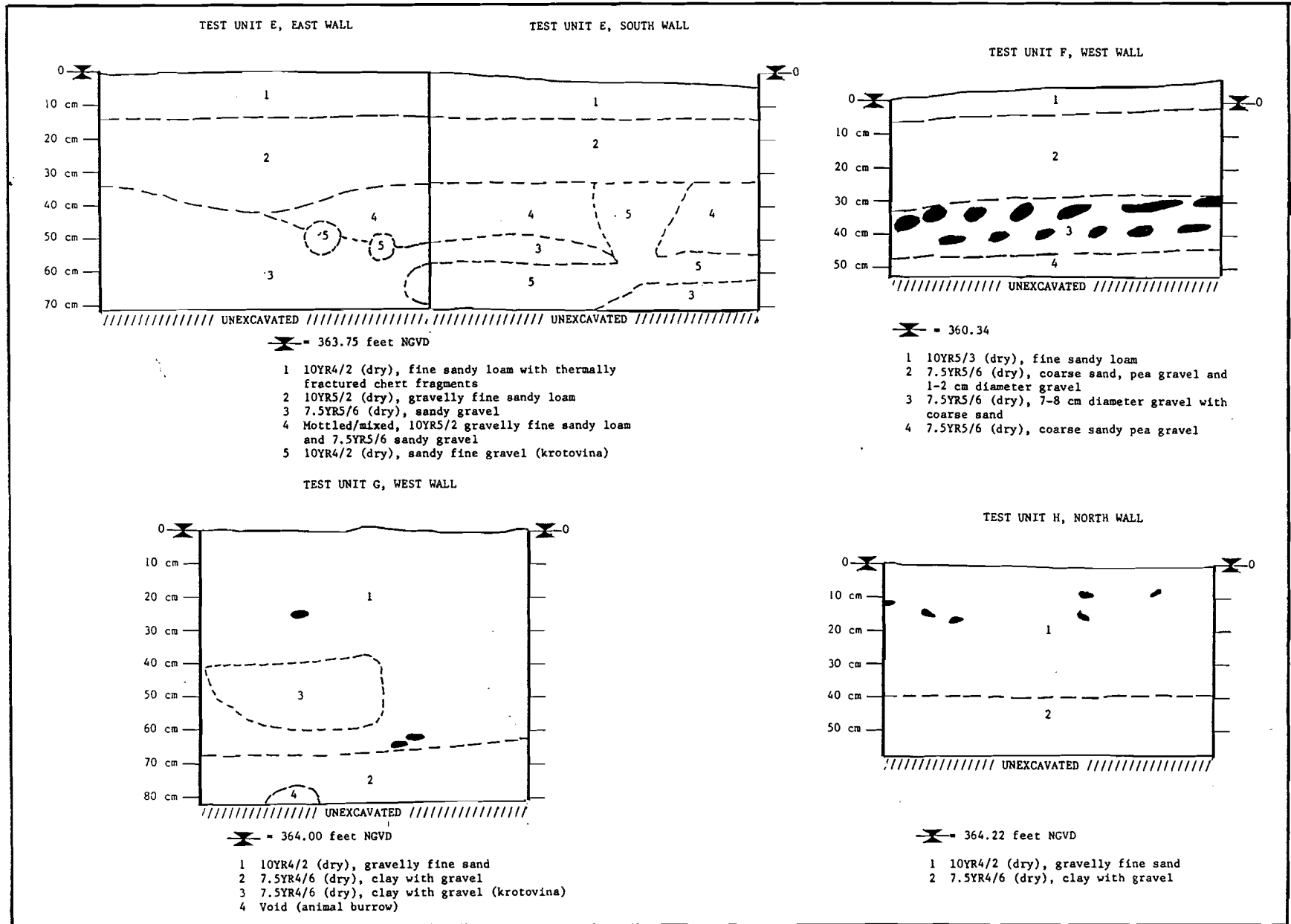


Figure 3-4. Site 41FY509, profiles, Test Units E through H.

fragments. The third layer, Stratum 3, consisted of strong brown (7.5YR5/6, dry), coarse sandy gravel. Between the second and third layers was a mixed zone, Stratum 4, consisting of portions of the second and third layers. A large krotovina, Stratum 5 on the profile, was also observed intruding into the third layer from the second layer. Cultural materials were recovered from the upper 50 cm of deposits, with the greatest concentration appearing to be in the upper 20 cm. The differentiation between the first and second layers, Strata 1 and 2, was interpreted as being the result of natural soil processes, while the mixing between the second and third layers, Stratum 4, was believed to be the result of burrowing animals and tree roots.

Laboratory analysis of the recovered materials (Table 3-6) did not identify any temporally diagnostic artifacts.

Table 3-6
Site 41FY509, Artifacts, Test Unit E

Description	Level						TOTAL
	1	2	3	4	5	6	
<u>Prehistoric,</u>							
<u>Chert</u>							
Dart Points, untyped fragments	1	-	-	-	-	-	1
Knives/Thin Bifaces	-	-	1	-	-	-	1
Bifaces, medium thickness	2	-	-	-	-	-	2
Cobbles, cortex removed	-	-	1	-	-	-	1
Cobble fragments, trimmed	1	-	-	-	-	-	1
Unifacial scrapers	-	1	-	-	-	-	1
Edge-modified flakes	6	1	-	-	1	-	8
Flakes, primary, larger than 2 cm	3	2	2	-	-	-	7
Flakes, primary, smaller than 2 cm	2	-	-	-	-	-	2
Flakes, secondary, larger than 2 cm	20	19	7	6	2	-	54
Flakes, secondary, smaller than 2 cm	3	2	-	1	2	-	8
Flakes, interior, larger than 2 cm	47	46	18	19	11	-	141
Flakes, interior, smaller than 2 cm	113	76	43	29	15	-	276
Chips, larger than 2 cm	38	16	18	12	8	-	92
Chips, smaller than 2cm	331	270	141	72	35	-	849
Chunks, larger than 2 cm	4	5	6	6	3	-	24
Chunks, smaller than 2 cm	22	19	13	9	6	-	69
Thermal shatter, larger than 10 cm	-	-	685	533	-	-	1218
Thermal shatter, 2 - 10 cm diameter	3696	4285	2413	2100	445	-	12939
Thermal shatter, smaller than 2 cm	2062	1114	715	511	229	-	4631

Both artifacts and thermal shatter show peaks in the first level, numbers then both gradually decrease:

Level:	1	2	3	4	5	6
Number of artifacts:	593	457	250	154	83	0
Weight of thermal shatter:	5758	5399	3813	3144	674	0

Comparison of artifact counts with stratigraphy (Figure 3-4) indicates that the greater artifact concentrations, in Levels 1-3, occur within the upper two darker soil layers, Strata 1 and 2.

Test Unit F

The profiles of Test Unit F (Figure 3-4) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3, dry), fine sandy loam. The second layer, Stratum 2, about 25 cm in thickness, consisted of strong brown (7.5YR5/6, dry), coarse sand, pea gravel, and gravels up to 2 cm in diameter. The third layer, Stratum 3, about 15 cm in thickness, consisted of strong brown (7.5YR5/6, dry), coarse sand and gravels of between 7 and 8 cm in diameter. The fourth layer, Stratum 4, of which a thickness of about 10 cm was exposed, consisted of strong brown (7.5YR5/6, dry), coarse sandy pea gravel. Cultural materials were recovered from the upper 30 cm of deposits. The differentiation between the upper two layers was interpreted as being the result of natural soil processes, rather than being evidence of cultural stratification.

Laboratory analysis of the recovered materials (Table 3-7) did not identify any temporally diagnostic artifacts.

Table 3-7
Site 41FY509, Artifacts, Test Unit F

Description	Level				TOTAL
	1	2	3	4	
<u>Prehistoric,</u>					
<u>Chert</u>					
Bifaces, thick	-	1	-	-	1
Cobbles, cortex removed	-	-	1	-	1
Edge-modified flakes	-	2	2	-	4
Flakes, secondary, larger than 2 cm	1	3	3	1	8
Flakes, secondary, smaller than 2 cm	2	-	1	-	3
Flakes, interior, larger than 2 cm	5	9	7	-	21
Flakes, interior, smaller than 2 cm	14	6	16	-	36
Chips, larger than 2 cm	-	5	7	-	12
Chips, smaller than 2cm	42	27	35	-	104
Chunks, larger than 2 cm	2	6	2	-	10
Chunks, smaller than 2 cm	6	-	4	-	10
Thermal shatter, larger than 10 cm	-	-	1115	-	1115
Thermal shatter, 2 - 10 cm diameter	960	499	2894	-	4353
Thermal shatter, smaller than 2 cm	367	297	430	61	1155

Artifact counts indicate slightly higher numbers in Levels 1 and 3 than in Level 2, though differences do not appear to be statistically significant; while thermal shatter shows a major peak in Level 3, at the surface of the layer of large gravels, Stratum 3:

Level:	1	2	3	4
Number of artifacts:	72	59	78	1
Weight of thermal shatter:	1327	796	4439	61

Test Unit G

The surface of this unit had been removed by the landowner prior to excavation. The profiles (Figure 3-4) revealed an approximately 65-cm-thick surface layer, Stratum 1, consisting of dark grayish brown (10YR4/2, dry), gravelly fine sand. The second layer, Stratum 2, of which about a 25-cm thickness was exposed, consisted of strong brown (7.5YR4/6, dry) clay with gravel. A krotovina, Stratum 3, filled with material from the second layer, was observed within the first layer. Also several voids (animal burrows), Stratum 4 on the profile, were noted during excavation. These voids were observed in Levels 3 through 8. Cultural materials were recovered from the entire depth of excavated deposits, with the greatest concentration appearing to occur at a depth of between 30 and 40 cm, just above the large disturbance, Stratum 3. The presence of artifacts in the two deepest levels, Levels 7 and 8 within Stratum 2, was interpreted as the result of downward migration, primarily by burrowing animals.

Laboratory analysis of the recovered materials (Table 3-8) identified only one temporally diagnostic artifact, an untyped arrowpoint fragment, found in one of the Level 3 artifact bags during washing.

Table 3-8
Site 41FY509, Artifacts, Test Unit G

Description	Level								TOTAL
	1	2	3	4	5	6	7	8	
<u>Prehistoric,</u>									
<u>Chert</u>									
Arrowpoints, untyped fragments	-	-	1	-	-	-	-	-	1
Knives/Thin Bifaces	-	-	2	-	-	-	-	-	2
Cobbles, cortex removed	-	-	-	-	-	1	-	-	1
Cobbles, flake cores	-	-	-	-	-	-	1	-	1
Cobbles, cortex partially removed	1	-	-	-	1	-	1	-	3
Cobble fragments, trimmed	-	-	-	-	-	-	1	-	1
Edge-modified flakes	-	1	-	-	1	-	1	-	3
Flakes, primary, larger than 2 cm	-	1	2	1	-	-	-	-	4
Flakes, primary, smaller than 2 cm	-	9	2	1	-	-	-	-	12
Flakes, secondary, larger than 2 cm	4	-	5	4	6	3	7	-	29
Flakes, secondary, smaller than 2 cm	-	-	-	1	3	-	-	-	4
Flakes, interior, larger than 2 cm	11	10	10	13	15	9	6	3	77
Flakes, interior, smaller than 2 cm	24	26	-	20	35	28	18	8	159
Chips, larger than 2 cm	4	8	8	14	13	9	4	6	66
Chips, smaller than 2cm	58	107	162	228	173	167	85	22	1002
Chunks, larger than 2 cm	1	2	5	2	11	2	3	1	27
Chunks, smaller than 2 cm	5	3	6	3	8	9	8	-	42
Thermal shatter, larger than 10 cm	-	-	322	-	-	714	380	322	1738
Thermal shatter, 2 - 10 cm diameter	890	1718	2460	2933	6291	4185	1937	441	20855
Thermal shatter, smaller than 2 cm	420	651	881	1131	1681	1156	710	234	6864

Artifact counts peak in Levels 4 and 5, a little deeper than field observation had suggested; while thermal shatter peaks in Levels 5 and 6:

Level:	1	2	3	4	5	6	7	8
Number of artifacts:	108	167	203	287	266	228	135	40
Weight of thermal shatter:	1310	2369	3663	4064	7972	6055	3027	997

Comparison of levels with the profile (Figure 3-4), shows that Level 7 includes parts of Strata 1 and 2, while Level 8 consists entirely of Stratum 2. Thus, the low number of artifacts in these levels is a good indication that Stratum 2 is culturally sterile and that the artifacts were transported by rodent action. The peak levels of thermal shatter coincide with the large krotovina (Stratum 3) observed in the profile.

Test Unit H

This unit was placed within 18 meters of Test Unit G, at the edge of a rise which extended to the south beyond the right-of-way. The profiles (Figure 3-4) revealed an approximately 40-cm-thick surface layer, Stratum 1, consisting of dark grayish brown (10YR4/2, dry), gravelly fine sand. The second layer, Stratum 2, of which about a 20-cm thickness was exposed, consisted of strong brown (7.5YR4/6, dry) clay with gravel. Cultural materials were recovered from the entire depth of excavated deposits, with the greatest concentration occurring at the surface. There was no evidence of cultural stratification within the profile.

Laboratory analysis of recovered materials (Table 3-9) did not identify any temporally diagnostic artifacts.

Table 3-9
Site 41FY509, Artifacts, Test Unit H

Description	Level						TOTAL
	1	2	3	4	5	6	
<u>Prehistoric,</u>							
<u>Chert</u>							
Bifaces, medium thickness	-	-	-	-	1	-	1
Cobbles, cortex removed	1	-	-	-	-	-	1
Cobbles, cortex partially removed	-	1	-	-	-	-	1
Edge-modified flakes	4	-	1	1	1	-	7
Flakes, primary, larger than 2 cm	3	2	-	4	-	-	9
Flakes, secondary, larger than 2 cm	12	3	8	4	2	-	29
Flakes, secondary, smaller than 2 cm	-	2	6	1	-	-	9
Flakes, interior, larger than 2 cm	25	29	16	16	5	1	92
Flakes, interior, smaller than 2 cm	72	41	54	29	20	3	219
Chips, larger than 2 cm	23	20	14	11	5	-	73
Chips, smaller than 2cm	266	246	171	127	56	6	872
Chunks, larger than 2 cm	14	9	5	11	2	-	41
Chunks, smaller than 2 cm	26	20	22	12	13	-	93
Thermal shatter, larger than 10 cm	438	3667	1165	-	-	-	5270
Thermal shatter, 2 - 10 cm diameter	8750	12836	6460	4157	729	-	32932
Thermal shatter, smaller than 2 cm	2064	2450	1447	994	605	-	7560

Artifacts peak in Level 1, and then gradually decrease with depth; while thermal shatter shows a peak in Level 1, and a lower peak in Level 3:

Level:	1	2	3	4	5	6
Number of artifacts:	446	373	297	216	105	10
Weight of thermal shatter:	11252	18953	9072	5151	1334	0

Comparison of levels with the profile (Figure 3-4), shows that the levels with the higher artifact counts, Levels 1-4, are within the darker upper layer (Stratum 1), Level 5 is at the interface of Strata 1 and 2, and Level 6 is entirely within Stratum 2. This indicates that Stratum 2 is culturally sterile, with the few artifacts found being the result of natural downward migration. The gradual decrease in artifacts with depth may be interpreted as a single, cumulative, occupation layer, rather than being the result of discrete stratigraphically separated occupations.

Test Unit I

The profiles of Test Unit I (Figure 3-5) revealed an approximately 50-cm-thick surface layer, Stratum 1, consisting of gravelly fine sand which gradually changed color from brown (10YR5/3, dry) at the surface to pale brown (10YR6/3, dry) at the base of the layer. The second layer, Stratum 2, about 10 cm in thickness, consisted of strong brown (7.5YR5/6, dry), coarse sand with pea gravel. The third layer, Stratum 3, of which about 15 cm was exposed, consisted of mottled strong brown (7.5YR5/6, dry) and light gray (10YR7/2)-clay, with white grit. Cultural materials were found throughout the profile, with frequency appearing greatest at the surface and decreasing with depth. There was no evidence of cultural stratification within the profile.

Laboratory analysis of recovered materials (Table 3-10) did not identify any temporally diagnostic artifacts.

Table 3-10
Site 41FY509, Artifacts, Test Unit I

Description	Level					TOTAL
	1	2	3	4	5	
<u>Prehistoric,</u>						
<u>Chert</u>						
Knives/Thin Bifaces	1	-	-	-	-	1
Cobbles, cortex partially removed	-	-	-	1	-	1
Edge-modified flakes	-	1	-	-	-	1
Flakes, primary, larger than 2 cm	2	2	3	-	-	7
Flakes, primary, smaller than 2 cm	-	1	1	-	-	2
Flakes, secondary, larger than 2 cm	3	3	2	1	1	10
Flakes, secondary, smaller than 2 cm	4	4	-	-	-	8
Flakes, interior, larger than 2 cm	13	9	7	-	2	31
Flakes, interior, smaller than 2 cm	28	20	26	15	-	89
Chips, larger than 2 cm	12	12	10	-	-	34
Chips, smaller than 2cm	119	90	53	26	2	290
Chunks, larger than 2 cm	-	-	4	1	-	5
Chunks, smaller than 2 cm	6	13	4	-	-	23
Thermal shatter, larger than 10 cm	-	-	756	-	-	756
Thermal shatter, 2 - 10 cm diameter	1561	2823	9208	1620	-	15212
Thermal shatter, smaller than 2 cm	1130	1214	1149	418	107	4018

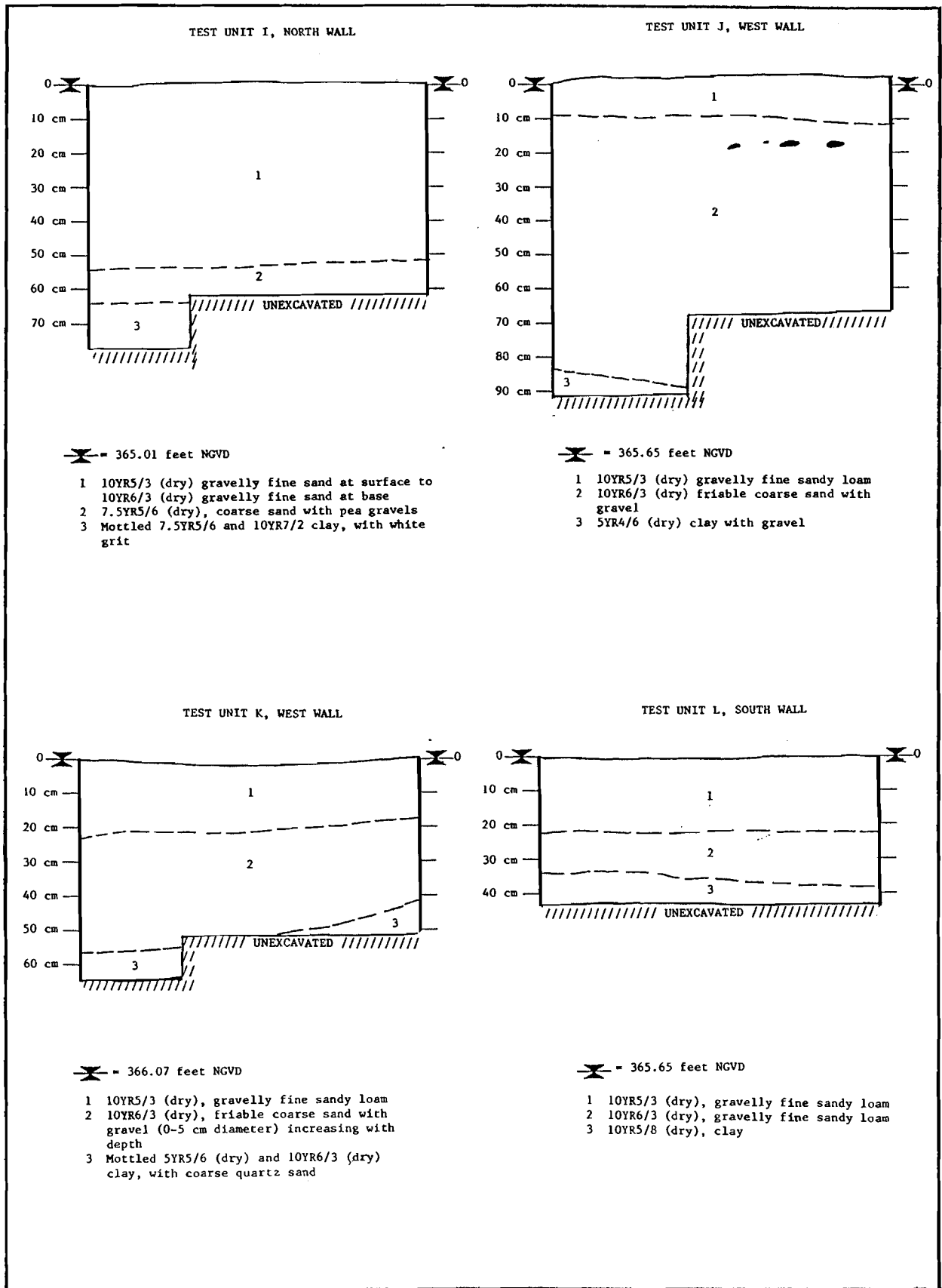


Figure 3-5. Site 41FY509, profiles, Test Units I through L.

