THE COTTON SITE

TEST EXCAVATIONS AND FINDINGS AT Lf-207, LeFLORE COUNTY, OKLAHOMA

Oklahoma Highway Archaeological Survey
Papers in Highway Archaeology, Number 4
1978

OKLAHOMA DEPARTMENT OF TRANSPORTATION

PLANNING DIVISION

Text Excavations and Findings at Lf-207, LeFlore County, Oklahoma State Highway Project US 59 (F-225)

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OKLAHOMA HIGHWAY ARCHAEOLOGICAL SURVEY

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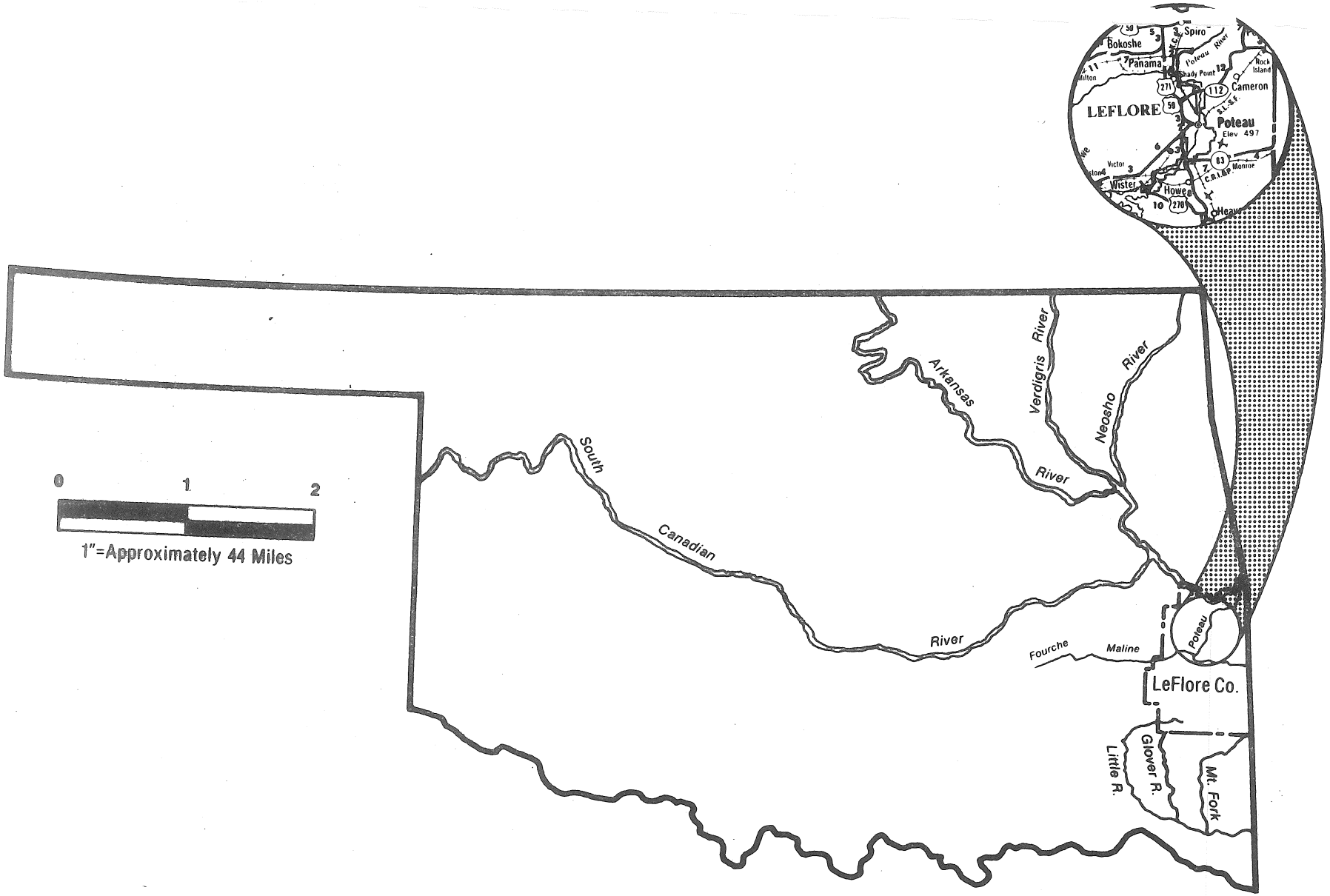
Introduction and Acknowledgements

The Cotton site, Lf-207, was initially discovered during a two day (June 21 and 22, 1972) field survey of the right-of-way along the proposed realignment of US 59 (Figure 1). The purpose of this environmental investigation, which complies with DOT Memorandum 20-7, was to determine whether or not sites of archaeological importance existed in the region and the effect of highway construction upon them.

In accordance with the established field procedure, approximately 150 feet either side of the proposed centerline was walked in such a manner that permitted both maximum surface coverage and the location of potential prehistoric or historic sites. Although three distinct occupational areas were found, only one, Lf-207, was considered potentially significant enough to warrant further testing. On July 24, 1972, the Highway Archaeologist and a field crew consisting of Jerry Johnson, Pete Colwell and Mike Talley of the State Highway Department established a datum point and a grid system across the site. Additional help was generously supplied by James E. Cox, Jr. and Mike Sulivant representing the Oklahoma Anthropological Society.

Roger Burkhalter was responsible for the in-depth lithic and geologic studies at Lf-207. A detailed contour site map was furnished courtesy of Mr. Oscar Curnutt, Assistant Survey Engineer, Survey Division. Mr. Gary Taylor, Current Planning Branch illustrator, prepared the artwork and plates included herein. Photographs were processed by Ron Gordon and James Knight. Soil data was provided by the Soils Research Branch and the LeFlore County Soil Conservation Office.

Typing of the draft and galley proofs was done by Patsy James. Patsy is also thanked for her assistance in editing the manuscript. Bill Sommers and his staff of the Reproduction Branch printed and assembled the report. Doctors Robert O. Fay, Thomas W. Amsden and Kenneth V. Luza of the Oklahoma Geological Survey provided detailed information pertaining to lithics recovered from the site and surrounding geology. Dr. Charles Mankin, Director of the Geological Survey, furnished topographic mapping for the project area. All of these individuals are gratefully acknowledged.



PROJECT LOCATION MAP
Lf-207, LeFlore County, Oklahoma
US 59 Project, F-225

Figure 1

Site Description

The US 59 survey encompassed a 10 mile corridor characterized by level to gently rolling terrain. However, tabletop mountains (e.g. Lost Mountain, Poteau Mountain) occasionally punctuate the landscape, thus generally making this region one of high relief and distinctive in a physiographic sense. Poteau River and its tributaries meander northward throughout the area. Over the ages, this water source has been responsible for alluvium deposition and terrace formation.

The predominant vegetation feature in the area around the site is hardwood and pine forest. Dice (1943: 18-21) includes this area in the Austroriparian biotic province of the Greater Southeastern United States. Vegetation on and near the site consists of mixed domestic grasses and timber along the Poteau River. A bush growth of various weeds and grasses are common in areas where farm maintenance has ceased.

Animal life in the area includes a wide assortment invertebrates, reptiles, fish, birds and mammals. Risser (1974) lists 59 species of mammals, 400 species of birds, 56 species of reptiles, 171 species of fish and over 35 species of amphibians for this area of Oklahoma. Insect life includes nearly all species which have been identified throughout the State.

Lf-207 is located upon a knoll of resistant sandstone on the property of Mrs. Norene Cotton of Poteau, Oklahoma (Figure 2 and Plate I, a). The site is situated approximately 350 feet west of the old alignment of US 59 and ¼ mile southeast of a bend in the Poteau River. The Cotton site is bordered to the south by an abrupt drop-off and to the west by a draw which separates it from a similar knoll where another prehistoric habitation, Lf-210, occurs (Figure 2). Whereas the areal extent of Lf-210 appears to be several acres, the Cotton site covers not more than one acre. Erosion is generally slight at Lf-207 except for a road cut running east and west which effectively bifurcates the site into two equal sections. The land at the time of investigation was in pasture and, according to the landowner, had been for some 15 to 20 years. Prior to this, plowing with horse-drawn equipment had taken place. Nevertheless, prior

a

b

Plate 1. Lf-207: a, view of site looking west prior to test excavation; b, test excavation in progress.

Lf - 207 and Lf - 210
US 59 Project, F - 225

LeFlore Co. Okla.

0 100 200 300
FEET

CONTOUR INTERVAL 2 FEET
Prepared by: Oklahoma Department of Transportation, Planning Division

Figure 2

FENCE
CATTLE TRAIL
SITE BOUNDARY
FOLIAGE
BARN
POND

to test excavation it was believed that such cultivation had not destroyed the greater integrity of the site. Even though the preliminary survey revealed no large quantities or concentrations of cultural debris, some surface material (especially near the farm road) was found and returned to the laboratory for analysis. On the basis of recovered artifacts, a more extensive testing program was planned in order to elucidate the nature of Lf-207 and its relationship to other sites in the area.

Previous Archaeological Research (Figure 3)

Archaeological research in the Cotton site area has centered in the Lake Wister vicinity to the east of the site. This research has been primarily directed towards the salvage of archaeological materials threatened by destruction from lake waters and associated land uses. The first research was undertaken by the Works Progress Administration (WPA) crews in 1940 and 1941 (Newkumet 1940). With construction of Lake Wister in 1946, further research was undertaken by Virginia Watson and Robert E. Bell. A summary and a site report of this work was published by Bell and Baerreis (1951) and Bell (1953). No other research was undertaken until a proposal to raise the lake level prompted salvage operations by the University of Oklahoma in 1974 through 1977 (Mayo 1975 and Galm n.d.). Little other archaeological research in the Cotton site area has been undertaken outside of Lake Wister.

Paleo-Indian occupations (circa 12,000 B.C. to 8,000 B.C.) appear to be few in the Cotton site area. No sites have been excavated and few materials have been reported to clarify the utilization, if any, of this area by Paleo-Indian groups.

Early Archaic occupations (circa 8,000 B.C. to 5,000 B.C.) are identified from the Lake Wister area (Wyckoff 1970: 83-85). These occupations are believed to represent remains of hunters and gatherers. Artifacts include lanceolate and stemmed dart points, knives, scrapers, drills, choppers, hammerstones, and ground stone. The deposits at the sites (Scott, Sam and Wann) are thin and interpretations concerning this period's utilization of the Poteau River Valley are not possible at present.