Artifact counts revealed a general decline in artifact numbers with depth; while thermal shatter shows a peak in Level 3:

Level:	1	2	3	4	5
Number of artifacts:	188	155	110	44	5
Weight of thermal shatter:	2691	4037	11113	2038	107

Comparison of levels with the profile (Figure 3-5) reveals a gradual drop-off in artifact density throughout Stratum 1. Strata 2 and 3 were exposed by shovel, but were not screened. As numerous burned-out tree stumps were noted in this area, it is reasonable to conclude that the increase in thermal shatter in Level 3 is associated with such historic stump burning practices.

Test Unit J

The profiles of Test Unit J (Figure 3-5) revealed an approximately 10-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3), gravelly fine sandy loam. The second layer, Stratum 2, about 70 cm in thickness, consisted of a pale brown (10YR6/3, dry); coarser, more friable sand with larger amounts of gravel. An intermittent layer of 7-8-cm-diameter gravels was present at a depth of about 20 cm. The third layer, Stratum 3, of which a thickness of about 10 cm was exposed in a shovel probe, consisted of yellowish red (5YR4/6, dry) clay with gravel. Cultural materials were recovered from the upper 60 cm that was screened. However, the greatest density appeared to be close to the surface and by the end of the sixth level virtually no artifacts were observed. The revealed profile appeared to be natural.

Laboratory analysis of the recovered artifacts (Table 3-11) did not identify any temporally diagnostic artifacts, though the Clear Fork gouge fragment from Level 5 may be an indication of Early Archaic occupation.

Table 3-11
Site 41FY509, Artifacts, Test Unit J

Description	Level						TOTAL
	1	2	3	4	5	6	
<u>Prehistoric,</u>							
<u>Chert</u>							
Knives/Thin Bifaces	-	2	1	-	-	-	3
Gouges, Clear Fork Tools	-	-	-	-	1	-	1
Cobbles, cortex partially removed	-	-	-	-	2	-	2
Unifacial scrapers	-	-	-	-	1	-	1
Edge-modified flakes	2	2	-	-	3	-	7
Flakes, primary, larger than 2 cm	-	-	1	-	-	-	1
Flakes, secondary, larger than 2 cm	3	5	1	-	1	-	10
Flakes, secondary, smaller than 2 cm	2	2	3	-	-	-	7
Flakes, interior, larger than 2 cm	13	15	14	3	5	3	53
Flakes, interior, smaller than 2 cm	23	25	20	13	26	3	110
Chips, larger than 2 cm	2	9	5	3	4	-	23
Chips, smaller than 2cm	47	55	44	39	25	7	217
Chunks, larger than 2 cm	-	-	-	-	2	-	2
Chunks, smaller than 2 cm	4	3	2	3	4	-	16
Thermal shatter, 2 - 10 cm diameter	705	841	1293	2487	2044	190	7560
Thermal shatter, smaller than 2 cm	423	594	540	278	232	44	2111

Artifact counts show a peak in Level 2, and another slight peak in Level 5; while thermal shatter shows a single peak in Level 4:

Level:	1	2	3	4	5	6
Number of artifacts:	96	118	91	61	74	13
Weight of thermal shatter:	1128	1435	1833	2765	2276	234

The slight peak in artifacts in Level 5 coincides with the Clear Fork gouge fragment and could be interpreted as an indication of stratified deposits. However, if the peak in thermal shatter in Level 4 results from historic tree stump burning (numerous burned-out stumps being visible in the area), it would also allow for the downward migration of artifacts. Certainly there was no visible stratigraphy to indicate stratified cultural occupations, and the increase in artifacts in Level 5, does not appear to be statistically significant.

Test Unit K

The profiles of Test Unit K (Figure 3-5) revealed an approximately 20-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3, dry), gravelly fine sandy loam. The second layer, Stratum 2, about 30 cm in thickness, consisted of a pale brown (10YR6/3, dry), coarser, more friable sand with larger amounts of gravel, generally with a maximum diameter of about 5 cm. The third layer, Stratum 3, of which a thickness of about 10 cm was exposed, consisted of mottled yellowish red (5YR5/6, dry) and pale brown (10YR6/3) clay with coarse, quartz sand. Only a very few cultural materials were recovered from throughout the profile. There was no evidence of cultural stratification within the profile, which appeared to be natural.

Laboratory analysis of recovered material (Table 3-12) did not identify any temporally diagnostic artifacts.

Table 3-12
Site 41FY509, Artifacts, Test Unit K

Description	Level					TOTAL
	1	2	3	4	5	
<u>Prehistoric,</u>						
<u>Chert</u>						
Flakes, primary, larger than 2 cm	-	-	-	1	-	1
Flakes, secondary, larger than 2 cm	1	-	-	-	-	1
Flakes, interior, smaller than 2 cm	1	2	1	-	-	4
Chips, smaller than 2cm	3	2	6	4	-	15
Thermal shatter, 2 - 10 cm diameter	-	-	72	690	90	852
Thermal shatter, smaller than 2 cm	43	44	55	90	50	282

Artifact counts are fairly constant, though very low, throughout the first four levels; while thermal shatter exhibits quite a distinct peak in Level 4, again perhaps evidence of historic tree stump burning:

Level:	1	2	3	4	5
Number of artifacts:	5	4	7	5	0
Weight of thermal shatter:	43	44	127	780	140

Test Unit L

The profiles of Test Unit L (Figure 3-5) revealed an approximately 20-cm-thick surface layer, Stratum 1, consisting of brown (10YR5/3, dry), gravelly fine sandy loam. The second layer, Stratum 2, about 15 cm in thickness, consisted of a pale brown (10YR6/3, dry), coarser, more friable sand with larger amounts of gravel, generally with a maximum diameter of about 5 cm. The third layer, Stratum 3, of which a thickness of about 15 cm was exposed, consisted of yellowish red (5YR5/8, dry) clay. Only a very few cultural materials were recovered from the the upper 20 cm of deposits. There was no evidence of cultural stratification within the profile, which appeared to be a natural soil profile.

Laboratory analysis of the recovered materials (Table 3-13) did not reveal any temporally diagnostic artifacts.

Table 3-13
Site 41FY509, Artifacts, Test Unit L

Description	Level		TOTAL
	1	2	
<u>Prehistoric,</u>			
<u>Chert</u>			
Edge-modified flakes	-	1	1
Flakes, interior, larger than 2 cm	2	-	2
Chips, smaller than 2 cm	1	-	1
Thermal shatter, 2 - 10 cm diameter	31	9	40
Thermal shatter, smaller than 2 cm	32	16	48

The recovered materials indicate virtually no prehistoric occupation of this area, and it is possible that the artifacts in this area are present as the result of redeposition caused by historic farming activities.

Test Unit M

The profiles of this unit, not illustrated, revealed an approximately 35-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), fine sandy loam with numerous thermally fractured chert fragments. The second layer, Stratum 2, about 10 cm in thickness, consisted of brown (10YR5/3), sandy gravel. The final layer, Stratum 3, of which about 5 cm was exposed, consisted of strong brown (7.5YR5/6), clayey grit and gravels. There was no evidence of cultural stratification or features within the upper, darker portion of the profile, to which the cultural materials appeared to be confined.

Laboratory analysis of the recovered materials (Table 3-14) identified one temporally diagnostic artifact, an untyped arrowpoint, from Level 2.

Artifact counts reveal that the first two levels have the greatest density, and confirm that cultural material is confined to the upper darker layer, Stratum 1, while thermal shatter is most concentrated in Level 3, toward the base of the cultural layer:

Table 3-14
Site 41FY509, Artifacts, Test Unit M

Description	Level					TOTAL
	1	2	3	4	5	
<u>Prehistoric, Chert</u>						
Arrowpoints, untyped fragments	-	1	-	-	-	1
Knives/Thin Bifaces	3	1	-	-	-	4
Bifaces, medium thickness	1	1	-	-	-	2
Cobbles, cortex removed	-	1	-	-	-	1
Cobbles, flake cores	-	-	1	-	-	1
Cobbles, cortex partially removed	-	1	1	-	-	2
Edge-modified flakes	8	6	3	-	-	17
Flakes, primary, larger than 2 cm	5	2	-	-	-	7
Flakes, primary, smaller than 2 cm	3	-	-	-	-	3
Flakes, secondary, larger than 2 cm	13	17	13	5	1	49
Flakes, secondary, smaller than 2 cm	8	8	3	1	-	20
Flakes, interior, larger than 2 cm	55	56	37	15	3	166
Flakes, interior, smaller than 2 cm	140	157	129	28	2	456
Chips, larger than 2 cm	41	31	25	4	-	101
Chips, smaller than 2cm	310	340	245	59	2	956
Chunks, larger than 2 cm	9	9	13	7	-	38
Chunks, smaller than 2 cm	8	15	8	-	1	32
Thermal shatter, larger than 10 cm	-	-	1309	-	-	1309
Thermal shatter, 2 - 10 cm diameter	3459	5067	7302	832	50	16710
Thermal shatter, smaller than 2 cm	1855	1337	1869	332	111	5504

Table 3-15
Site 41FY509, Artifacts, Test Unit N

Description	Level			TOTAL
	1	2	3	
<u>Prehistoric, Chert</u>				
Bifaces, medium thickness	1	1	1	3
Bifaces, thick	-	1	-	1
Cobbles, cortex removed	-	-	1	1
Cobbles, flake cores	-	-	1	1
Cobbles, cortex partially removed	2	4	1	7
Unifacial scrapers	-	1	-	1
Edge-modified flakes	10	5	1	16
Flakes, primary, larger than 2 cm	3	3	1	7
Flakes, secondary, larger than 2 cm	19	19	11	49
Flakes, secondary, smaller than 2 cm	5	5	2	12
Flakes, interior, larger than 2 cm	64	49	23	136
Flakes, interior, smaller than 2 cm	134	95	47	276
Chips, larger than 2 cm	34	19	11	64
Chips, smaller than 2cm	307	239	107	653
Chunks, larger than 2 cm	7	12	5	14
Chunks, smaller than 2 cm	13	15	7	35
Thermal shatter, larger than 10 cm	1084	-	-	1084
Thermal shatter, 2 - 10 cm diameter	10914	7686	2968	21568
Thermal shatter, smaller than 2 cm	2451	1724	903	5078

Level:	1	2	3	4	5
Number of artifacts:	604	646	478	119	9
Weight of thermal shatter:	5314	6404	10480	1164	161

Test Unit N

The profiles of this unit, not illustrated, revealed an approximately 45-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), somewhat gravelly, fine sandy loam with numerous thermally fractured chert fragments. The second layer, Stratum 2, about 10 cm in thickness, consisted of brown (10YR5/3), sandy gravel. The final layer, Stratum 3, of which about 5 cm was exposed, consisted of strong brown (7.5YR5/6), clayey grit and gravels. There was no evidence of cultural stratification or features within the upper, darker portion of the profile, to which the cultural materials appeared to be confined.

Laboratory analysis of the recovered materials (Table 3-15) did not identify any temporally diagnostic artifacts.

The first two levels of this unit were each 15 cm in thickness, and the third was 10 cm in thickness. Allowing for this discrepancy, artifacts and thermal shatter were still most frequent in the first level, Level 1, with quantities decreasing with increasing depth:

Level:	1	2	3
Number of artifacts:	599	468	219
Weight of thermal shatter:	14449	9410	3871

Test Unit O

The profiles of this unit, not illustrated, revealed an approximately 40-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), somewhat gravelly, fine sandy loam with numerous thermally fractured chert fragments. The second layer, Stratum 2, of which about 10 cm was exposed, consisted of strong brown (7.5YR5/6), clayey grit and gravels. There was no evidence of cultural stratification or features within the upper, darker portion of the profile, to which the cultural materials appeared to be confined.

Laboratory analysis of the recovered materials (Table 3-16) did not identify any temporally diagnostic prehistoric artifacts. A burned, historic whiteware sherd, from Level 1, is evidence of early twentieth century activity at the site, and of historic burning.

The first three levels of this unit were each 10 cm in thickness, and the fourth was 15 cm in thickness. Allowing for this discrepancy, artifacts and thermal shatter were still most frequent in the first level, Level 1, with quantities decreasing with increasing depth:

Level:	1	2	3	4
Number of artifacts:	461	285	180	53
Weight of thermal shatter:	12036	10342	3406	0

Table 3-16
Site 41FY509, Artifacts, Test Unit 0

Description	Level				TOTAL
	1	2	3	4	
<u>Prehistoric,</u>					
<u>Chert</u>					
Knives/Thin Bifaces	-	1	1	-	2
Bifaces, medium thickness	1	-	-	-	1
Bifaces, thick	-	1	1	-	2
Cobbles, cortex partially removed	-	-	1	1	2
Edge-modified flakes	5	4	1	-	10
Flakes, primary, larger than 2 cm	1	2	-	-	3
Flakes, primary, smaller than 2 cm	3	1	-	-	4
Flakes, secondary, larger than 2 cm	16	6	5	8	35
Flakes, secondary, smaller than 2 cm	9	3	2	-	14
Flakes, interior, larger than 2 cm	32	22	13	10	77
Flakes, interior, smaller than 2 cm	97	59	38	12	206
Chips, larger than 2 cm	20	20	6	3	49
Chips, smaller than 2cm	255	153	96	13	517
Chunks, larger than 2 cm	9	5	5	4	23
Chunks, smaller than 2 cm	13	8	11	2	34
Thermal shatter, 2 - 10 cm diameter	7735	8241	2527	-	18503
Thermal shatter, smaller than 2 cm	4301	2101	879	-	7281
<u>Historic</u>					
<u>Ceramic</u>					
Whiteware (Ironstone)	1	-	-	-	1

Test Unit P

The profiles of this unit, not illustrated, revealed an approximately 40-cm-thick surface layer, Stratum 1, of dark grayish brown (10YR4/2, dry), fine sandy loam, becoming more gravelly with depth, with numerous thermally fractured chert fragments. The second layer, Stratum 2, of which about 10 cm was exposed, consisted of strong brown (7.5YR5/6), clayey grit and gravels. There was no evidence of cultural stratification or features within the upper, darker portion of the profile, to which the cultural materials appeared to be confined.

Laboratory analysis of the recovered materials (Table 3-17) identified two temporally diagnostic prehistoric artifacts, an untyped arrowpoint fragment from Level 1, and an untyped dart point fragment from Level 3. The positions of the two artifacts are stratigraphically correct, with the later arrowpoint fragment found above the dart point fragment. However, no visible stratigraphy was observed in the profile, and it is possible that both untyped fragments could be culturally associated.

The first three levels of this unit were each 10 cm in thickness, and the fourth was 15 cm in thickness. Thus, artifact counts by level further accentuate the field impression that artifacts were more concentrated at the surface, and decreased with depth:

Level:	1	2	3	4
Number of artifacts:	501	287	214	177
Weight of thermal shatter:	6823	3450	3450	0

Table 3-17
Site 41FY509, Artifacts, Test Unit P

Description	Level				TOTAL
	1	2	3	4	
<u>Prehistoric,</u>					
<u>Chert</u>					
Arrowpoints, untyped fragments	1	-	-	-	1
Dart Points, untyped fragments	-	-	1	-	1
Knives/Thin Bifaces	1	2	-	-	3
Bifaces, medium thickness	1	-	-	-	1
Bifaces, thick	-	2	-	-	2
Cobbles, cortex removed	-	-	1	1	2
Cobbles, cortex partially removed	1	1	1	1	4
Cobble fragments, trimmed	-	1	-	-	1
Unifacial scrapers	-	-	2	-	2
Edge-modified flakes	3	4	-	-	7
Flakes, primary, larger than 2 cm	1	2	3	-	6
Flakes, primary, smaller than 2 cm	3	3	-	1	7
Flakes, secondary, larger than 2 cm	17	5	6	7	35
Flakes, secondary, smaller than 2 cm	14	3	2	5	24
Flakes, interior, larger than 2 cm	37	12	15	10	74
Flakes, interior, smaller than 2 cm	124	60	48	31	263
Chips, larger than 2 cm	27	10	10	9	56
Chips, smaller than 2cm	246	165	103	98	612
Chunks, larger than 2 cm	7	6	7	5	25
Chunks, smaller than 2 cm	18	11	15	9	53
Thermal shatter, 2 - 10 cm diameter	4893	2350	-	-	7243
Thermal shatter, smaller than 2 cm	1930	1100	-	-	3030

Gradall Excavation

Gradall excavation at the location of the possible historic well reported by Mr. Schweinle revealed clear evidence of a burned out tree stump, but no evidence of a well. Further, no historic artifacts were observed within the vicinity. If there had been a well, historic artifacts would have been expected to have been found in the vicinity.

Examination of Borrow Pit Edges

At the completion of field work each day, the walls of the borrow pit, which was in use at the time of the testing, were walked and inspected for evidence of buried prehistoric features. None were noted, though it was observed that cultural deposits were apparently thicker, and with denser artifact concentrations, along the western and northwestern edges. A number of prehistoric lithic tools were observed and collected during these inspections. They are listed in Table 3-18, along with other miscellaneous artifacts collected from the site.

Table 3-18
Site 41FY509, Artifacts, Miscellaneous

Description	Original Survey	Borrow Pit	Trench III	General Surface	TOTAL
<u>Prehistoric,</u>					
<u>Chert</u>					
Dart Points, Bulverde-like	-	-	1	-	1
Dart Points, Pedernales	-	1	-	-	1
Dart Points, untyped lanceolate	1	-	-	-	1
Dart Points, untyped fragments	1	-	-	-	1
Knives/Thin Bifaces	2	6	-	-	8
Gouges, Clear Fork Tools	-	1	-	-	1
Bifaces, medium thickness	1	7	-	-	8
Bifaces, thick	2	3	-	-	5
Cobble fragments, trimmed	-	4	-	-	4
Cobble chopper	-	1	-	-	1
Edge-modified flakes	1	-	-	-	1
Flakes, secondary, larger than 2 cm	2	-	-	-	2
Flakes, interior, larger than 2 cm	2	3	-	-	5
Chips, larger than 2 cm	6	-	-	-	6
Chunks, larger than 2 cm	1	-	-	-	1
<u>Faunal</u>					
Bone, cow tooth	-	-	-	1	1

Private Artifact Collection

Artifacts collected from the site by Michael Quackenbusch appeared to indicate that the site was occupied over a long time span, possibly beginning as early as the Late Paleoindian/Early Archaic transition, and continuing through to the Neolithic. Projectile points observed in the collection included, from early to late, the following types: an Early Archaic Gower dart point and 2 Gower-like dart points, a round-based (possibly Middle Archaic) dart point, 1 Bulverde-like dart point, 4 Pedernales dart points, 1 Lange dart point, 2 Fayette dart points, 2 untyped Late Archaic-looking side-notched dart points, 1 Marshall or Castroville dart point, 1 Ensor dart point, 4 Sandbur dart points, and 2 Scallorn arrowpoints. Other artifacts included a Covington biface, a San Gabriel biface, and 5 Clear Fork gouges.