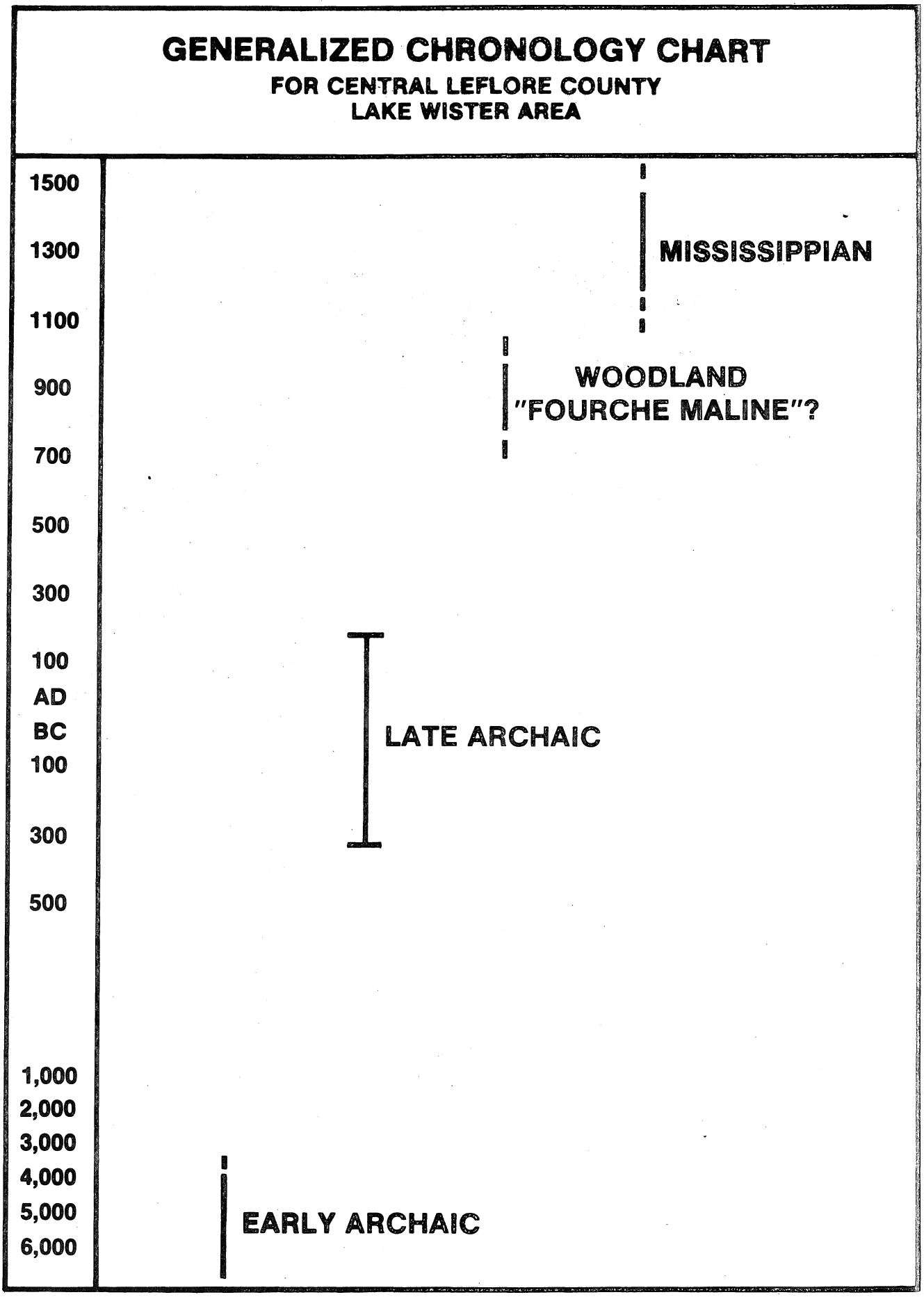

GENERALIZED CHRONOLOGY CHART
FOR CENTRAL LEFLORE COUNTY
LAKE WISTER AREA
1500
1300
1100
900
700
500
300
100
AD
BC
100
300
500
1,000
2,000
3,000
4,000
5,000
6,000
MISSISSIPPIAN
WOODLAND
"FOURCHE MALINE"?
LATE ARCHAIC
EARLY ARCHAIC

Figure 3

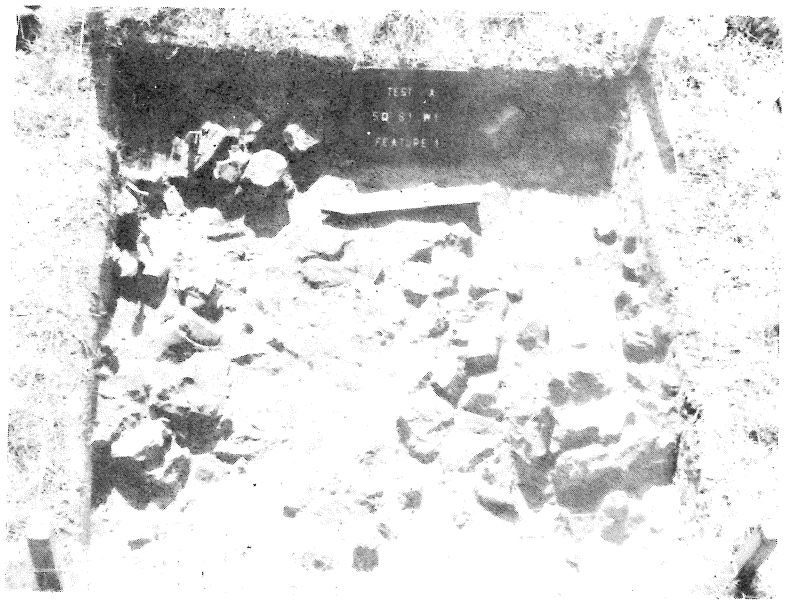
Far more sites and associated materials are found in the Late Archaic, Woodland, and Mississippian periods. These periods represent a more intensive utilization of the Poteau River and Fourche Maline Creek Valleys. Lake Archaic occupations are noted by large sites and accumulated debris consisting predominantly of corner-notched projectile points, chipped stone tools, and burials occasionally containing boatstones and gorgets (Galm n.d.). Sites such as Scott, Sam, Williams I, Wann and Curtis Lake have Late Archaic components (Mayo 1975 and Galm n.d.) and are located on banks of streams and rivers. Recent radiocarbon dates indicate a span of 300 B.C. to A.D. 200 (Galm n.d. and Wyckoff and Woody 1977: 12).