ARTIFACT DESCRIPTIONS

Over 20,000 prehistoric chipped lithic artifacts and pieces of debitage were recovered from the site. In addition, over 300 Kilograms of thermally fractured chert was sorted, weighed, and discarded. Although listed under the prehistoric heading, some of the thermally fractured chert may be the result of historic land clearing activities. In addition to the prehistoric artifacts, a very few clearly historic artifacts were also collected.

Very few of the prehistoric artifacts could be specifically identified with previously defined types, and the majority of artifacts could be sorted

into categories and subgroups only on the basis of general morphological traits. It must be noted that during the sorting process, some artifacts were tentatively assigned to several different categories and subgroups before finally being committed to a particular category.

Table 3-19 summarizes the artifact categories recognized during analysis of artifacts from the site, and the numbers of each category recovered from each Test Unit or surface collection. Descriptions of the various categories are presented below.

Arrowpoints

Scallorn

Two Scallorn arrowpoints (Suhm and Jelks 1962:285, Plate 143) were found. Both are missing their distal tips, and have straight, finely serrated blade edges, corner notches, and slightly concave bases. One of the points (Lot #7, Figure 3-6:a) is made from light gray (10YR7/2), dull-looking, opaque chert. Dimensions are: length, 2.3 cm; width, 1.2 cm; thickness, 0.3 cm. The other point (Lot #9, Figure 3-6:b) is made from a brown (10YR4/3 to 10YR5/3), translucent, glossy chert. Dimensions are: length, 2.7 cm; width, 1.4 cm; thickness, 0.35 cm.

Untyped Fragments

Three distal fragments of arrowpoints were found (Lot #40, 71, and 82, Figure 3-6:c-e). None could be identified with previously defined types, though it is likely that they were parts of Scallorn points. They have straight to slightly convex blade edges. Material in each case is a brown (10YR4/3 to 10YR5/3), glossy, translucent chert. Dimensions are: length, 2.0 cm; width, 1.3 cm; thickness, 0.25 cm; length, 2.3 cm; width, 1.4 cm; thickness, 0.25 cm; length, 2.5 cm; width, 1.8 cm; thickness, 0.30 cm.

Dart Points

Bulverde-like

A single dart point (Lot #0) recovered while cleaning the profile of Bulldozer Trench III was identified as being similar to the type Bulverde (Suhm and Jelks 1962:169, Plate 85). This point (Figure 3-6:f) has a triangular blade with one straight edge and one slightly recurving edge, producing a slight ear at one shoulder. Shoulders are squared, and the stem is parallel-sided, with rounded corners and a straight base. Material is a brown (10YR4/3), glossy chert with circular inclusions about 1 mm in diameter. One face of the point has weathered to shades of light gray to grayish brown. Dimensions are: length, 6.4 cm; width, 2.8 cm; thickness, 0.7 cm.

Pedernales

Two fragmentary dart points were identified with the type Pedernales (Suhm and Jelks 1962:235,236, Plates 118,119). One of the fragments (Figure 3-6:g), collected from the margin of the gravel pit, is missing the distal tip. A knob of material on one face suggests that the point was broken or abandoned prior to completion. The blade edges are straight, and the shoulders are

Table 3-19
Site 41FY509, Artifacts, Summary

Description	UNIT A	UNIT B	UNIT C	UNIT D	UNIT E	UNIT F	UNIT G	UNIT H	UNIT I	UNIT J	UNIT K	UNIT L	UNIT M	UNIT N	UNIT O	UNIT P	MISC.	TOTAL
<u>Prehistoric,</u>																		
<u>Chert</u>																		
Arrowpoints, Scallorn	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Arrowpoints, untyped fragments	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	1	-	3
Dart Points, Bulverde-like	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Dart Points, Pedernales	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Dart Points, untyped lanceolate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Dart Points, untyped fragments	1	1	3	-	1	-	-	-	-	-	-	-	-	-	-	1	1	8
Knives/Thin Bifaces	2	2	-	-	1	-	2	-	1	3	-	-	4	-	2	3	8	28
Gouges, Clear Fork Tools	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	4
Gouges, Guadalupe-like	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Bifaces, medium thickness	2	5	2	1	2	-	-	1	-	-	-	-	2	3	1	1	8	28
Bifaces, thick	1	4	1	3	-	1	-	-	-	-	-	-	-	1	2	2	5	20
Cobbles, cortex removed	1	2	1	2	1	1	1	1	-	-	-	-	1	1	-	2	-	14
Cobbles, flake cores	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	-	-	3
Cobbles, cortex partially removed	2	7	1	3	-	-	3	1	1	2	-	-	2	7	2	4	-	35
Cobble fragments, trimmed	-	-	-	2	1	-	1	-	-	-	-	-	-	-	-	1	4	9
Cobble chopper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Unifacial scrapers	-	-	-	-	1	-	-	-	-	1	-	-	-	1	-	2	-	5
Edge-modified flakes	45	25	9	40	8	4	3	7	1	7	-	1	17	16	10	7	1	201
Flakes, primary, larger than 2 cm	7	18	9	16	7	-	4	9	7	1	1	-	7	7	3	6	-	102
Flakes, primary, smaller than 2 cm	8	12	3	11	2	-	12	-	2	-	-	-	3	-	4	7	-	64
Flakes, secondary, larger than 2 cm	55	67	61	73	54	8	29	29	10	10	1	-	49	49	35	35	2	567
Flakes, secondary, smaller than 2 cm	110	36	13	31	8	3	4	9	8	7	-	-	20	12	14	24	-	299
Flakes, interior, larger than 2 cm	185	126	112	180	141	21	77	92	31	53	-	2	166	136	77	74	5	1478
Flakes, interior, smaller than 2 cm	487	365	274	406	276	36	159	219	89	110	4	-	456	276	206	263	-	3626
Chips, larger than 2 cm	133	103	73	84	92	12	66	73	34	23	-	-	101	64	49	56	6	969
Chips, smaller than 2cm	1360	1450	1096	1309	849	104	1002	872	290	217	15	1	956	653	517	612	-	11303
Chunks, larger than 2 cm	30	51	31	70	24	10	27	41	5	2	-	-	38	24	23	25	1	402
Chunks, smaller than 2 cm	84	169	108	160	69	10	42	93	23	16	-	-	32	35	34	53	-	928
Hammerstones	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Thermal shatter, larger than 10 cm	2312	4089	267	-	1218	1115	1738	5270	756	-	-	-	1309	1084	-	-	-	19158
Thermal shatter, 2 - 10 cm diameter	19630	21170	13656	10475	12939	4353	20855	32932	15212	7560	852	40	16710	21568	18503	7243	-	223698
Thermal shatter, smaller than 2 cm	7770	7330	4397	6618	4631	1155	6864	7560	4018	2111	282	48	5504	5078	7281	3030	-	73677
<u>Historic</u>																		
<u>Ceramic</u>																		
Whiteware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
<u>Glass</u>																		
Amber	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Faunal</u>																		
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Mussel shell	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Charcoal</u>																		
	-	-	23gm	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23

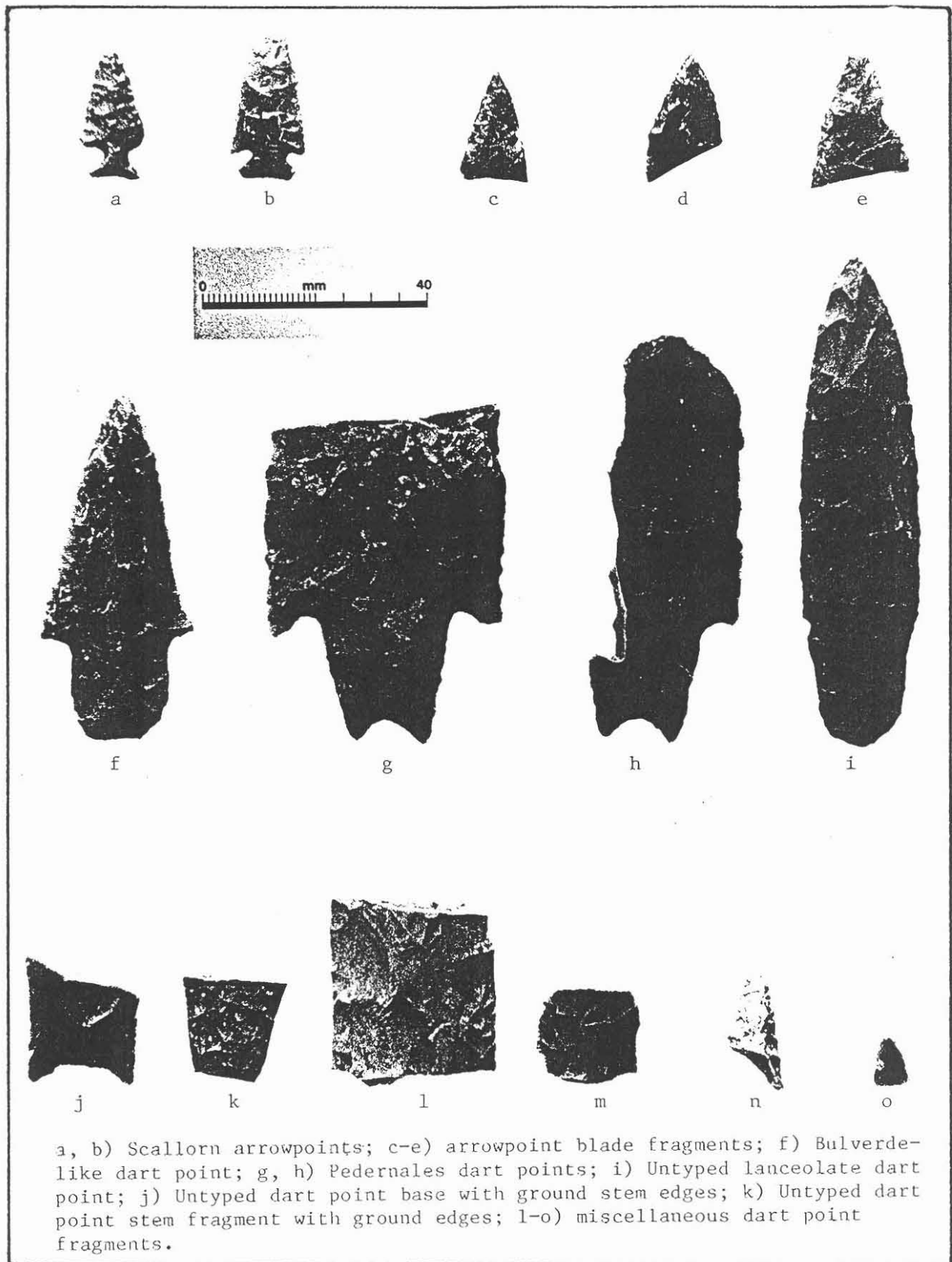


Figure 3-6. Site 41FY509, artifacts, arrowpoints, and dart points.

barbed. The stem edges are straight and contracting. The base is indented. Material is gray to light brownish gray (10YR5/1 to 10YR6/2) chert with lighter-colored inclusions up to 1 cm in diameter, weathered on one face to an almost white color. Dimensions are: length, 6.0 cm; width, 4.4 cm; thickness, 1.1 cm.

The other fragment (Lot #10, Figure 3-6:h) is missing the distal end and one blade edge. The remaining distal end may have been reworked or utilized. The remaining blade edge is straight, with a slightly barbed shoulder. The stem is slightly contracting with straight edges. The base is indented. Material is dark grayish brown to grayish brown (10YR4/2 to 10YR5/2) chert with lighter colored inclusions up to 2 mm in diameter. Dimensions are: length, 7.3 cm; width, 2.7 cm; thickness, 0.84 cm.

Untyped, Stemmed Lanceolate

A stemmed lanceolate dart point (Figure 3-6:i) was recovered from the surface during the initial survey and recording of the site. The blade is long and slender with convex edges. Shoulders are weak, and the stem is marked only by a slight contraction from the blade edges. The stem has straight to slightly convex edges, and the base is rounded. It is similar to a group of lanceolate points from the Kennedy Bluffs Site, 41BP19, identified as dating to the Early Archaic (Goode 1989). Material is brown to pale brown (10YR5/3 to 10YR6/3) chert. Dimensions are: length, 8.76 cm; width, 2.18 cm; thickness, 0.85 cm.

Untyped Fragments

Biface fragments identified as probable dart point fragments include 2 distal tips, 5 medial sections, and a basal fragment. Each is briefly described in Table 3-20. None of the fragments can be identified with a specific previously identified type. However, the single basal fragment with ground edges and the medial section with ground edges may date to the Late Paleoindian/Early Archaic.

Knives/Thin Bifaces

No complete knives or thin bifaces were recovered, thus it is possible that the category represents a final manufacturing stage rather than a finished tool. The group was recognized on the basis of relatively large areal size and relative thinness of the pieces. The pieces range in size up to a maximum length of 9 cm and a maximum width of 5.2 cm. Maximum thickness of the pieces is 1.1 cm. All of the fragments exhibit fine retouch around the edges, and faces have a generally smooth appearance. Materials and dimensions of the fragments are summarized in Table 3-21. Eight distal fragments indicate that blades were leaf-shaped with convex edges (Figure 3-7:a-e). One fragment (Figure 3-7:f) has a rounded, convex base, and four fragments (Figure 3-7:g-j) have straight to concave bases. An additional fifteen medial fragments and edge fragments were also categorized as knife/thin biface fragments. This group of artifacts cannot be discretely dated, as it may in fact include several different types. However, the basal fragments may be compared with the types Covington Biface, Friday Biface, and Cahagan Biface, which have been dated to the Late Archaic through Late Prehistoric time periods (Turner and Hester 1985).

Table 3-20
Site 41FY509, Dart Point Fragment Descriptions

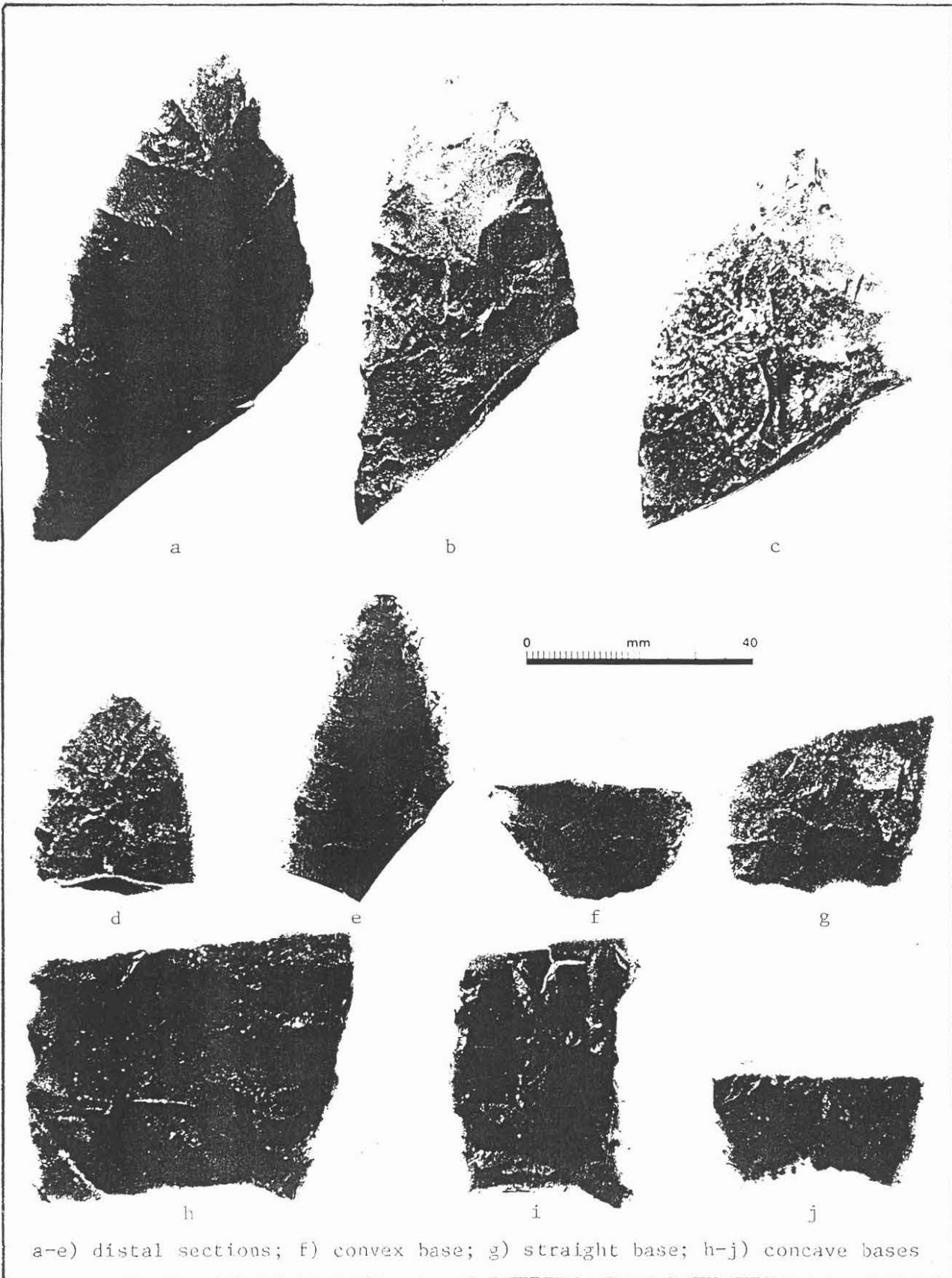
Lot #	Description	Dimensions (cm)		
		L	W	T
0	Medial section (Figure 3-6:l); 7.5YR8/1, opaque, matte chert	3.5	3.0	0.90
4	Medial section (Figure 3-6:m); 10YR7/1-10YR8/1, opaque, matte chert	1.6	1.9	0.59
11	Distal tip (Figure 3-6:n); 10YR8/2, opaque, matte chert	2.2	1.1	0.44
14	Distal tip (Figure 3-6:o); 10YR3/2, translucent chert	1.1	0.7	0.38
14	Basal fragment, straight ground edges, concave base (Figure 3-6:j); 10YR5/2, opaque, matte chert	3.4	3.3	0.50
15	Edge fragment, possibly stem; 2.5YR3/2, semi-translucent, waxy-looking chert	2.2	2.3	0.57
28	Medial section; 2.5YR4/2, burned, opaque, matte chert	1.3	2.6	0.63
84	Medial section, probably stem, straight, ground edges (Figure 3-6:k); 10YR7/2-10YR8/1, opaque, matte chert	1.9	1.9	0.49

Table 3-21
Site 41FY509, Knife/Thin Biface Descriptions

Lot #	Description	Dimensions (cm)		
		L	W	T
0	Distal Fragment (Figure 3-7:a); 10YR4/1, opaque, matte chert	9.6	5.0	0.80
0	Distal Fragment (Figure 3-7:e); 10YR3/1, semi-translucent, waxy-looking chert	5.6	3.2	0.58
0	Distal Fragment (Figure 3-7:d); 10YR4/2, opaque, matte chert, patinated to N6 gray	3.8	3.0	0.73
0	Distal Fragment; 10YR6/4-10YR7/4, opaque, matte chert	4.1	2.9	0.65
0	Distal Fragment; 10YR5/1-10YR6/4, opaque, matte chert	3.4	3.3	0.50
0	Distal Fragment; 10YR6/1, opaque, waxy-looking chert	3.1	2.3	0.48
0	Straight Base (Figure 3-7:g); 10YR4/1 with 10YR7/2 stripe, opaque, matte chert	3.3	3.7	0.73

Table 3-21 (continued)
 Site 41FY509, Knives/Thin Biface Descriptions

Lot #	Description	Dimensions (cm)		
		L	W	T
0	Concave Base (Figure 3-7:h); 10YR4/1 with 10YR5/1 stripes, opaque, matte chert	5.0	5.8	1.23
2	Medial Section; 10YR3/1, semi-translucent, waxy-looking chert	3.5	3.2	0.67
3	Edge fragment; 2.5YR5/2-10YR6/2, opaque, waxy-looking chert	2.0	3.0	0.58
9	Edge fragment; 5YR5/3, opaque, matte chert	1.5	0.8	0.34
12	Edge fragment; 10YR4/2, semi-translucent, waxy-looking chert	3.6	1.5	0.50
30	Medial section; 10YR4/1, opaque, matte chert, patinated white on one face	3.3	3.2	0.71
40	Medial section; 10YR3/1, semi-translucent, waxy-looking chert	3.8	2.8	0.56
40	Edge fragment; 10YR5/2-10YR6/2, opaque, matte, chert	3.7	0.9	0.87
52	Concave Base (Figure 3-7:l); 10YR4/1 with 10YR7/2 stripes, semi-translucent, waxy-looking chert	5.0	3.5	0.69
58	Edge fragment; 10YR5/2, opaque, matte chert	2.0	0.8	0.23
58	Edge fragment; 10YR6/3, opaque, waxy-looking chert	1.3	0.8	0.26
59	Medial section; 10YR6/2, opaque, matte chert	1.9	2.5	0.55
70	Concave Base (Figure 3-7:j); 10YR5/4, opaque, waxy-looking chert	2.4	3.8	0.60
70	Edge fragment; 10YR4/1, opaque, matte chert	1.8	2.3	0.38
70	Edge fragment; same as above, probably both from same artifact	1.8	1.1	0.33
71	Distal Fragment (Figure-3-7:b); 10YR5/3-10YR6/3, opaque, matte chert	8.1	4.3	0.74
79	Edge fragment; 10YR6/2-10YR7/1, opaque, matte chert	2.0	1.0	0.29
80	Distal Fragment (Figure 3-7:c); 10YR3/1 opaque, matte chert, patinated gray on one face	7.1	5.0	0.84
82	Convex Base (Figure 3-7:f); 10YR4/1, semi-translucent, waxy-looking chert	2.4	3.8	0.64
83	Edge fragment; 2.5YR2.5/4, opaque, waxy-looking chert	2.6	2.5	0.50
83	Edge fragment; 10YR4/1, opaque chert, with thermal pottlid scars	1.0	1.7	0.38



a-e) distal sections; f) convex base; g) straight base; h-j) concave bases

Figure 3-7. Site 41FY509, artifacts, knives/thin bifaces.

Gouges

Clear Fork Tools

Four artifacts with steep retouch along one end were identified as Clear Fork Tools (Turner and Hester 1985:205-208). All are bifacially flaked. Two of the artifacts (Figure 3-8:a,b) have straight, slightly contracting sides, and both are missing the proximal ends. The other two artifacts (Figure 3-8:c,d) have slightly convex, contracting stems and rounded proximal ends. Materials and dimensions are presented in Table 3-22.

Table 3-22
Site 41FY509, Clear Fork Tool Descriptions

Lot #	Material	Dimensions (cm)		
		L	W	T
4	10YR5/1-10YR6/2 chert, with 2.5YR4/2 patches at proximal end, patinated white on one face (Figure 3-8:a)	6.3	3.8	1.5
61	N4 to N5 chert, patinated white on one face (Figure 3-8:b)	6.4	3.5	0.9
11	10YR6/2 chert with many small (less than 1 mm dia) 10YR7/2 inclusions (Figure 3-8:c)	7.3	5.6	1.6
0	10YR6/1 chert with many small (less than 1 mm dia) 10YR7/1 inclusions (Figure 3-8:d)	8.3	4.3	1.45

Guadalupe-like Tools

Two fragmentary artifacts with evidence of working at the apparently distal ends were identified as being similar to Guadalupe Bifaces (Turner and Hester 1985:216-218), but not fully conforming to the type descriptions.

One artifact (Lot #4) appears to have been made from a thick flake, and has a triangular cross section, with a flat ventral surface. The bit facet is concave rather than convex and the end is square rather than round (Figure 3-9:a); these aberrations from the formal description of the type may be the result of heavy use. Material is an opaque, dark grayish brown (10YR4/2) to light gray (10YR6/1) chert, patinated to white on one face. Dimensions are: length, 5.4 cm; width, 4.3 cm; thickness, 2.3 cm.

The other artifact (Lot #22) also has a triangular cross section, with a flat ventral surface, though this has been achieved by removal of at least two flakes. The bit facet is partially concave and partially convex, with the concave portion confined to one irregular portion of the edge. The working end is rounded (Figure 3-9:b), with one portion (including the concave bit facet) appearing slightly concave. Material is an opaque chert with bands of semi-glossy, grayish brown (10YR5/2) and semi-matte, light gray (10YR7/2) and patches of matte, pale brown (10YR6/3). Dimensions are: length, 4.9 cm; width, 4.3 cm; thickness, 2.0 cm.

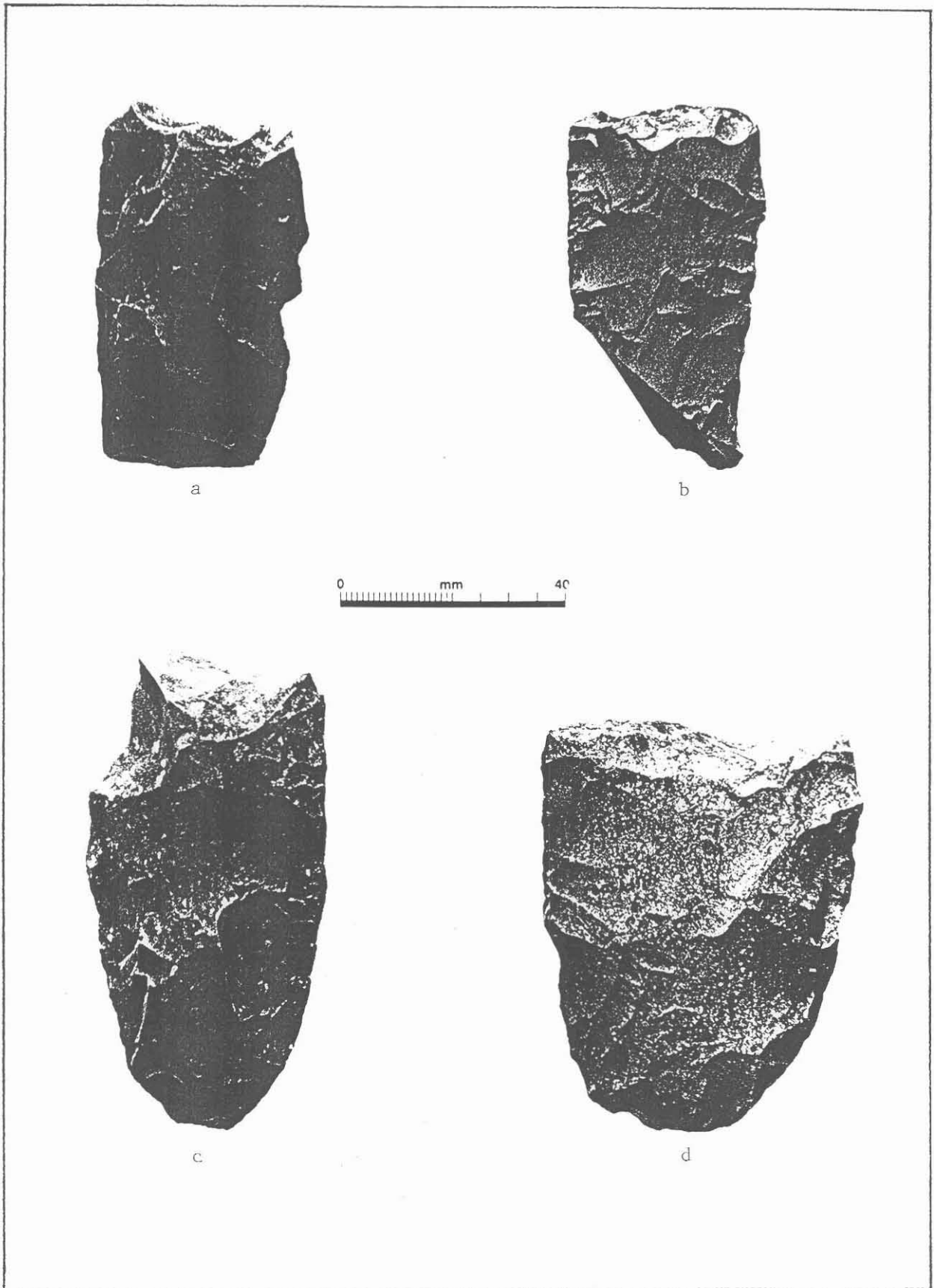


Figure 3-8. Site 41FY509, artifacts, Clear Fork tools.

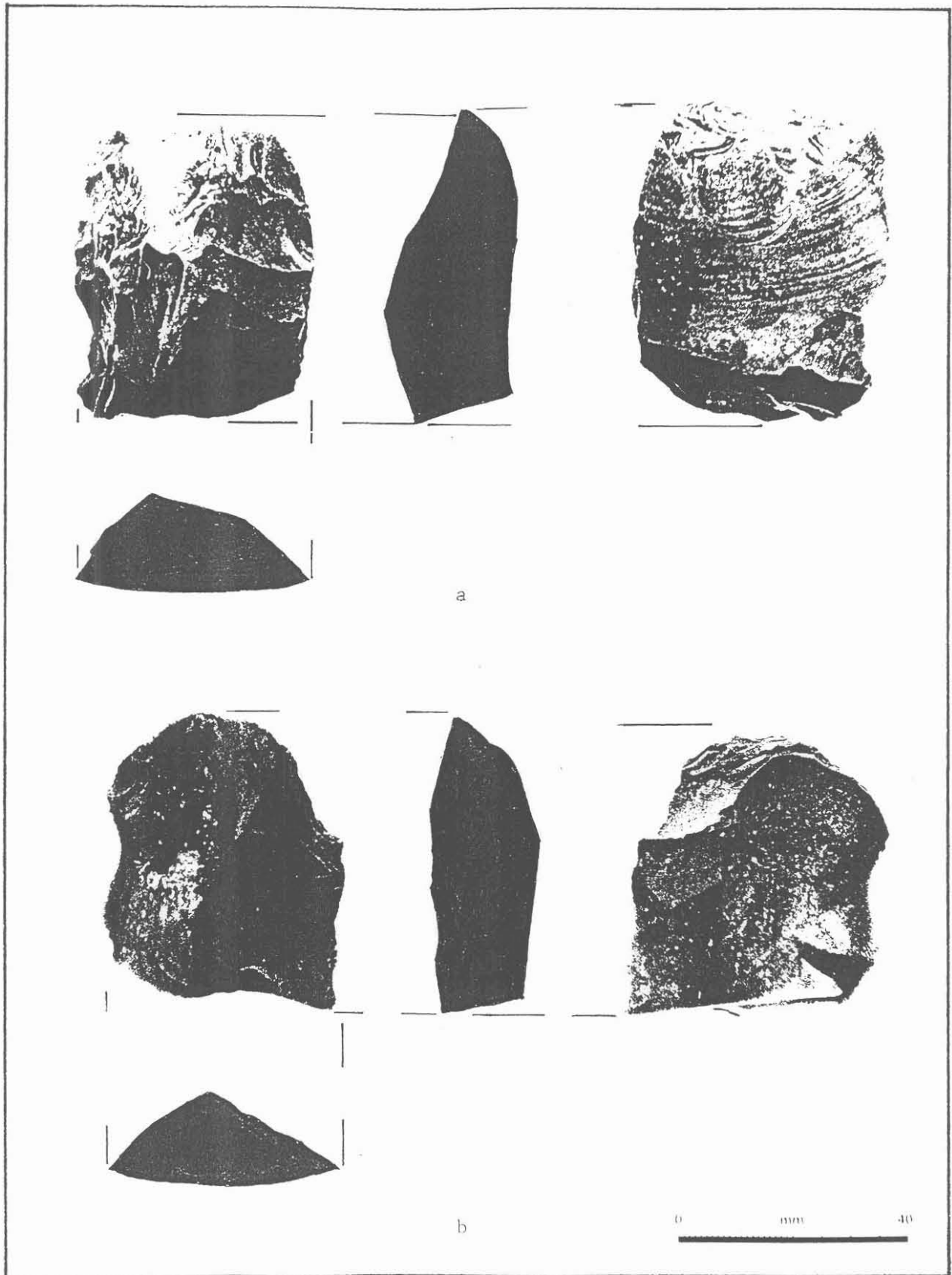


Figure 3-9. Site 41FY509, artifacts, Guadalupe-like tools.

Bifaces-Medium Thickness

The unifying characteristic of this category is the relative thickness of each piece when compared with length and width. In general the pieces have a thickness of between 1 and 2 cm. However, the category was not defined on an objective basis of strict dimensions or dimensional ratios, but rather on general perceptions and comparison with other artifacts collected from the site. The category appears to consist of unfinished tools, or preforms, which with additional thinning and edge retouch would probably have been intended as either knives or dart points. Three appear to be unbroken, with edge modification around the entire periphery. The remaining twenty-four artifacts in the category were fragmentary, apparently having been broken during manufacture. A few of the pieces appear to have been adapted/modified and used as tools of convenience. Only a few of the pieces could be tentatively identified with previously defined types or functional categories.

Bristol Bifaces

Two apparently intact pieces, with chipping around their entire perimeters were tentatively identified with the type Bristol Biface (Turner and Hester 1985:201).

One example (Lot #0) has convex lateral edges, one convex end, and a concave end (Figure 3-10:a). The longitudinal cross section is plano-convex. Fine edge retouch or work scarring is present around the entire perimeter, though opposing edges are generally flaked on opposing faces. Material is a semi-translucent, very dark gray (10YR3/1), semi-glossy chert. Dimensions are: length, 4.2 cm; width, 3.5 cm; thickness, 0.93 cm.

The other example (Lot #4) is almost circular in outline (Figure 3-10:b). It also exhibits fine retouch or work scarring around the entire perimeter, though mostly on one face. Material is a semi-translucent, dark gray (10YR4/1), semi-glossy chert. Dimensions are: length, 4.6 cm; width, 4.6 cm; thickness, 0.96 cm.

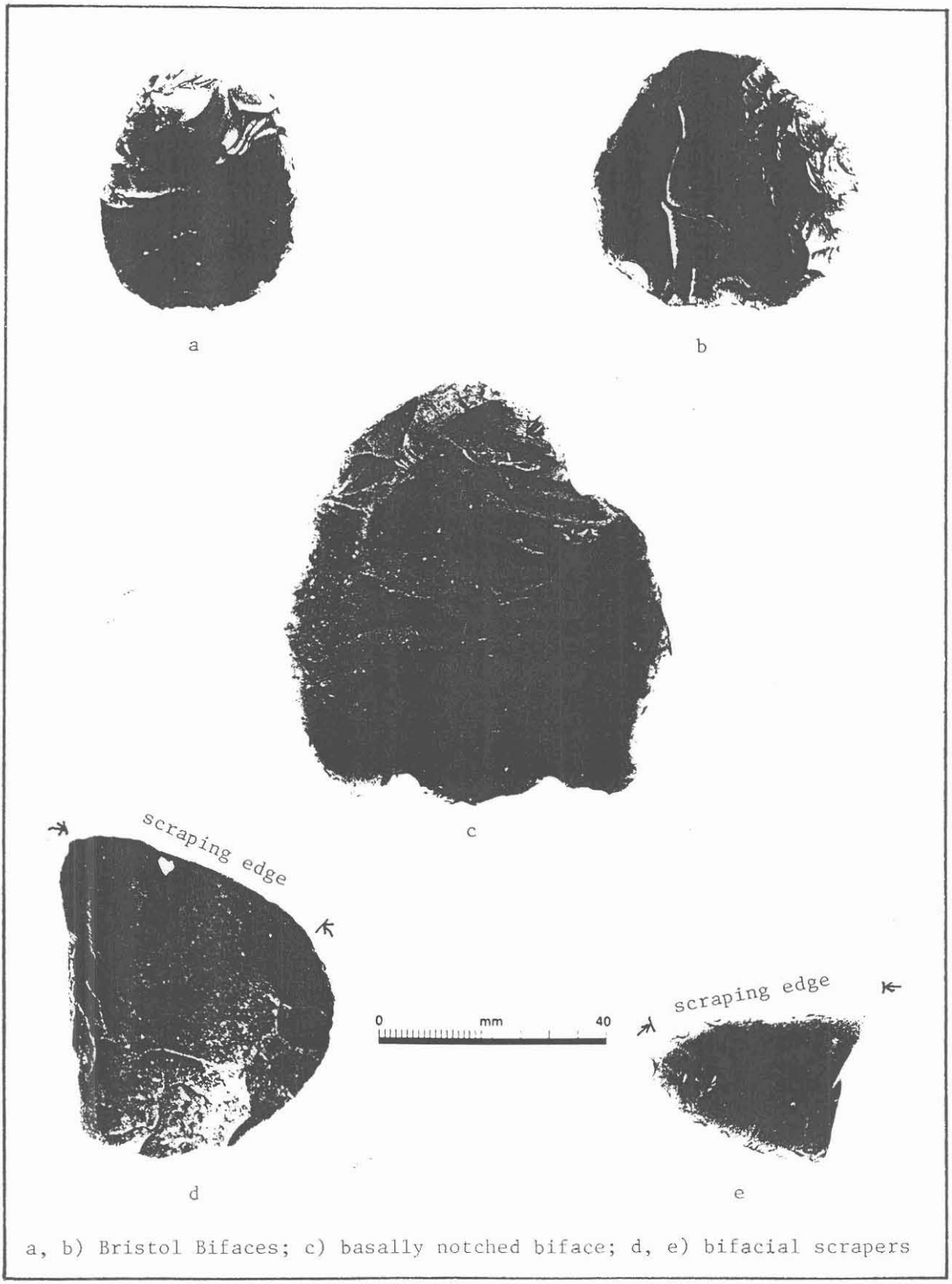
Basally Notched Biface

This artifact (Lot #0) has convex edges, a rounded distal end, and a straight base with two slight notches in it (Figure 3-10:c). Flake scars are generally large, probably the result of a hard-hammer technique. Fine edge retouch or work scarring is present along portions of the curved edges. In outline the piece somewhat resembles a large, crude Marshall dart point (Suhm and Jelks 1962:211, Plate 106). Material is a semi-translucent, very dark gray to black (10YR3/1 to 10YR2/1), semi-glossy chert, with a light bluish gray (5B6/1 to 5B7/1) patina beginning to form on one face. Dimensions are: length, 7.4 cm; width, 6.8 cm; thickness, 1.44 cm.

Bifacial Scrapers

Two biface fragments with relatively smooth edges appear to have been used as scrapers.