The term "Fourche Maline focus" has been used to describe pre-Mississippian sites from the Lake Wister area (Bell and Baerreis 1951: 19-27). The Fourche Maline focus was thought to include materials from a preceramic hunting and gathering horizon (Late Archaic) and continuing through time to include ceramics and arrowpoints from a possibly horticultural horizon (Woodland). Sites consisting of "black mounds" or "black middens" were characteristic of this focus. Artifacts included contracting stem dart points, corner-notched arrowpoints, chipped stone hoes and axes, ground stone, and large clay-tempered pottery vessels (Williams Plain).

Recent research (Galm n.d. and Wyckoff and Woody 1977) has indicated that the Fourche Maline focus may not have the time span attributed to it from previous research. Radiocarbon dates indicate a Late Archaic occupation of the area with an intervening period of 600 to 700 years when the Lake Wister area was abandoned or sparsely occupied. Beginning around A.D. 800 or later, groups using contracting stem dart points and ceramics moved into and occupied the area. Thus, the definition of the Fourche Maline focus may have to undergo some modification since a continuous series of occupations is not indicated.

Mississippian occupations (circa A.D. 1100 to A.D. 1500) are frequent in the Lake Wister area. These occupations are characterized by the continued use of the previous period artifact styles with the inclusion of shell-tempered ceramics and new arrowpoint styles. More sites are found than in

a



b

Plate 2. Lf-207: a, mapping feature 1, sq S1-W1; b, Feature 1, sq S1-W1.

preceding periods suggesting a possible population increase (Galm n.d.). The Mississippian groups in this area may be related and interacting with other Mississippian populations such as the Spiro groups to the north of the Lake Wister area.

Excavations

Actual excavation at the Cotton site began on July 25, 1972 and terminated on July 28. A total of five (5' x 5') squares were dug in 4" arbitrary levels. As an additional control measure, each square was further subdivided into four equal quadrants. All removed soil was sifted through ¼" mesh screens. Two excavation units were placed almost directly atop the knoll while two others were laid out on the flanks or sides. These squares comprise Test Area A. One unit, designated S20-W40, was located at the knoll's base adjacent to the draw. It was hoped that this random placement of squares would aid the investigators in determining more exactly site size and depth and whether or not buried cultural features or intense activity areas, as evidenced by types and density of debitage, were present. Squares S1-W1 and S10-W20 were opened first. Level I (0-4") of S10-W20 produced some lithic debris and several dart point fragments. Level II proved to be very rocky with a large concentration of sandstone. Three complete levels and one quadrant of Levels IV and V from S1-W1 were dug. Within this square were found spearpoint bases, utilized and unmodified flakes, and a great number of angular sandstone cobbles in Levels I and II (Figure 4). A few scattered artifacts were uncovered from squares N10-W1 and S10-W10, but the excavators of S20-W40 were unable to find anything except a small amount of flint chips. Stratigraphic information revealed that the occupation was shallow, being mainly confined to the top 8". Below this depth, cultural remains became infrequent, while there was a concomitant increase in natural sandstone until bedrock or sterile soil (void of cultural debris) was finally reached in squares S10-W20 and S20-W40. Past agricultural activity, though not a major factor, has disrupted some levels (I and II) since subsurface historic refuse was intermingled with prehistoric material.

Feature 1 (Figure 4)

As mentioned previously, a concentration of rock was found

Lf - 207
FEATURE 1

SQUARE S1 - W1 (1″ = 1ft.)

OKLAHOMA HIGHWAY ARCHAEOLOGICAL SURVEY
US 59 PROJECT, F - 225

Figure 4

in the floor of square S1-W1. This apparently rectangular aggregate consisted of numerous burnt, angular and tabular sandstone cobbles, the greatest density of which was located in the southwest quadrant. Feature 1 became discernible in Level I (0'4"), but further excavation revealed that it extended 8-9" below the current ground surface into Level II. Maximum horizontal extent is unknown. Adjacent squares were not opened due to the paucity of cultural material recovered from S1-W1. In all, 228 lbs. of sandstone was removed from the second level. Of this total, 150 lbs. was weighed and later discarded in the field, the remainder being returned to the laboratory for closer examination. Concerning physical dimensions, each stone was approximately 5" x 2½" x 1½" with average weight close to one pound. As regards other cultural remains, dart point bases, flakes and cobble fragments were in direct association with the feature. However, bone and charcoal were conspicuously absent. Every excavated unit contained some quantity of natural sandstone and gravel. The most noticeable accumulations were unearthed in those squares nearest the site's western boundary (S10-W20 and S20-W40). These usually appear within the second arbitrary level and may be erosional remnants of a sandstone lense of underlying bedrock; similar material outcrops along the southern fringe of the site and in some areas of the draw. Natural sandstone cobbles and detritus have been distinguished from the tabular stones in S1-W1 by their smaller size and more rounded or weathered outer surface. Unlike Feature 1, man-made lithic debris overlay, but did not occur with, the natural rock concentrations nor were there any signs that the sandstone had been burnt. Feature 1 may have been a fire hearth, though in all likelihood it was an accumulation of redeposited utilized sandstone debris. Additional features (viz., refuse and cache pits, house patterns, burials) were not discovered.

Natural Stratigraphy

Two soil profiles from squares S10-W10 and N10-W1 were taken during the course of excavation. The sequence of soil horizons at both units was as follows: "A" Horizon-brown compact sandy loam which continues 6" to 8" below the surface, underlain by reddish tan clayey loam to a depth of 16". "B" Horizon was followed by an unknown depth of reddish tan clay. The final substratum is bedrock composed of

a

b

Plate 3. Lf-207: a, view of site looking north during construction grading operations; b, view of site upon completion of new US 59 facility.

resistant sandstone as exhibited in squares S10-W10 and S20-W40. Areas along the draw, however, exhibited less sandstone and much deeper clayey soils. The Cotton site is located at the juncture of two different soil type areas, making the determination of soil classification inexact. An attempt to correlate profiles from Lf-207 with established soil series has led to the conclusion that the soils are probably an admixture of the Pope and Conway series. The Conway soils range from silt loam to sandy loam and were developed on residual material derived from acid shales. Concretions and small mottlings occur frequently. Conway soils are associated with Enders and Pottsville soils. The Pope series soils consists of alluvial soils derived from slightly altered sandy alluvium washed largely from soils developed from acid sandstones and shales. This soil series has a dominant fine sandy loam texture and is very friable and strongly acidic (Research and Development Division, ODOT). Both of these soil series are known to occur along the undulating flood plains adjacent to all streams in LeFlore County except the Arkansas River (Knobel, Boatright and Boatright 1931).

Artifact Descriptions

PROJECTILE POINTS (Plate 4,a)

Number of Specimens: 1

Description: This dart point is characterized by symmetrical, triangular blade edges without barbs. The specimen has rounded, indistinct shoulders and a contracting stem. Overall craftsmanship is rather crude. The point possibly represents a variant of the Gary Type (Bell 1958: 28).

Dimensions: Length, 45 mm; width, 23 mm; thickness, 8 mm.

Provenience: Square N10-W1 Level I.

Lithic Type: Ouachita quartzite.

PROJECTILE POINT FRAGMENTS

Stems (Plate 4, b-e)

Number of Specimens: 6

Descriptions: These fragments represent broken stem sections of dart points. One example retains sufficient basal characteristics for tentative point identification. Specimen 1 is from a medium sized dart point having an expanding concave base with rounded corners and fairly well-developed shoulders and barbs. This example closely resembles Frio points (Suhm and Krieger 1954: 428) and may be a variant type. Specimen 2 is a contracting stem with a convex base. It has been broken and reworked. Specimen 3 is a short expanding stem with a concave base with acute stem corners. Specimen 4 is a slightly expanding stem with a concave base, rounded corners and weak shoulders. The remaining 2 specimens are sections of stems with straight to slightly convex bases.

Dimensions: Specimen 1 - stem length, 8 mm; width, 20 mm; thickness, 7 mm. Specimen 2 - stem length, 13 mm; width, 17 mm; thickness, 7 mm. Specimen 3 - stem length, 8 mm; width, 18 mm; thickness, 4 mm. Specimen 4 - stem length, 12 mm; width, 17 mm; thickness, 7 mm. Specimen 5 - stem length (indeterminate); width 19 mm; thickness, 4 mm. Specimen 6 - stem length (indeterminate); width 16 mm; thickness, 5 mm.

Provenience: Specimen 3, square S1-W1 Level II; all others General Surface.

Lithic Type: Specimen 1 - Ouachita Black chert; Specimen 2 - Arkansas Novaculite; Specimens 3, 5 and 6 - Boone cherts; Specimen 4 - Ouachita quartzites.

<u>Midsections</u> (Plate 4,f)

Number of Specimens: 5

Description: An assortment of undiagnostic projectile point (dart) midsection fragments that have been bifacially flaked.

Dimensions: Width range, 18-32 mm; thickness range 5-9 mm.

Provenience: General Surface - 4; square 10-W20 Level I-1.