One fragment (Lot #0) has an elliptical worked edge, one side of which is somewhat sinuous, while the end and opposite side are smoother and exhibit



a, b) Bristol Bifaces; c) basally notched biface; d, e) bifacial scrapers

Figure 3-10. Site 41FY509, artifacts, medium bifaces.

fine retouch or work scarring on both faces (Figure 3-10:d). Material is an opaque, gray to light brownish gray (10YR5/1 to 10YR6/2), semi-glossy chert, patinated light gray (10YR7/1) to white (10YR8/1) on one face. Dimensions are: length, 4.8 cm; width, 5.5 cm; thickness, 1.57 cm.

An apparently adapted/modified distal fragment of an intended thin biface (Lot #0) exhibits steep retouch or blunting along the snapped edge. One of the original edges is convex, while the other is straight and exhibits edge retouch or work scarring (Figure 3-10:e). Material is a translucent, dark gray (5YR4/1 to 5YR5/1), semi-matte chert. Dimensions are: length, 4.1 cm; width, 3.2 cm; thickness, 0.93 cm.

Irregularly Edge-Modified Fragments

Ten biface fragments with generally sinuous edges were recognized as having fine flaking along portions of the edges. This fine flaking was not sufficient to produce either straight or regularly curved edges which could be analyzed to speculate on possible artifact functions. The fine flaking may be the result of use, accidental damage, or attempts at preparing the edge as a platform for further flaking.

One fragment (Lot #0) has roughly parallel edges, one convex the other concave, and an apparent slight stem (Figure 3-11:a). Edge modification is present along the convex edge, and to a lesser extent, along the concave edge. Material is an opaque, grayish brown (10YR5/2), semi-matte chert, with a slight white patination on one face. Dimensions are: length, 8.3 cm; width, 4.9 cm; thickness, 1.74 cm.

One fragment (Lot #0) has convex edges and a somewhat pointed end (Figure 3-11:b). Edge modification is present along one edge and the pointed end. Material is an opaque, gray (10YR5/1), matte chert with cortex over one face. Dimensions are: length, 5.3 cm; width, 6.0 cm; thickness, 1.86 cm.

One fragment (Lot #0) has convex edges and a rounded end (Figure 3-11:c). Edge modification is visible along the end and small sections of each edge. One face of the artifact is a semi-glossy, dark brownish gray (10YR4/2) chert, while the remainder is slightly grayer and of matte appearance/texture. Dimensions are: length, 7.6 cm; width, 5.8 cm; thickness, 1.80 cm.

One fragment (Lot #0) appears to be a pointed distal fragment (Figure 3-11:d). Edge modification is clearly visible along the shorter edge, and is also present on the opposite face of the longer edge. Material is an opaque, light brownish gray (10YR6/2) and very pale brown (10YR7/3), semi-matte chert. Dimensions are: length, 4.5 cm; width, 4.1 cm; thickness, 1.05 cm.

One fragment (Lot #3) is apparently a distal end fragment, with slight edge modification along one of the edges. Material is an opaque, light gray (10YR7/2) with light yellowish brown (10YR6/4) areas, semi-matte chert. Dimensions are: length, 3.2 cm; width, 3.9 cm; thickness, 0.93 cm.

One fragment (Lot #8) is a medial section with one slightly convex edge and one slightly concave edge. Both edges appear to be modified. Material is virtually identical with the preceding specimen, but the pieces do not match. Dimensions are: length, 3.9 cm; width, 3.9 cm; thickness, 1.37 cm.

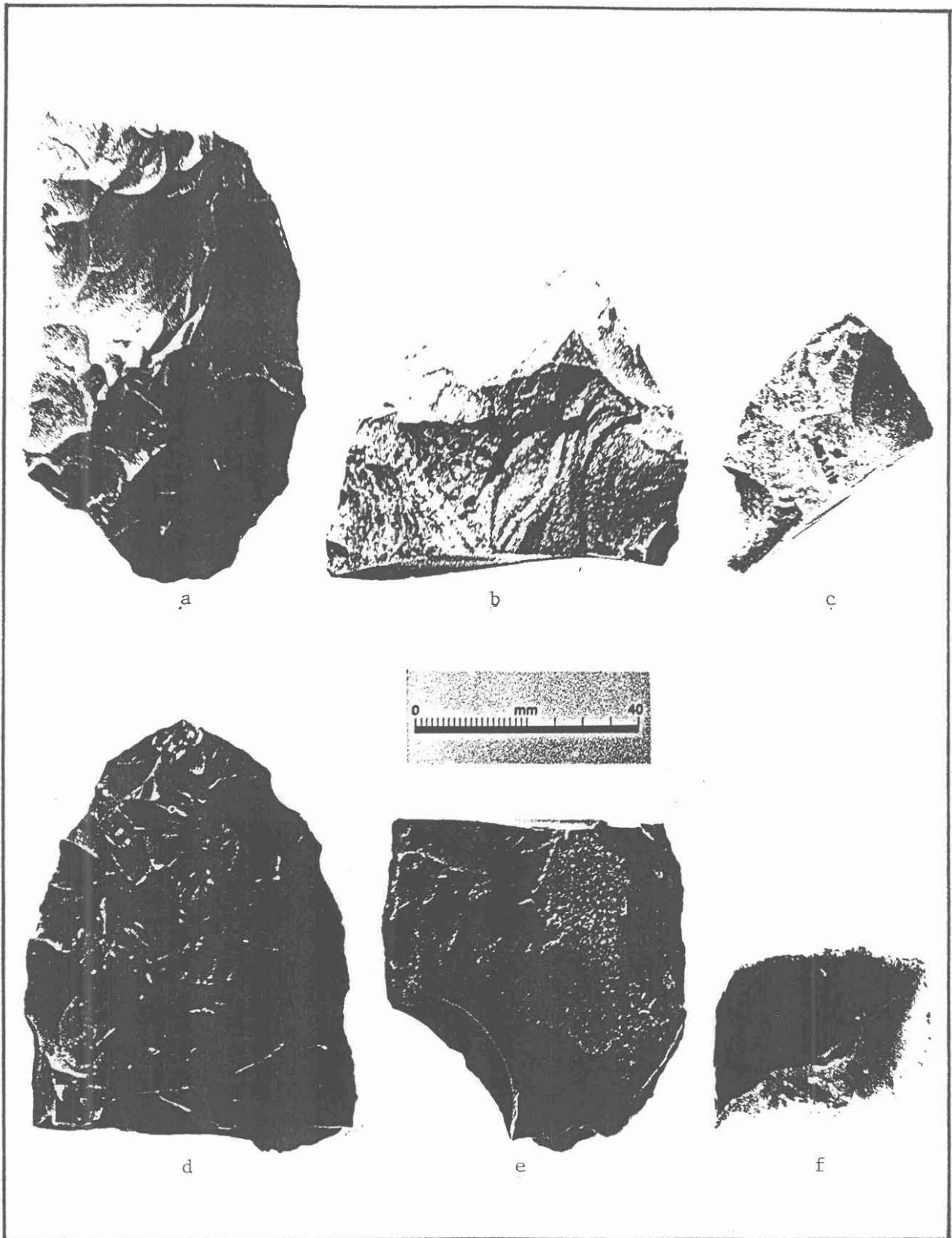


Figure 3-11. Site 41FY509, artifacts, medium bifaces.

One fragment (Lot #20) has roughly parallel, straight to slightly convex edges, with a rounded end, one corner of which is missing (Figure 3-11:e). Edge modification is visible on the shorter edge, and to a lesser extent on the opposite face of the longer edge. Material is an opaque, dark gray (10YR4/1), matte chert, with very pale brown (10YR7/4) cortex on one face and a light gray (between 10YR7/1 and 10YR7/2) patina on the other face. Dimensions are: length, 5.9 cm; width, 5.3 cm; thickness, 1.84 cm.

One fragment (Lot #71) is a somewhat pointed, possibly broken and reshaped, end fragment. Edge modification is visible along most of the worked edges. Material is an opaque, grayish brown (10YR5/2), semi-glossy chert. Dimensions are: length, 3.7 cm; width, 4.0 cm; thickness, 0.99 cm.

One fragment (Lot #72) is irregularly shaped, with edge modification clearly present along all but the broken edge. Material is an opaque, very pale brown (10YR7/3), matte chert. Dimensions are: length, 4.6 cm; width, 2.8 cm; thickness, 1.25 cm.

The final fragment (Lot #78) is a lateral edge fragment (Figure 3-11:f), with edge modification clearly visible along the original biface edge. Edge modification is also present along the curved broken edge, but not along the straight broken edge. Material is a translucent, grayish brown (10YR5/2), semi-glossy chert. Dimensions are: length, 3.9 cm; width, 3.3 cm; thickness, 0.94 cm.

Miscellaneous Fragments

Thirteen miscellaneous, generally small, biface fragments were also identified. These pieces include small, lateral edge fragments, end fragments, and medial sections. Each is briefly described in Table 3-23.

Thick Bifaces

This category was separated on the basis of having, or appearing to have, greater thickness, particularly when compared to the width of the artifacts, than the previously defined category of medium thick bifaces. Again, the category was not defined on an objective basis of strict dimensions or dimensional ratios, but on comparison with other artifacts from the site. The category appears to consist of unfinished artifacts, or fragments broken during manufacture. The artifacts are viewed as preforms. Had they not been broken or abandoned, it is believed that they could, with additional flaking, have produced thin bifaces such as knives or dart points, or thicker tool types such as gouges. Of course, it is also possible that the artifacts could have been used as they are as tools of convenience for minor tasks. The following subdivision of the category is based partly on the perceived stage of reduction and partly on the artifact shape.

Rough Lanceolates

Five artifacts were grouped together on the basis of roughly lanceolate outlines and triangular to diamond-shaped cross sections. Variability within the group may reflect either the early stage of manufacture (where the primary task has been removal of the cortex rather than shaping of the edges), or differing functions or methods of use of the final intended artifacts.

Table 3-23
Site 41FY509, Medium Biface Fragment Descriptions

Lot #	Description	Dimensions (cm)		
		L	W	T
7	Distal tip; opaque, 10YR7/2, semi-gloss chert	1.6	2.0	0.45
7	Lateral edge fragment; opaque, 10YR5/3, semi-matte chert	2.0	1.4	0.67
7	Lateral edge fragment; semi-translucent, 5YR4/2, semi-glossy chert	1.3	1.5	0.52
11	Spall with bifacial edge; opaque, 5YR4/2, semi-glossy chert with 5YR7/3 inclusions	1.6	3.9	0.62
14	Medial section; opaque, 2.5YR4/2, semi-matte chert, with crystalline inclusions	3.6	3.2	1.04
16	Lateral edge fragment; opaque, thermally spalled, 2.5YR2.5/4 and 2.5YR6/4, matte chert	2.5	2.7	0.83
28	Medial fragment with very irregular edges; opaque, 2.5YR3/2 to brown 7.5YR4/2, matte chert	3.8	5.3	0.67
28	Lateral edge fragment; semi-translucent, 10YR4/2 to 10YR5/2, semi-matte chert	1.7	3.1	1.09
50	Lateral edge fragment; opaque, 10YR5/3), matte chert	1.8	0.8	0.52
75	Lateral edge fragment; opaque, 10YR6/4 to 10YR4/3, semi-matte chert	3.9	1.6	0.92
76	Lateral edge fragment; translucent, 10YR3/1, semi-glossy chert	2.3	3.0	0.85
77	Lateral edge fragment; opaque, 10YR7/2 to 10YR5/3, semi-matte chert	3.2	2.1	0.79
82	Lateral edge fragment; opaque, 10YR6/3, semi-matte chert	2.2	3.9	0.99

All of the pieces exhibit edge modification, and in each of these pieces one edge (the right, as illustrated) appears to be flaked at a steeper angle than the opposite edge. It is postulated that these steeper-flaked edges were the equivalent of the back edge of a modern knife, and were used to bring pressure on the opposite, or working edge, for either scraping or cutting activities.

One artifact (Lot #0, Figure 3-12:a) has a convex right edge which exhibits battering/steep retouch. The other edge is less convex and exhibits edge modification with flake scarring only on the upper face, perhaps the result of scraping activities. Material is an opaque, grayish brown (10YR5/2), semi-glossy chert. Dimensions are: length, 6.3 cm; width, 2.7 cm; thickness, 1.17 cm.

One artifact (Lot #0, Figure 3-12:b) has a fairly straight right edge, with steep retouch and minor edge modification flaking along both faces. The opposite edge is more irregular, with a short concave section with edge modification flake scarring on the upper face only. Material is an opaque, grayish brown (10YR5/2) with white (10YR8/2) mottles and patination, semi-matte chert. Dimensions are: length, 6.8 cm; width, 3.6 cm; thickness, 2.25 cm.

One artifact (Lot #10, Figure 3-12:c) has a fairly straight right edge and a convex left edge. It still retains a little cortex on the upper face. Minor edge modification flaking is present along the upper face of the right edge and the lower face of the left edge. Material is an opaque, brown (10YR4/3), semi-glossy chert. Dimensions are: length, 7.1 cm; width, 3.6 cm; thickness, 1.75 cm.

One artifact (Lot #23, Figure 3-12:d) has a convex right edge with battering or steep retouch scars on both faces. The left edge is not quite as convex, but also exhibits battering or steep retouch scars along both faces, though not as intensely as on the right edge. One face still retains a little cortex. Material is an opaque, pale brown (10YR6/3) to grayish brown (10YR5/2), semi-matte chert. Dimensions are: length, 8.2 cm; width, 3.6 cm; thickness, 2.10 cm.

The final artifact (Lot #80, Figure 3-12:e) has a fairly straight right edge with edge modification flake scars along both faces. The left edge is more convex, though with a long straight section which exhibits edge modification flake scars along both faces. Material is an opaque, light gray (10YR7/2) to white (10YR8/2) with dark grayish brown (10YR4/2) splotches and bands, semi-matte chert. Dimensions are: length, 7.9 cm; width, 3.6 cm; thickness, 1.66 cm.

Parallel-sided

Three fragments with apparent proximal ends were grouped on the basis of relatively parallel edges and convex-to-straight bases. The cross sections are somewhat flatter than the rough lanceolate group, and it is believed that the completed artifacts would have been gouges, of the Clear Fork type.

The largest fragment (Lot #0, Figure 3-12:f) is fairly crudely chipped, though the upper face of the right edge (as illustrated) exhibits finer, longer, flake scarring, perhaps indicative of more final shaping. The base is convex. Material is an opaque, semi-matte chert, with varying color bands including light gray (10YR7/2), grayish brown (10YR5/2), and pale brown (10YR6/3). Dimensions are: length, 9.5 cm; width, 4.8 cm; thickness, 1.96 cm.

One fragment (Lot #0, Figure 3-12:g) is more finely flaked, with smoother edges. The base is relatively straight. Material is an opaque, light brownish

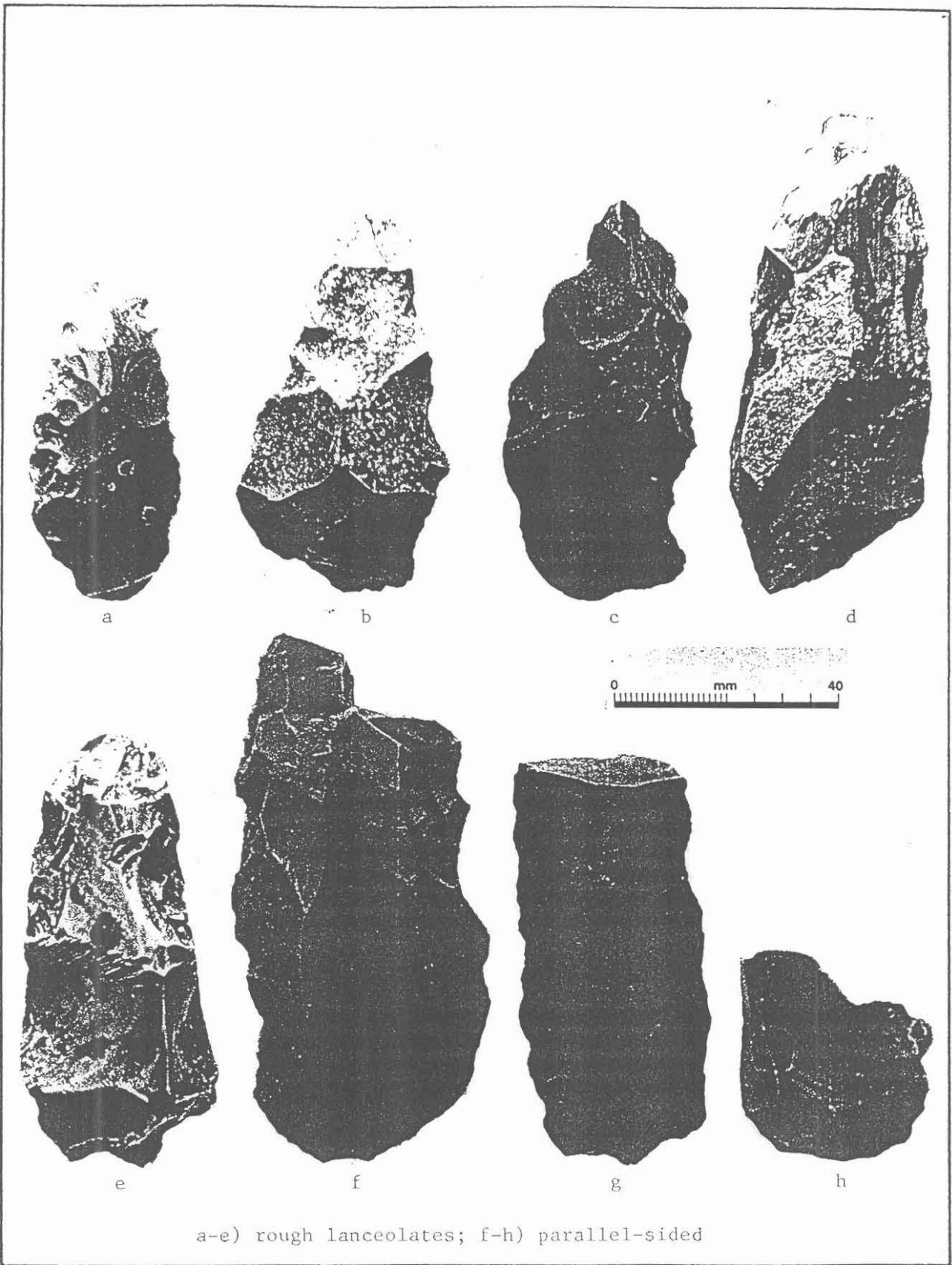


Figure 3-12. Site 41FY509, artifacts, thick bifaces.

gray (10YR6/2) to light gray 10YR7/2), semi-matte chert. Dimensions are: length, 7.5 cm; width, 3.5 cm; thickness, 1.68 cm.

One fragment (Lot #24, Figure 3-12:h) retains only short sections of well-defined edges. The base is straight with rounded corners. Material is an opaque, light gray (10YR 7/1 to 10YR7/2), semi-glossy chert. Dimensions are: length, 4.0 cm; width, 3.6 cm; thickness, 1.07 cm.

Pointed Ovates

A single pointed ovate thick biface was recovered (Lot #4, Figure 3-13:a). The edges are well defined. One face is lenticularly convex, while the other retains a thick knob of material. Attempts to remove this knob appear to have been unsuccessful. Material is an opaque, dark grayish brown (10YR4/2), semi-glossy chert that exhibits a slight light gray (10YR6/1) patina on the smoother face. Dimensions are: length, 7.6 cm; width, 4.9 cm; thickness, 2.87 cm.

Miscellaneous Fragments

Miscellaneous fragments include four distal tips with straight to slightly convex edges, three medial sections with fairly parallel straight edges, two convex edge fragments, and two facial spalls retaining vestiges of bifacially worked edge. These are briefly summarized in Table 3-24, and some are illustrated in Figure 3-13.