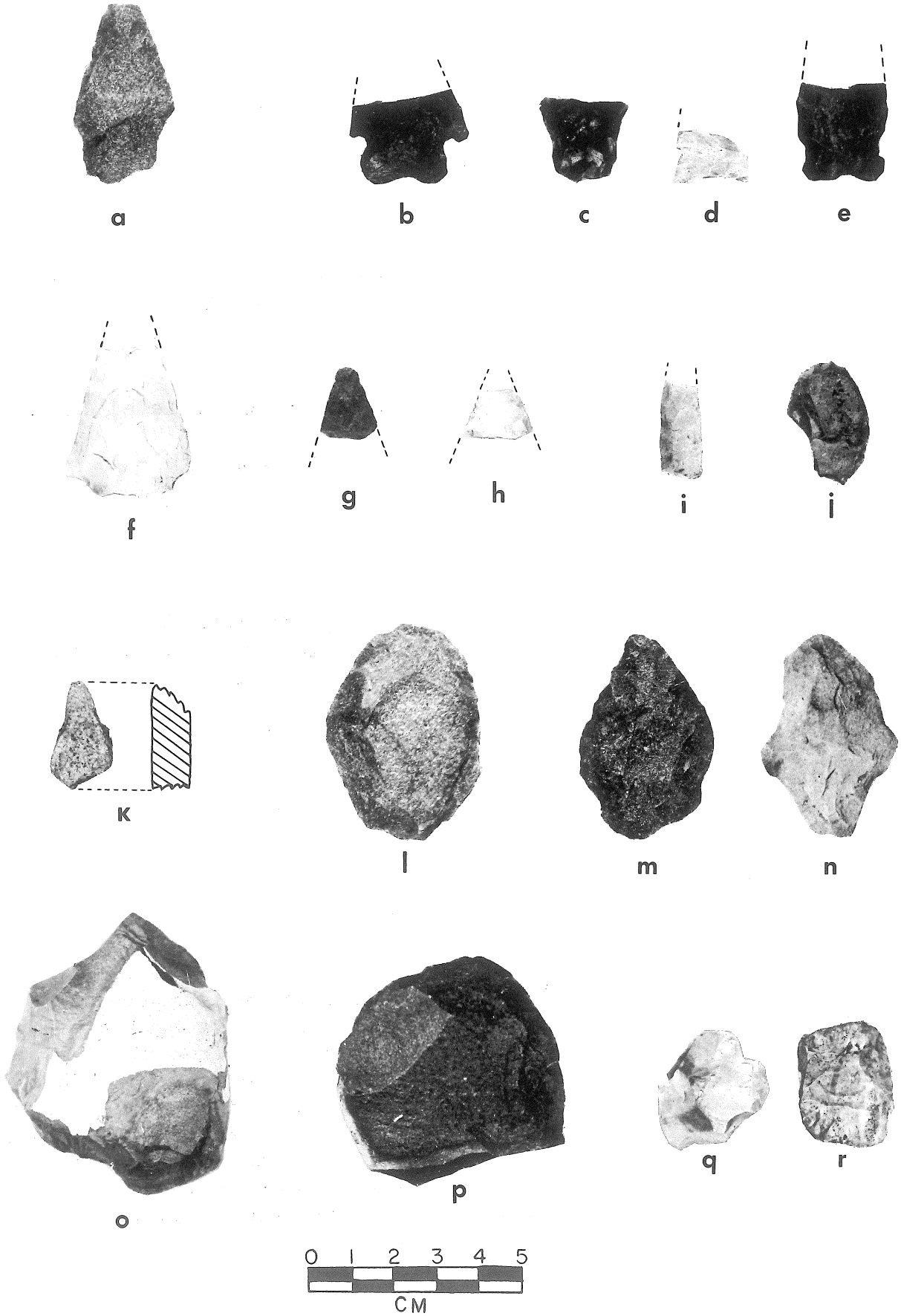


Plate 4. Lf-207 Artifacts: a-h, projectile point and fragments (a, unidentified contracting-stem Gary Variant?; b-e, dart point stems; f, dart point midsection; g and h, dart point tips); i, drill fragment; j, end-side scraper; k, clay-tempered pottery sherd Williams Plain?; l-n, preforms; o-r, cores (o and p, multifaceted; q and r, expended).

Lithic Type: Boone cherts - 3; Ouachita quartzite - 2.

Tips (Plate 4, g and h)

Number of Specimens: 4

Description: These are undistinguished triangular, bifacially worked point tips from large projectiles.

Dimensions: Thickness 5-6 mm.

Provenience: General Surface - 3; square S1-W1 Level II -1.

Lithic Type: Boone cherts -3; Ouachita quartzite - 1.

DRILLS (Plate 4,i)

Numbe of Specimens: 1

Description: This is a fragment of cylindrical drill bit. The specimen is well-flaked on both faces and exhibits crushing and use polish on both lateral edges.

Dimensions: Width, 10 mm; thickness, 6 mm.

Provenience: General Surface.

Lithic Type: Arkansas Novaculite.

SCRAPERS (Plate 4,j)

Number of Specimens: 2

Description: These tools exhibit what is believed to be intentional modification and, as such, have been separated from the incidental/utilized flake tools. The larger specimen is a small, end-side scraper which has been extensively pressure-flaked at a steep angle along one entire lateral edge. Its original shape was probably ovoid, but part of one working edge has been broken away. The other specimen is a triangular section from a larger plano-convex scraping tool and shows steep marginal flaking and utilization.

Dimensions: Specimen 1 - length, 22 mm; width, 18 mm; thickness, 6 mm. Specimen 2 - length, 17 mm; width, 12 mm; thickness, 5 mm.

Provenience: Specimen 1, square S10-W10 Level I and Specimen 2, square N10-W1 Level II.

Lithic Type: Specimen 1 - Arkansas Novaculite (portion of original cortex has been retained on top of scraper); Specimen 2 - Zipper chert.

UNIDENTIFIED BIFACE FRAGMENTS

Number of Specimens: 25

Description: This is a group of irregular lithic fragments which show signs of bifacial flake removal. Due to their size and shape, however, recognition of artifact type or function is not possible.

Dimensions: Length range, 8-29 mm; width range, 5-23 mm; thickness range, 3-10 mm.

Provenience: General Surface - 16; square S1-W1 Level 1-5; square S1-W1 Level II - 1; square S10-W10 Level II - 1; square S10-W20 Level I - 2.

Lithic Type: Boone chert - 10; Ouachita quartzite - 9; Ouachita Black cherts - 4; milky quartz - 1; Arkansas Novaculite - 1.

PREFORMS (Plate 4, o-r)

Number of Specimens: 7

Description: The artifacts which constitute the preform category are those bifaces in the various stages of production and may or may not resemble a finished tool. Even though some secondary knapping may be present, flake scars usually tend to be large and irregular. Several specimens have the appearance of dart points. They are basically triangular in outline without barbs or tangs. It is evident from two preforms that the stems are contracting and bases convex. Another example has been broken across the stem, but its overall

configuration is similar to the others. The terminal form of these points, though somewhat speculative, would most likely have been a Gary type. One example has been broken and reworked.

Dimensions: Length range, 23-49 mm; width range, 8-35 mm; thickness range, 7-10 mm.

Provenience: General Surface.

Lithic Type: Ouachita quartzites - 6; Ouachita Black chert - 1.

CUPSTONES (Plate 5,a)

Type I

Number of Specimens: 1

Description: A roughly triangular natural cobble in which one face has been prepared by pecking to form a shallow indentation. The remaining surfaces of the cobble show little if any intentional modification. Cupstones are known through ethnographic sources to have been used both for the cracking of nuts and for stabilization of cores during percussion flaking (e.g., Honea 1965).

Dimensions: 74 mm in length, 72 mm wide and 48 mm thick. Depression is 3 mm deep.

Provenience: Square N10-W1 Level II.

Lithic Type: Sandstone.

Type II (Plate 5,b)

Number of Specimens: 2

Description: Rectangloid natural cobbles which exhibit more extensive modification than Type I. Both faces have been ground smooth to some extent with one of these surfaces having one to two circular depressions created by battering. The sides and ends also display evidence of battering. These specimens probably represent

multipurpose tools (function as both mano and cupstone) or discarded grinding stones which were subsequently modified for usage as cup/anvil stones. The battering on the end of one example appears to be superimposed over a partially ground surface and may possibly indicate an additional hammerstone function.

Dimensions: Specimen 1 - length, 101 mm; width 58 mm; thickness, 42 mm. Specimen 2 - length, 103 mm; width, 67 mm; thickness, 45 mm.

Provenience: General surface.

Lithic Type: Sandstone.

POTTERY (Plate 4,k)

Number of Specimens:

Description: This specimen is represented by a coarse-textured sherd, tempered with small angular particles of crushed clay. Surfaces are smooth. Core coloration indicates incomplete firing. The sherd's overall appearance is similar to that described and defined as Williams Plain by Bell (1953: 328-329) and Bell and Dale (1953: 120-123).

Dimensions: Thickness, 10 mm.

Provenience: General surface.

UTILIZED FLAKES (Flake Tools)

Number of Specimens: 25

Description: These artifacts consist of amorphous flakes which retain their percussion bulbs and/or ripple marks. Each item in this category has been trimmed unifacially or otherwise incidentally chipped during usage at least along one edge. The exact function of these specimens is not known; however, they probably performed a variety of tasks.

Dimensions: Length range, 16-43 mm; width range, 9-34 mm; thickness range, 3-14 mm.

Provenience: General surface - 17; square S1-W1 Level I - 1; square S10-W10 Level I - 3; square S10-W10 Level II - 1; square S10-W10 Level III - 2.

Lithic Type: Boone cherts - 2; Ouachita Black chert - 4; Arkansas Novaculite - 3; Ouachita quartzite - 15.

CORES AND FRAGMENTS (Plate 4, o and p)

Number of Specimens: 18

Description: Cores are nonuniform blocks of material exhibiting large flake scars and the remains of striking platforms. Such cores probably were sources for flakes and spalls from which tools were eventually manufactured. Specimen 1 is a rectangular unifacial core with areas of outer cortex still present. Specimen 2 is a multifaceted core which has regions of continuous flake scars and striking platforms. Specimen 3 is a small, blocky expended core which has possibly been discarded, being of inadequate size for further use. Specimen 4 is a unidirectional core, which exhibits flake scars removed from one platform surface and in only one direction. The core fragments are generally rectangular blocks having numerous small flake scars over their surface. Many retain some external cortex.

Dimensions: Specimen 1 - length 53 mm; width, 47 mm; thickness, 28 mm. Specimen 2 - length, 50 mm; width, 46 mm; thickness, 28 mm. Specimen 3 - length 28 mm; width, 20 mm; thickness, 13 mm. Specimen 4 - length, 59 mm; width, 51 mm; thickness, 39 mm. Fragments - length range, 28-49 mm; width range, 22-34 mm; thickness range, 13-25 mm.

Provenience: General Surface - 15; square N10-W1 Level II - 1; square N10-W1 Level III - 1; square S10-W10 Level III - 1.

Lithic Type: Ouachita quartzite - 8; Boone cherts - 5; Ouachita Black cherts - 3; Arkansas Novaculite - 1; unidentified cherts - 1.