Cobbles, Cortex Removed

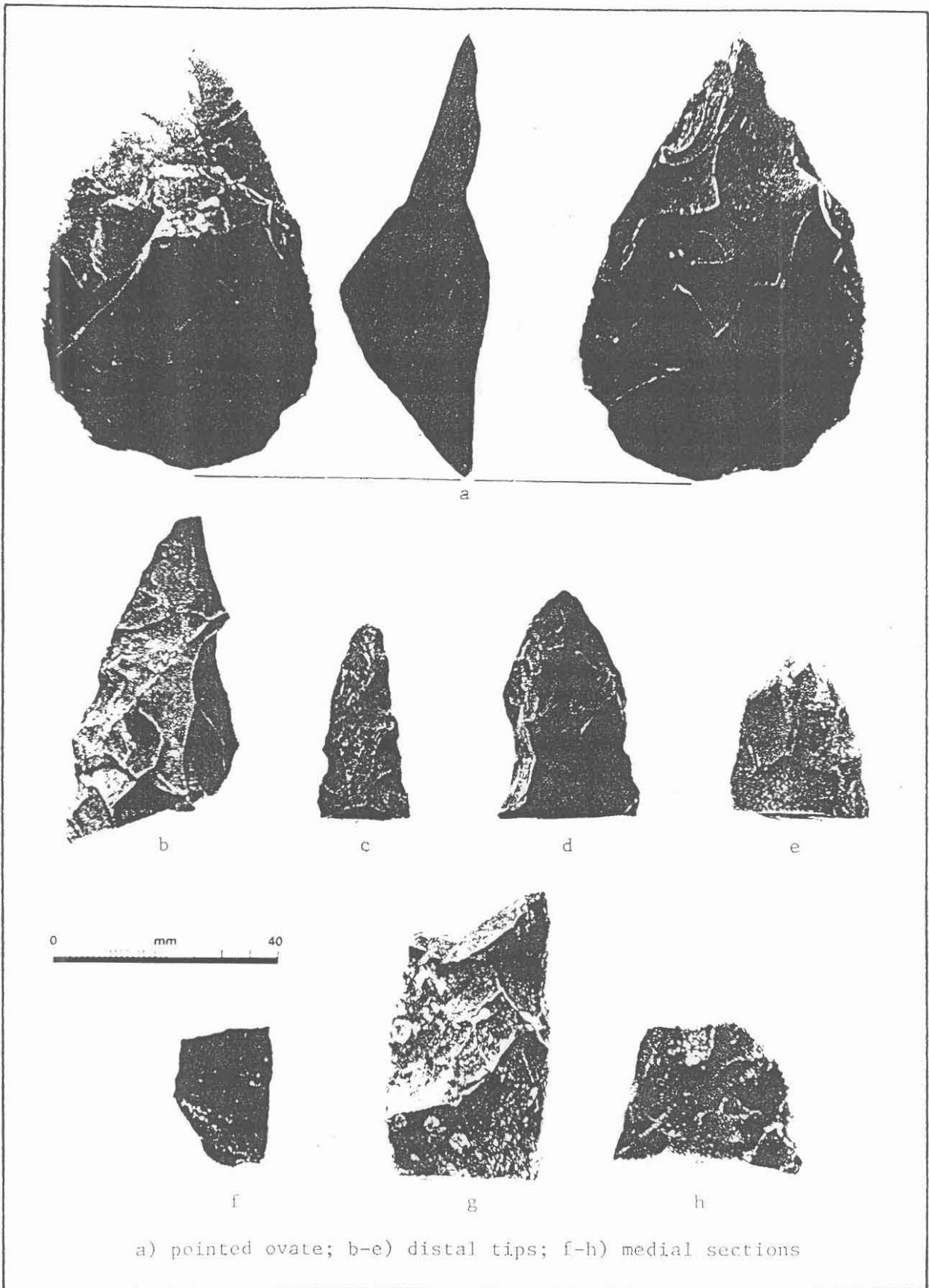
This category of cobbles, each of which is briefly described in Table 3-25, and some of which are illustrated in Figure 3-14, was recognized by the virtual absence of cortex. A few cobbles did, however, retain small traces of cortex. Cortex appears to have been removed using a hard-hammer technique, leaving generally sinuous edges. A few edge sections exhibit modification in the form of fine flake scarring, possibly the result of the artifacts having been used as tools of convenience, rather than as purposely produced tools. Both bifacial scarring, possibly the result of cutting, and unifacial scarring, possibly the result of scraping, are present. The category was subdivided into larger and smaller cobbles.

Larger Cobbles

This group consists of five cobbles with maximum dimensions of approximately 9 cm or larger. Also of note with this group is the fact that each cobble has at least one patinated face, usually indicative of having been exposed on the surface for a considerable time.

Smaller Cobbles

This group consists of nine cobbles with maximum dimensions of less than 7 cm. Further, none of these cobbles appear to have patinated surfaces.



a) pointed ovate; b-e) distal tips; f-h) medial sections

Figure 3-13. Site 41FY509, artifacts, thick bifaces.

Table 3-24
Site 41FY509, Miscellaneous Thick Biface Fragment Descriptions

Lot #	Description	Dimensions (cm)		
		L	W	T
0	Distal tip (Figure 3-13:b); left edge is modified/blunted on upper surface; opaque, 5YR4/3, semi-glossy chert, patinated white on upper surface	6.2	3.2	1.54
8	Distal tip (Figure 3-13:c); both edges are modified on both faces; opaque, 2.5YR3/2, semi-glossy chert, patinated 2.5YR6/2 on one surface	3.6	1.7	0.81
14	Distal tip (Figure 3-13:d); both edges are modified on both faces; opaque, 10YR4/1, semi-matte chert	4.2	2.7	1.21
83	Distal tip (Figure 3-13:e); both edges are slightly modified on both faces; opaque, 10YR3/1, semi-matte chert, patinated or burned white at distal tip	3.1	2.5	1.08
12	Medial section (Figure 3-13:f); smoothed edges; opaque, 2.5YR2.5/2, semi-matte chert	2.6	1.8	1.07
34	Medial section (Figure 3-13:g); smoothed edges; opaque, 10YR4/2, semi-glossy chert	5.2	3.0	2.10
76	Medial section (Figure 3-13:h); smoothed edges; opaque, 10YR4/1 and 10YR5/2, semi-glossy chert	2.9	3.3	1.73
21	Convex edge fragment; opaque, 2.5YR2.5/2, semi-glossy chert	3.2	1.7	1.38
83	Convex edge fragment; opaque, 10YR7/4, semi-matte chert	5.7	3.0	2.06
12	Facial spall with vestige of bifacially worked edge; opaque, 10YR7/4, semi-matte chert	6.3	4.3	1.59
79	Facial spall with vestige of bifacially worked edge; semi-translucent, 10YR3/2, semi-glossy chert	5.5	4.3	1.47

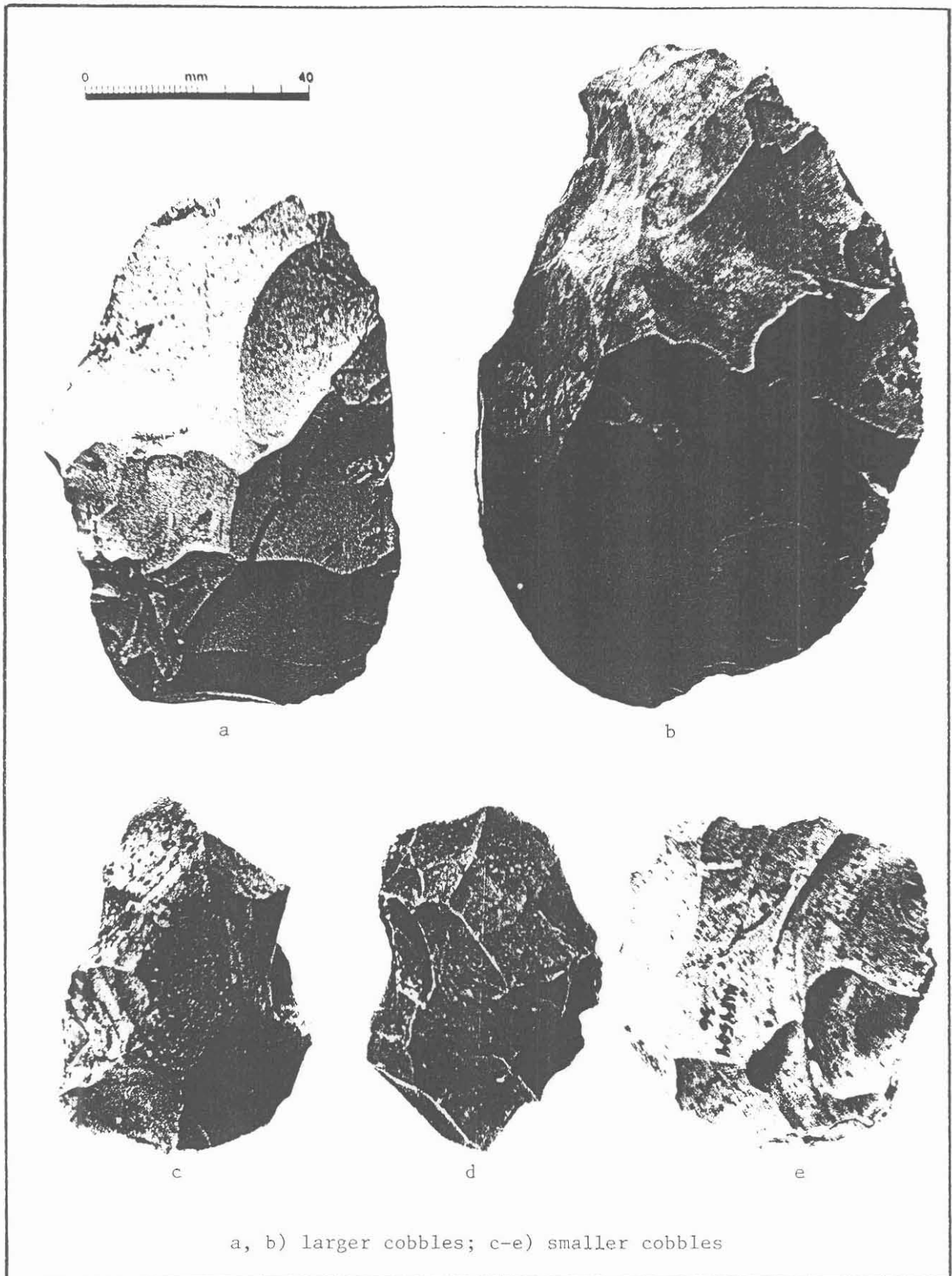
Cobbles, Flake Cores

Three cobble fragments were identified that appeared to have been used as cores for the production of flakes. Of course, the cores originally may have been abandoned during a biface production sequence.

One of the fragments (Lot #44, Figure 3-15:a) still retains cortex over a portion of the surface. At least four flakes have been struck from what was once an apparently tabular surface. Material is a very pale brown (10YR7/3) to white (10YR8/2) chert. Overall dimensions are 3.9 x 6.3 x 4.8 cm.

Table 3-25
 Site 41FY509, Cobbles With Cortex Removed

Lot #	Description	Dimensions (cm)		
		L	W	T
<u>Larger Cobbles</u>				
30	10YR4/2 to 10YR4/1 chert, patinated white on one face; no edge modification	9.1	8.0	5.1
43	10YR7/2 chert, patinated white on one face; no obvious edge modification	11.9	9.1	5.7
77	10YR5/1 chert, patinated white on one face; bifacial and unifacial edge modification (Figure 3-14:a).	9.1	6.1	3.5
84	10YR4/2 chert, patinated white on one face; no obvious edge modification	11.4	7.0	4.2
85	10YR6/2 and 10YR7/3 mottled chert, patinated white on one face; bifacial and unifacial edge modification (Figure 3-14:b)	11.7	8.1	6.7
<u>Smaller Cobbles</u>				
4	10YR7/2 chert with 10YR4/6 mottles, less than 2mm in diameter; bifacial edge modification (Figure 3-14:c)	6.3	4.6	2.9
8	10YR4/2 chert; slight unifacial edge modification	4.3	3.6	2.1
8	10YR4/2) chert, possible unifacial edge modification	5.1	4.3	2.8
15	10YR3/2 chert; no obvious edge modification	6.7	5.8	3.5
24	10YR5/3 to 10YR6/3 chert; no obvious edge modification	5.4	5.2	3.3
25	10YR5/1 chert; unifacial edge modification along two sections (Figure 3-14:d)	6.2	4.1	2.9
36	10YR8/2 to 10YR8/3 chert; considerable unifacial edge modification (Figure 3-14:e)	6.8	5.6	2.9
46	10YR3/1 chert 10YR6/3 inclusions up to 3 cm in diameter; no edge modification	7.3	6.7	3.2
71	Banded, 2.5YR4/2 and 10YR7/3 chert; no prehistoric edge modification, some shovel modification	7.0	4.9	2.0



a, b) larger cobbles; c-e) smaller cobbles

Figure 3-14. Site 41FY509, artifacts, cobbles with cortex removed.

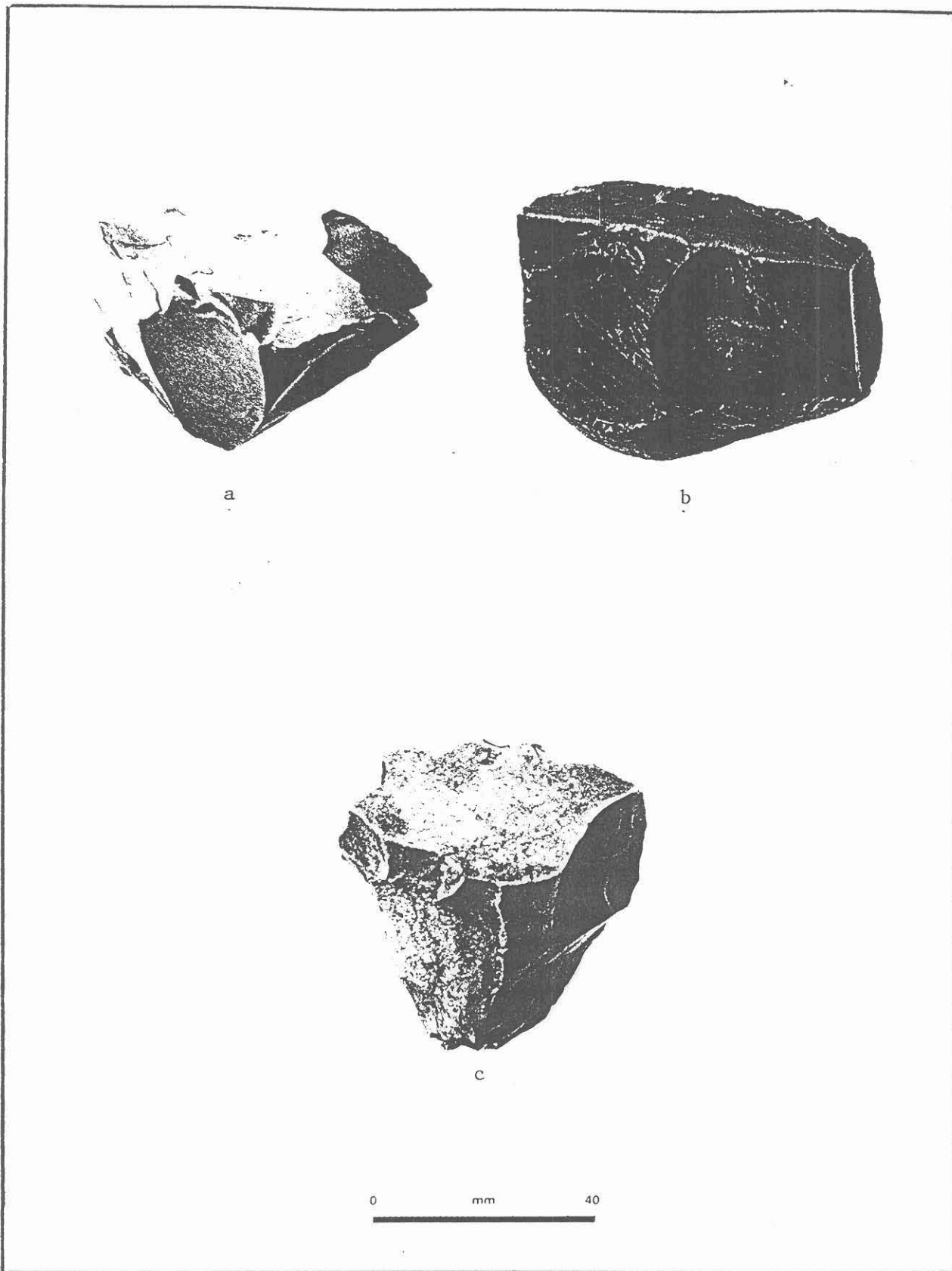


Figure 3-15. Site 41FY509, artifacts, flake cores.

Another of the fragments (Lot #72, Figure 3-15:b) also still retains cortex over one end and one face. Three flakes have been struck from a tabular surface. Material is a dark grayish brown (10YR4/2) chert. Overall dimensions are 5.7 x 6.1 x 3.3 cm.

The final fragment (Lot #77, Figure 3-15:c) does not retain any cortex, and appears to be a snapped, thick biface fragment. One face still retains typical bifacial reduction flaking, while two flakes appear to have been deliberately struck from the other face, using the snapped face as a platform. Material is a white (10YR8/2) chert with brownish yellow (10YR6/6) mottling. Overall dimensions are 6.1 x 5.6 x 3.3 cm.

Cobbles, Cortex Partially Removed

As the name implies, this category of artifacts consists of cobbles and cobble fragments, which still retain considerable quantities of cortex, particularly on the edges. The category was subdivided into three groups. Brief descriptions of each piece are given in Table 3-26.

Group 1

This group includes twelve specimens which retain cortex along one edge or base, and have an opposing edge that has been bifacially flaked to produce a generally straight, though somewhat sinuous, edge (Figure 3-16:a-c). The width (worked edge) is considerably larger than the length. These bifacially flaked edges exhibit occasional, slight edge modification.

Group 2

This group includes three specimens which retain cortex along one end or base, and have a somewhat pointed, bifacially flaked, opposite end (Figure 3-16:d-f). Width is still greater than length. Again, edges exhibit occasional, slight edge modification.

Group 3

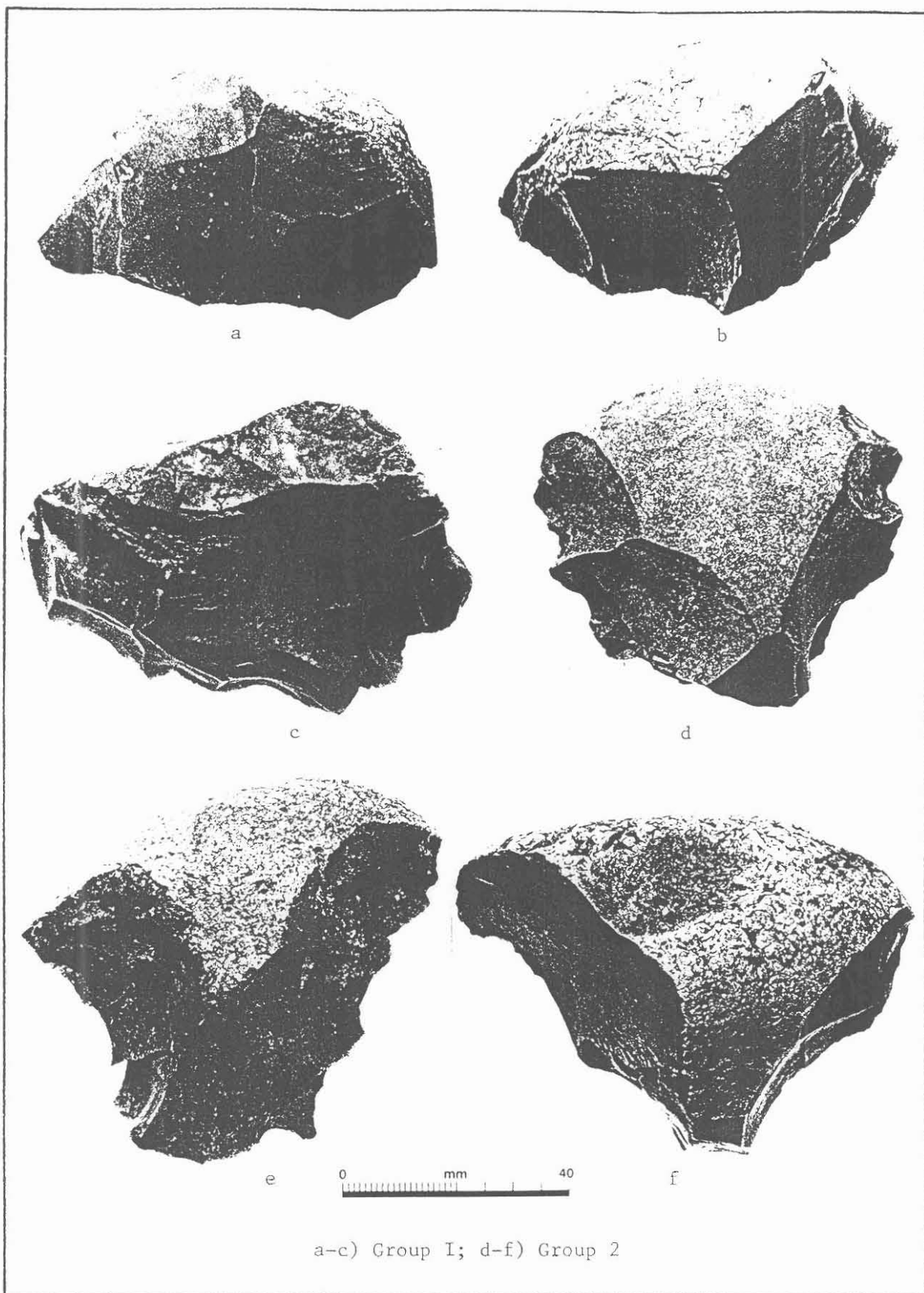
This group includes twenty miscellaneous cobbles and cobble fragments which include surfaces both with, and without, cortex. Because these pieces have no clear orientation, length is the greatest dimension, while width and thickness are the greatest dimensions in planes perpendicular to the length.

Cobble Fragments, Trimmed

This group of cobble fragments may represent a stage of abandonment in the process of manufacturing bifaces from thick flakes. The group exhibits a fairly large diversity in form (Figure 3-17), possibly indicative of several different potential end uses. However, the group is unified by having one generally convex face (the dorsal) still retaining most of its cortex. The other face (ventral) is generally relatively flat, but may exhibit one or several flake scars. In all but one case, the dorsal face exhibits steep percussion flaking around the edge, resulting in a generally sinuous edge. On the one exception, fairly steep percussion flaking is present around the edge on the ventral face, and the dorsal face is still entirely covered in cortex. Brief details of each piece are given in Table 3-27.

Table 3-26
 Site 41FY509, Cobbles, Cortex Partially Removed

Lot #	Description	Dimensions (cm)		
		L	W	T
<u>Group 1</u>				
2	Gray (10YR5/1) to grayish brown (10YR5/2) chert	4.6	6.0	3.5
7	Dark grayish brown (10YR4/2) chert (Figure 3-16:a)	4.9	7.2	4.4
9	Brown (10YR4/3) chert, patinated white on one face	5.7	7.5	3.7
11	Grayish brown (10YR5/2) chert (Figure 3-16:b)	7.7	8.7	3.8
11	Grayish brown (10YR5/2) and light gray (10YR7/1) chert	5.1	7.2	3.5
12	Light brownish gray to light gray (10YR6/2-10YR7/2) chert	6.6	9.1	5.0
15	Dark grayish brown (10YR4/2) chert	7.3	8.2	3.3
24	Very dark gray (10YR3/1) chert	5.6	7.8	4.9
47	Brown (10YR5/3) to pale brown (10YR6/3) chert	4.2	6.3	3.2
55	Grayish brown (10YR5/2) chert	5.5	8.1	3.2
75	Pale brown (10YR6/3) chert	7.1	7.6	3.5
76	Gray-light gray (10YR5/1-10YR7/1) chert (Figure 3-16:c)	5.4	8.1	2.9
<u>Group 2</u>				
5	Grayish brown (10YR5/2) chert (Figure 3-16:d)	6.0	6.5	2.8
25	Dark grayish brown (10YR4/2) chert (Figure 3-16:e)	6.5	7.5	3.6
42	Gray (10YR6/2) chert (Figure 3-16:f)	6.3	8.0	3.7
<u>Group 3</u>				
8	Light yellowish brown (10YR6/4) chert	5.5	4.2	3.5
10	Very dark grayish brown (10YR3/2) chert	7.2	5.1	2.0
25	Dark grayish brown (10YR4/2) to light brownish gray (10YR6/2) chert	6.8	4.7	2.8
38	Dark grayish brown (10YR4/2) chert	7.2	5.8	3.7
44	Gray (10YR5/1) to white (10YR8/1) chert	7.9	5.2	2.3
61	Light brownish gray (10YR6/2) chert	6.3	5.3	3.1
61	Dark gray (10YR4/1) to white (10YR8/1) chert	11.1	9.1	7.2
71	Very dark gray (10YR3/1) chert	6.2	4.8	3.4
72	Very dark gray (10YR3/1 to 10YR4/1) chert	7.2	4.9	2.8
75	Dark grayish brown (10YR4/2) chert	8.7	6.4	4.9
76	Dark grayish brown (10YR4/2) chert	7.3	5.4	3.0
76	Dark grayish brown (10YR4/2) chert	6.4	4.9	2.6
76	Dark grayish brown to pale brown (10Y4/2-10YR6/3) chert	9.6	6.1	4.5
77	Very dark gray (10YR3/1) chert	9.3	7.6	5.0
80	Grayish brown (10YR5/2) to white (10YR8/1) chert	6.3	4.7	3.6
81	White (10YR8/1) chert	8.0	5.4	2.4
82	Dark grayish brown (10YR4/2) to light brownish gray (10YR6/2) chert	6.4	5.9	2.9
83	White (10YR8/2) chert	4.7	3.0	2.1
84	Dark grayish brown to pale brown (10YR4/2-10YR6/3) chert	7.4	4.4	2.7
85	Very pale brown (10YR8/3) chert	5.5	4.3	2.5



a-c) Group I; d-f) Group 2

Figure 3-16. Site 41FY509, artifacts, cobbles with cortex partially removed.

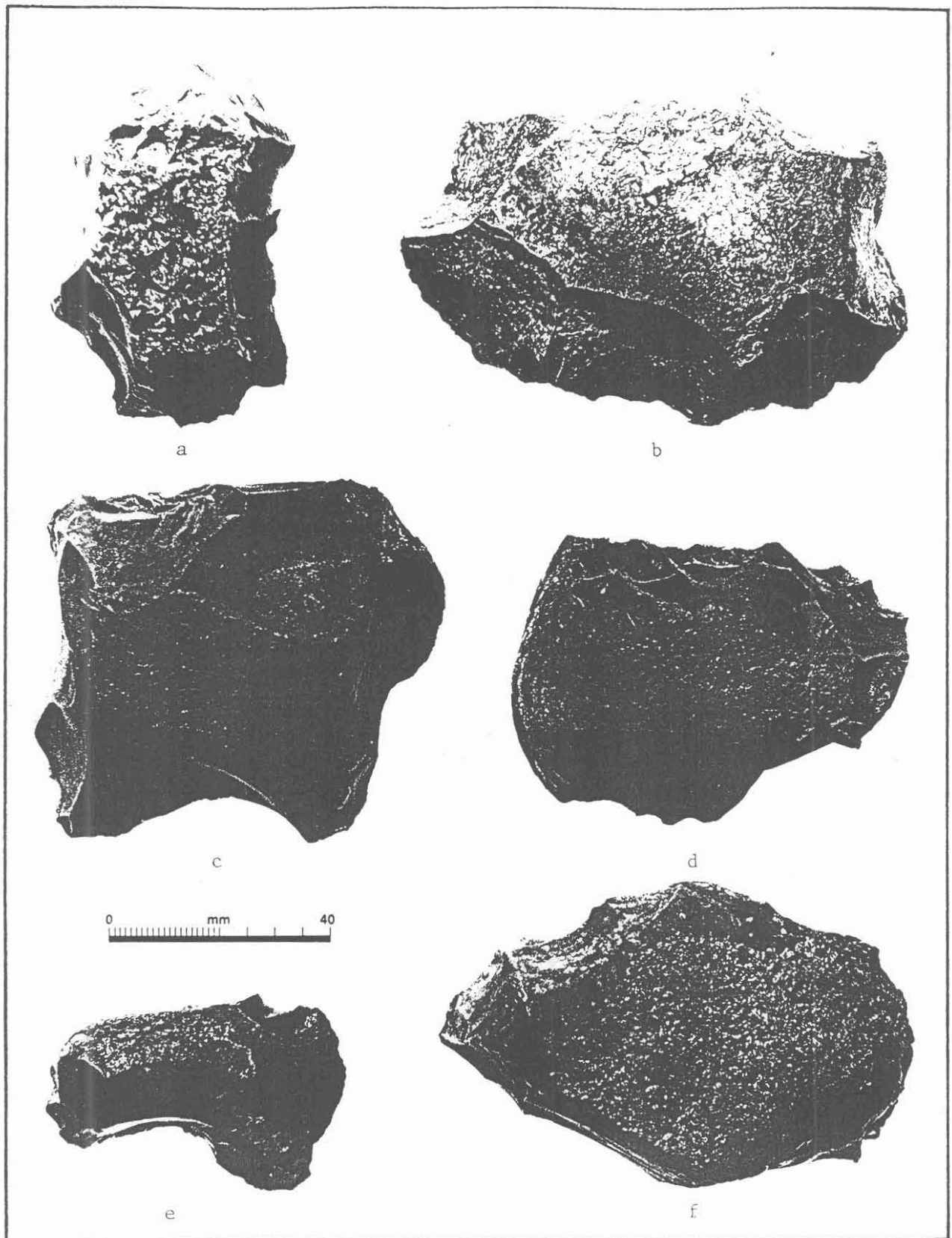


Figure 3-17. Site 41FY509, artifacts, trimmed cobble fragments.

Table 3-27
Site 41FY509, Cobble Fragments, Trimmed

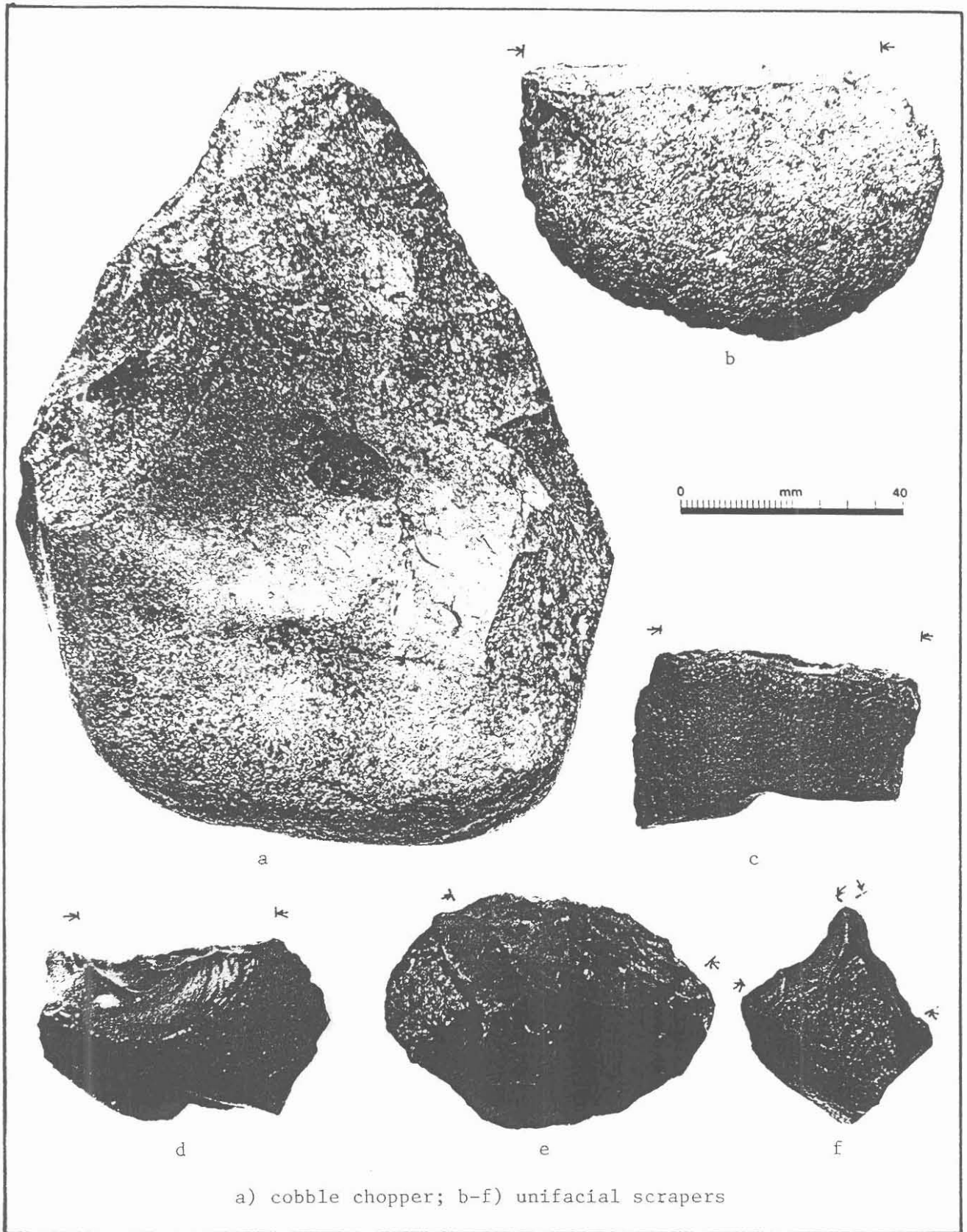
Lot #	Description	Dimensions (cm)		
		L	W	T
<u>Group 1</u>				
0	Ventral face has a single flake scar; irregular outline (Figure 3-17:a); 10YR4/2 to N6 chert	7.3	4.6	2.2
0	Multifaceted ventral face; generally oval outline (Figure 3-17:b); 10YR3/1 chert, patinated bluish gray on dorsal flake scars	9.5	6.7	3.2
0	Multifaceted ventral face; pointed ovate in outline; 10YR3/1 chert	6.3	5.8	2.3
0	Multifaceted ventral face, dorsal is entirely cortex-covered; pointed ovate in outline; 5B5/1-10YR7/1 chert	8.0	5.6	2.0
25	Multifaceted ventral face; squarish to diamond-shaped in outline (Figure 3-17:c); 10YR4/1 to 10YR6/2 chert	8.5	7.9	3.3
25	Multifaceted ventral face; rectangular in outline with snapped end (Figure 3-17:d); banded 10YR3/1, 10YR7/1 chert	7.0	5.5	2.4
28	Single-faceted ventral face; irregular outline (Figure 3-17:e); 10YR3/3) chert	5.5	3.7	2.0
44	Multifaceted ventral face; pointed ovate in outline (Figure 3-17:f); 10YR6/1 to 10YR7/2 chert	8.8	5.9	2.4
83	Multifaceted ventral face; irregular outline; 10YR4/2 chert, patinated white on ventral face	7.7	5.4	3.1

Chopper

A single large bifacially worked cobble (Lot #0, Figure 3-18:a) was identified as a chopper. It is a pointed ovate in outline, with cortex still remaining on the surfaces of the broader end. The bifacially flaked edges exhibit battering and use flaking. Material is a gray (10YR5/1) to grayish brown (10YR5/2) homogenous-looking chert on one face, while the other is light brownish gray (10YR6/2) with numerous small (up to 3 mm in diameter) white fossiliferous-looking inclusions. Dimensions are: length, 13.8 cm; width, 10.5 cm; thickness, 4.9 cm.

Unifacial Scrapers

Only five flakes were identified as unifacial scrapers or fragments of scrapers. A large flake with cortex over most of the dorsal face (Lot #84), has a straight edge with steep retouch (Figure 3-18:b). A fragment of another



a) cobble chopper; b-f) unifacial scrapers

Figure 3-18. Site 41FY509, artifacts, chopper, and unifacial scrapers.

large flake with cortex over most of the dorsal face (Lot #76), has two straight edges, meeting almost perpendicularly, with steep retouch (Figure 3-18:c). Another flake (Lot #29), also retaining cortex over a portion of the dorsal face, also has a straight edge with steep retouch (Figure 3-18:d). A large flake (Lot #61) from which most of the cortex has been removed, exhibits a convex working edge (Figure 3-18:e). The final scraper fragment (Lot #84) exhibits steep angles along two edges. One of the edges is straight and the other is slightly concave, producing a rounded beak at the corner (Figure 3-18:f).

Edge-Modified Flakes

Two hundred one flakes with edge modification were identified in the collection. This edge modification may be the result of deliberate use or it may be accidental damage. In general, the flakes appear to be normal percussion-struck flakes which have been used as tools of convenience, rather than specially struck flakes. Most exhibit irregular outlines with only minor edge modification or wear.

A cursory non-microscopic analysis of the edge-modified flakes revealed only one prismatic blade and this revealed only very minor wear along one edge (Figure 3-19:a). Twelve flakes exhibited fairly extensive wear along generally straight edges (Figure 3-19:b-e); two flakes exhibited concave edges (Figure 3-19:f,g); seven flakes exhibited convex edges (Figure 3-19:h-j); two flakes exhibited compound curves (Figure 3-19:k,l); and six flakes appear to have been beaked pieces (Figure 3-19:m-o). All of the wear on the foregoing appears to be unifacial, probably indicative of scraping rather than cutting activities, though the beaked pieces were probably used for piercing or graving. Wear/modification on the remaining flakes was very light, along irregular but natural edges.

Flakes

Flakes were identified by the presence of a striking platform or a bulb of percussion. The category was then subdivided on the amount of cortex remaining on the flake.

Primary Flakes

Primary flakes retained cortex over at least 90% of the dorsal surface. One hundred sixty-eight primary flakes were identified; 104 had lengths greater than 2 cm, and 64 were shorter than 2 cm.

Secondary Flakes

Secondary flakes retained cortex over less than 90% of the dorsal surface. Eight hundred sixty-nine secondary flakes were identified; 570 had lengths greater than 2 cm, and 299 were shorter than 2 cm.

Interior Flakes

Interior flakes were recognized by the total absence of cortex. A total of 5211 interior flakes were identified; 1605 had lengths greater than 2 cm, and 3606 were shorter than 2 cm.

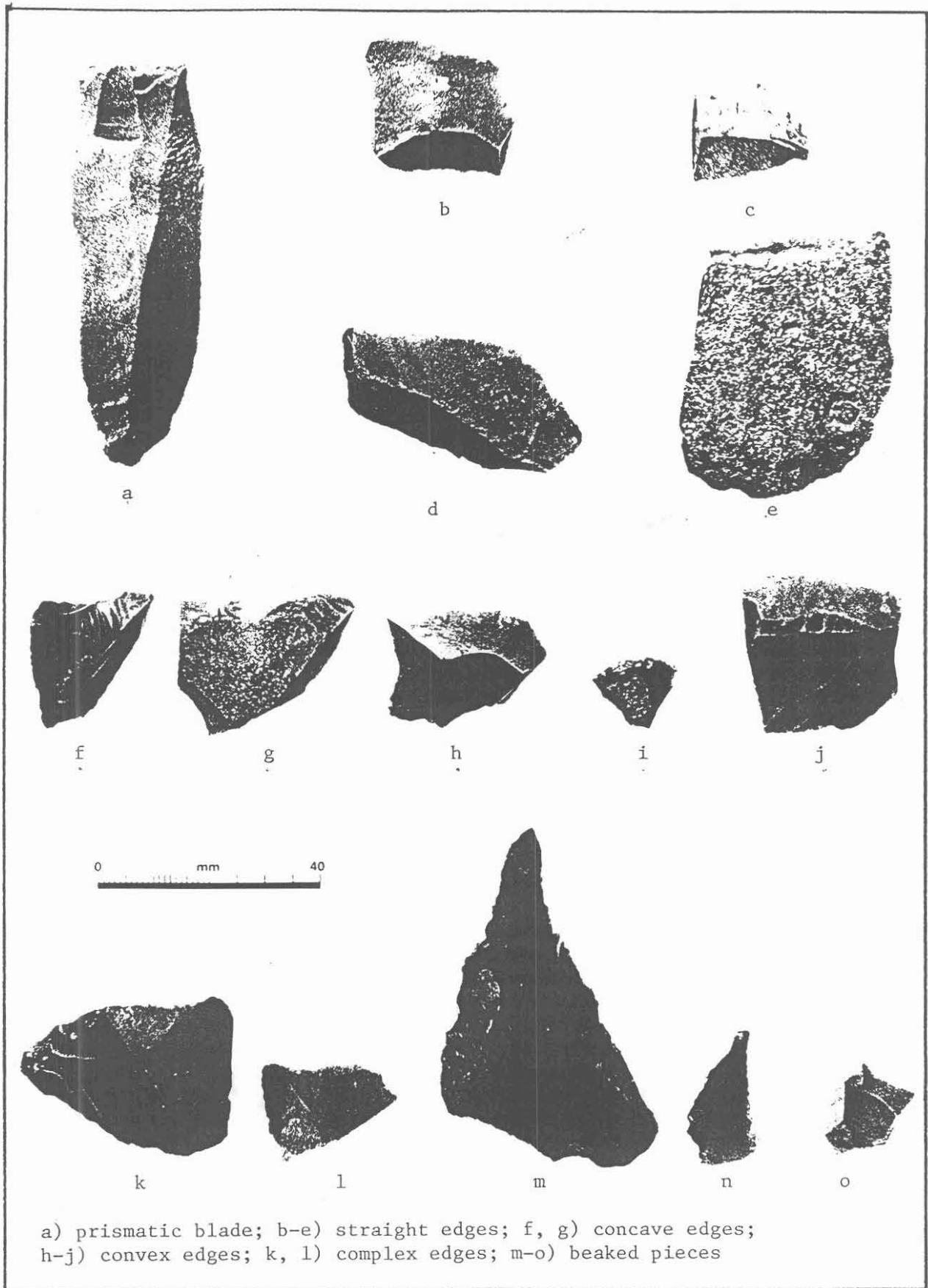


Figure 3-19. Site 41FY509, artifacts, utilized flakes.

Chips

Chips include distal fragments of flakes, and shatter which does not include either a striking platform or a bulb of percussion. A total of 12,267 chips were identified; 964 had lengths greater than 2 cm, and 11,303 had lengths shorter than 2 cm.

Chunks

Chunks consist of angular, blocky fragments of chert. A total of 1319 chunks were identified; 391 with greatest dimensions larger than 2 cm, and 928 with greatest dimensions less than 2 cm.

Hammerstones

Four rounded, quartzite river cobbles with battered edges were identified as possible hammerstones. Dimensions are:

5.1 x 3.9 x 2.3 cm;
7.4 x 5.7 x 3.6 cm;
6.4 x 5.5 x 4.1 cm; and
5.6 x 5.3 x 2.8 cm.

Thermal Shatter

Thermal shatter consisted of fragments of chert and quartzite cobbles that had been broken as the result primarily of heating, but also possibly by freezing. The materials included both large cobble fragments and small flake-like pieces. Although some of the thermal shatter is undoubtedly the result of prehistoric activities, some is also believed to be the result of historic tree clearing and associated burning. The latter includes not only above-surface burning, but also sub-surface burning of in situ roots.

A total of 319,983 grams of thermal shatter were identified; 19,158 grams were of pieces with diameters larger than 10 cm; 226,048 grams were between 2 and 10 cm in diameter; and 74,777 grams were pieces with diameters of less than 2 cm.

Whiteware

A single historic whiteware (Ironstone) sherd was recovered from one of the Test Units. This sherd includes a partial maker's mark, indicating that the artifact was made by Alfred Meakin, circa 1897, or shortly thereafter (Godden 1964:425).

Glass

A single small fragment of historic brown or amber glass was found in one of the Test Units. The fragment does not include any temporally diagnostic features, but probably dates to the twentieth century.

Faunal Remains

Faunal remains include a cow tooth and two fragments of mussel shell. The cow tooth was recovered from the surface and is certainly historic in origin.

The two fragments of mussel shell were found at a depth of between 20 and 30 cm, and are probably prehistoric in origin. They are too fragmentary to identify as to particular species.

Charcoal

Several hard charcoal fragments, some not completely carbonized, were recovered from Test Unit C. These were found scattered throughout the level, not in a hearth-like context. The hardness of the fragments, and the presence of pieces of incompletely carbonized wood, led to the conclusion that the charcoal was probably of recent historic origin.

DISCUSSION AND SUMMARY

Temporal Affiliations

Diagnostic artifacts from the site, both recovered during testing and observed in a private collection, are listed in Table 3-28 along with their hypothesized cultural affiliations. They range in age from the late Late Paleoindian/Early Archaic transition stage through the Neolithic.

Stratigraphy and Vertical Artifact Distribution

None of the bulldozer trenches, test units, or gravel pit walls exhibited any cultural stratigraphy. All of the cultural material appeared to be confined to a single zone, extending from the surface to a depth of about 50 cm.

Natural disturbances were observed in several of the Test Unit profiles. Most notably, voids caused by animal burrowing were encountered in Test Unit G. Filled burrows and tree-root holes were observed in Test Units B, E, and G. Observed mixing of layers in Test Unit E also was believed to have been the result of natural disturbances. Other natural disturbances, though unobserved in the field, are believed to have caused even more stratigraphic mixing. Finally, historic tree clearing and agricultural practices undoubtedly also have contributed to vertical mixing.

The limited number of temporally diagnostic artifacts recovered from the test units (Table 3-28) was not sufficient to demonstrate the presence of any valid sequential, cultural deposition within the single observed cultural zone. For example, an Early Archaic lanceolate dart point was found on the surface, and a ground-stemmed dart point fragment was found in Level 1 (Test Unit C), while Neolithic arrowpoints and fragments were found as deep as Level 3 (Test Units B and G). However, the arrowpoints do occur in Levels 1-3, above the general levels (Levels 3-5) of such earlier diagnostics as gouge fragments, and in Test Unit B, the arrowpoint and fragments all occur above any of the dart point fragments (a Pedernales and an untyped fragment) from the same unit. A few other general observations also can be made concerning the relative vertical artifact distribution of other artifact categories from artifacts recovered from the test units (Table 3-29).

A comparison of the vertical distribution of the knives/thin bifaces and gouges categories suggests that the gouges are generally lower, and thus probably earlier. However, within the gouge category, Guadalupe-like gouges

Table 3-28
 Site 41FY509, Diagnostic Artifacts, Locations, and Cultural Affiliations

Cultural Period		Artifact	Lot #	Location Test Unit & Level		
NEOARCHAIC	Austin Phase	Scallorn arrowpoints	7 9	B 1 B 3 QC (2)		
		Untyped arrowpoint fragments	40 71 82	G 3 M 2 P 1		
ARCHAIC	LATE	Twin Sisters		QC (1) QC (4) QC (2)		
		San Marcos	Fayette dart points		QC (2)	
			Lange dart points		QC (1)	
	Marshall/Castroville-like dart points			QC (1)		
	MIDDLE	Round Rock	Pedernales dart points	0 10	Borrow Pit B 4 QC (4)	
			Marshall Ford	Bulverde-like dart points	0	BT.III 3 QC (1)
		EARLY	Clear Fork	Untyped round-based dart points		QC (1)
			EARLY	Untyped lanceolate dart point	0	Surface
	Paleoindian Transition	Clear Fork tool fragments		0 4 11 61	Borrow Pit A 4 B 5 J 5 QC (5)	
		Gower and Gower-like dart points			QC (3)	
Ground-stemmed dart point fragments		14 84		C 1 P 3		
		Guadalupe gouge fragments		4 22	A 4 D 3	

Note: QC indicates these artifacts observed in the Quackenbusch collection from the site; numbers in parenthesis () indicate number of specimens.

Table 3-29
 Site 41FY509, Selected Artifact Categories by Level

Artifact Category	LEVEL						
	1	2	3	4	5	6	7
Arrowpoints & Fragments	2	1	2	-	-	-	-
Dart Points - Pedernales	-	-	-	1	-	-	-
ground stem	1	-	1	-	-	-	-
other fragments	2	1	-	1	1	-	-
Knives/Thin Bifaces	6	4	8	1	-	1	-
Gouges - Clear Fork	-	-	-	1	2	-	-
- Guadalupe	-	-	1	1	-	-	-
Medium Bifaces, edge-modified	2	2	2	-	-	-	-
miscellaneous	8	1	2	-	2	-	-
Thick Bifaces - rough lanceolates	-	-	1	2	-	-	-
parallel-sided	-	-	-	-	1	-	-
pointed ovate	-	-	-	1	-	-	-
miscellaneous	2	6	-	-	-	2	-
Cobbles, cortex removed - larger	-	-	3	-	1	1	-
- smaller	1	4	1	1	1	1	-
Cobbles, cortex part removed:							
Group I	2	4	1	1	3	1	-
Group II	-	1	-	-	1	1	-
Group III	3	6	4	3	2	1	1
Cobble Fragments, trimmed	1	1	-	-	-	2	1
Flake Cores	-	-	2	-	-	-	1
Unifacial Scrapers	-	2	2	-	1	-	-
Edge-modified Flakes	68	59	26	30	11	3	1

appear higher than Clear Fork tools, though the reverse would have been expected.

The vertical distribution of the medium biface category is clearly biased toward the higher part of the cultural zone, in general conforming to the relative location of knives/thin bifaces, thus tending to confirm our belief that the medium biface fragments were abandoned at an early manufacturing stage of knives/thin bifaces.

Comparison of the vertical distribution of the thick biface category, shows that the miscellaneous thick bifaces were found in considerably higher levels than those from which the bifaces with defineable outlines were recovered, suggesting that the miscellaneous bifaces date somewhat later.

During the analysis of the cobbles, cortex removed category, it was noted that in the group of larger cobbles, each cobble had at least one patinated face, while the smaller cobbles did not appear to be patinated. This led to the speculation that the larger cobbles might predate the smaller cobbles. Comparison of the vertical distribution of the two groups does not support such a hypothesis. However, it may be that this is further evidence of the disturbed vertical nature of the site, and that the larger cobbles do predate the smaller cobbles.

The vertical distribution of the cobbles with cortex partially removed category does not indicate any vertical stratification of the various groups. The category is notable, however, for the generally even distribution of these artifacts throughout all the levels, a distribution which is not shared by other categories.

The categories of trimmed cobble fragments, flake cores, and unifacial scrapers do not have sufficient quantities to make any meaningful vertical analysis.

Edge-modified flakes were most frequent close to the surface, and gradually decreased in numbers with depth. Such a distribution would be taken generally as evidence of a site with a single occupation, and artifacts gradually migrating downward through natural forces.

In summary, no cultural stratigraphy was visible in profiles, and analysis of the vertical distribution of specific artifact categories also failed to provide sufficient evidence on which to conclude that stratified deposits were present.

Features

No cultural features were observed during the excavation of the test units; nor were any observed in the profiles of any of the test units, the walls of the bulldozer trenches, or the walls of the gravel pit.

Although large amounts of thermal shatter were collected from the site, no hearths or fire pits were observed. As a further complication, historic tree-clearing may have produced some of the thermal shatter; certainly there was evidence of recent attempts at burning out stumps, and it is more than likely that many of the trees that were on the site in 1949 (visible on an SCS aerial photograph) were burnt, after having been cut down and piled together.

Horizontal Distribution

The site can be divided into five horizontal areas, each area being centered on topographic rises. Area 1, investigated by Test Units A, E, M, N, O, and P, is the highest topographic feature on the site, and is located mainly to the north of the right-of-way. Area 2, investigated by Test Units B, C, D, and F, is located at the western margin of the site, and consists of

a distinct low rise, on the same ridge as Area 1, but separated from it by a shallow saddleback depression. Area 3, investigated by Test Units G and H, is located mainly south of the right-of-way, with only the northern edge of the rise extending into the right-of-way. Area 4, investigated by Test Units I and J, continues beyond the northern edge of the right-of-way. Area 5, investigated by Test Units K and L, is located at the eastern margin of the site. The areal distribution of selected artifacts is presented in Table 3-30.

Table 3-30
Site 41FY509, Selected Artifact Categories by Area

Artifact Category	AREA				
	1	2	3	4	5
Arrowpoints & Fragments	2	2	1	-	-
Dart points - Pedernales	-	1	-	-	-
ground stem	1	1	-	-	-
other fragments	2	3	-	-	-
Knives/Thin bifaces	12	2	2	4	-
Gouges - Clear Fork	1	1	-	1	-
- Guadalupe	1	1	-	-	-
Medium Bifaces, edge-modified	4	2	-	-	-
miscellaneous	6	6	1	-	-
Thick Bifaces - rough lanceolates	1	2	-	-	-
parallel-sided	-	1	-	-	-
pointed ovate	1	-	-	-	-
miscellaneous	4	6	-	-	-
Cobbles, cortex removed - larger	4	-	1	-	-
smaller	2	6	1	-	-
Cobbles, cortex part removed:					
Group I	3	7	1	1	-
Group II	1	1	1	-	-
Group III	13	3	2	2	-
Cobble Fragments, trimmed	2	2	1	-	-
Flake Cores	2	-	1	-	-
Unifacial Scrapers	4	-	-	1	-
Edge-modified Flakes	103	78	10	8	1

It is clear from the horizontal artifact distribution, even making allowances for the differences in numbers of units excavated in each area, that occupation was most dense in Areas 1 and 2, and least dense in Area 5.

None of the categories which contain more than one artifact is restricted to any one area. This suggests a lack of discrete horizontal occupation areas, either on a temporal basis or on a discrete activity-area basis. However, the horizontal distribution of both the knives/thin bifaces and cobbles, cortex partially removed (Group III) categories show a concentration in Area 1, while the categories of cobbles, cortex removed (smaller) and cobbles, cortex partially removed (Group I) show a lesser concentration in Area 2.

Site Activities

The predominant identifiable activity at the site appears to have been lithic procurement and manufacture of lithic artifacts. In general, the manufacturing sequence appears to have been aimed at the production of bifacial tools such as knives, thin bifaces, and dart points. Production of flakes for flake tools appears to represent only a very small fraction of the lithic reduction activities.

The vast quantities of thermally fractured chert may represent debris associated with annealing of chert cobbles prior to lithic tool manufacture. Alternatively, they may be compared with central Texas burned-rock middens which are postulated to have been associated with the processing of plant foods, in particular acorns. Finally, some may be the result of historic tree clearing.

Arrowpoint and dart point fragments indicate hunting activities. The cobbles and the cobbles with cortex partially removed may be associated with butchering, while the few bifacial scrapers, unifacial scrapers, and edge-modified flakes may be associated with hide processing.

Gouges are usually interpreted as woodworking tools, and the worn looking Guadalupe gouge fragments would thus be interpreted as evidence of woodworking at the site.

Undoubtedly other activities were undertaken at the site, but they are not revealed by the artifactual remains.

Comparison With Other Area Sites

Comparison of the material remains from Site 41FY509 with the reported remains from other sites in Fayette County (see Previous Area Research in Section 1) reveals a general similarity, i.e., large quantities of thermally fractured chert, large amounts of lithic debitage, fairly numerous bifacial artifacts (apparently broken during manufacture), limited numbers of unifacial tools and edge-modified flakes, and very few temporally diagnostic artifacts. Diagnostic artifacts (i.e., Pedernales dart points, Guadalupe gouges, lanceolate dart points, and Scallorn arrowpoints) recovered from Site 41FY509 are all types found frequently at other sites in the area, though other sites have produced greater quantities of specific diagnostics, often in association with features, and often in better stratified contexts. For example, many more points were found at Site 41FY78 (Skelton 1977) and at Site 41FY135 (Young 1979); lanceolate dart points and Guadalupe gouges were found in greater numbers at Site 41BP19 (Goode 1989); and Scallorn arrowpoints have been found in association with burials at 41FY42, the Frisch Auf! Site (Hester and Collins 1969), and with hearths at 41FY98 (Goode 1983a).

SECTION 4 - SIGNIFICANCE AND RECOMMENDATIONS

SIGNIFICANCE

Criteria of Significance

The National Register of Historic Places criteria for evaluation of significance (36CFR, Part 60.4) are:

The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield information important in prehistory or history (36CFR, Part 60.4).

Thus, in general, a prehistoric archaeological site must normally meet criterion (d) to be considered significant. That is, the site should be likely to yield information important in prehistory.

Site 41FY170

Testing within the proposed right-of-way at Site 41FY170 revealed only limited lithic prehistoric artifacts, none of which could be associated with a particular temporal period or specific cultural group. No subsistence remains (bone, shell, or vegetal remains) were found, and no features were observed. Further, soil conditions were such that preservation of subsistence remains or features at the site is most unlikely.

Artifacts recovered from the site are of types found fairly frequently at other sites in the area, often in better stratigraphic context with diagnostic artifacts and features.

Because of the limited numbers and kinds of artifacts, the lack of diagnostics, and the lack of features, it is believed that additional research within the right-of-way at Site 41FY170 is not likely to yield any information important in prehistory. Thus, the site is not considered significant.

Site 41FY509

Test excavations at Site 41FY509 revealed large quantities of cultural debris. However, most consisted of lithic fragments which could not be associated with a particular temporal period or specific cultural group; and those few artifacts that were temporally diagnostic indicated that the site had been occupied (at least intermittently) over a long period of time (from the Paleoindian/Archaic Transition through the Neolithic), and that there was

neither stratigraphic nor horizontal separation of artifacts from different time periods. No cultural features were located, and based on the evidence of burrowing animal activity, lack of stratigraphy, and other disturbances that were identified, it is believed that features are unlikely to have survived at the site.

Artifacts recovered from the site are of types found fairly frequently at other sites in the area, often in better stratigraphic context with diagnostic artifacts and features.

Because of the mixed nature of the cultural remains, which span several thousand years, and the unlikelihood of the preservation of features, it is believed that additional research within the right-of-way at Site 41FY509 is not likely to yield any information important in prehistory. Thus, the site is not considered significant.

RECOMMENDATIONS

Testing at Sites 41FY170 and 41FY509 led to the assessment that neither site meets the criteria for significance defined in 36CFR, Part 60.4.

Based on these assessments, no additional cultural research is recommended prior to construction activities.

Although there is little or no probability for the presence of significant areas of undisturbed buried cultural remains, there is a slight possibility that small, isolated cultural features may still be present within the area, and thus such features may be encountered during earth-moving operations. Machine operators/supervisors should be alerted to the possibility of such features. If features are encountered, construction should be stopped until qualified archaeologists have had an opportunity to assess the remains.

The probability of encountering such remains is considered too low to warrant archaeological monitoring.

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