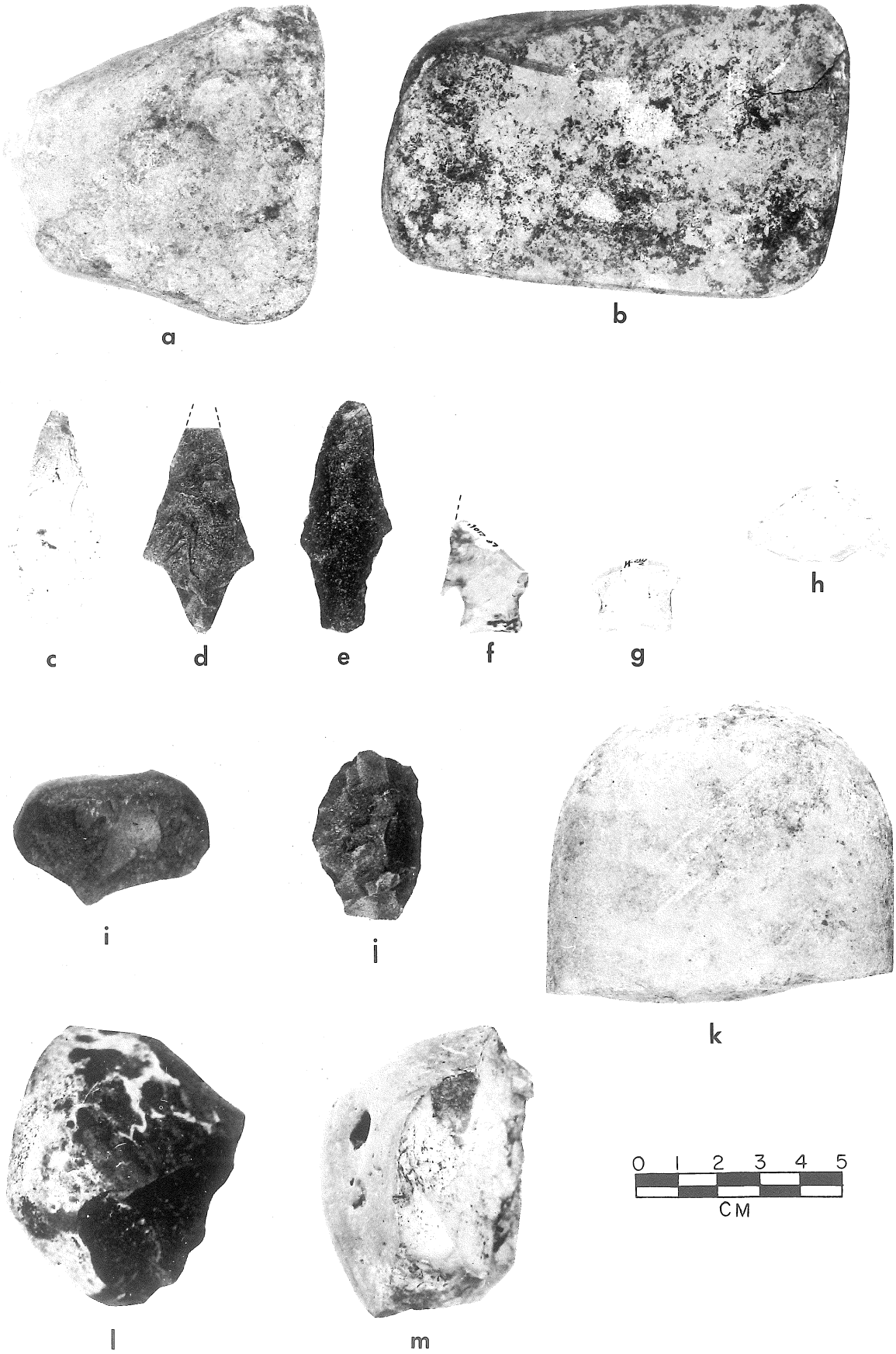


Plate 5. Lf-207 (a and b) and Lf-210 (c-m) Artifacts: a, cupstone Type I; b, cupstone Type II; c-h, projectile points and fragments (c and d, Gary; e, unidentified contracting-stem Gary Variant?; f and g, dart point stems; h, dart point midsection); i, ground stone celt fragment; j, preform; k, mano fragment; l and m, cores.

UNMODIFIED FLAKE DEBRIS

Number of Specimens: 889

Description: This group consists of various flake types (decortication, primary, etc.) collected from the surface and uncovered during excavations. Common features shared by all flakes are their small size and lack of utilization. Shapes range from linear to a variety of geometric forms. It is this sort of debris that is most frequently associated with tool manufacture workshops or knapping activity areas. Many examples retain stream cobble cortex.

Lithic Type: Ouachita quartzite - 457; Boone cherts - 216; Ouachita Black cherts - 139; Arkansas Novaculite - 76; unidentified cherts - 1.

BLOCKY ANGULAR DEBRIS

Number of Specimens: 46

Description: This category includes various tabular and angular fragments which have been split from naturally waterworn cobbles of flint and chert. Some specimens exhibit fracture lines and flake scars which tend to indicate breakage from other than human factors. Most are probable residual waste material resulting from cobble reduction.

Dimensions: Length range, 10-55 mm; width range, 9-44 mm; thickness range, 4-40 mm.

Provenience: General Surface - 27; square S1-W1 Level I - 3; square S1-W1 Level II - 3; square S10-W10 Level I - 5; square S10-W10 Level II - 1; square S10-W10 Level IV - 1; square S10-W20 Level I - 6; square S10-W20 Level II - 1.

Lithic Type: Ouachita quartzite - 15; Boone cherts - 5; Arkansas Novaculite - 8; Ouachita Black cherts - 16; unidentified cherts - 2.

NATURAL DETRITUS

Number of Specimens: 121

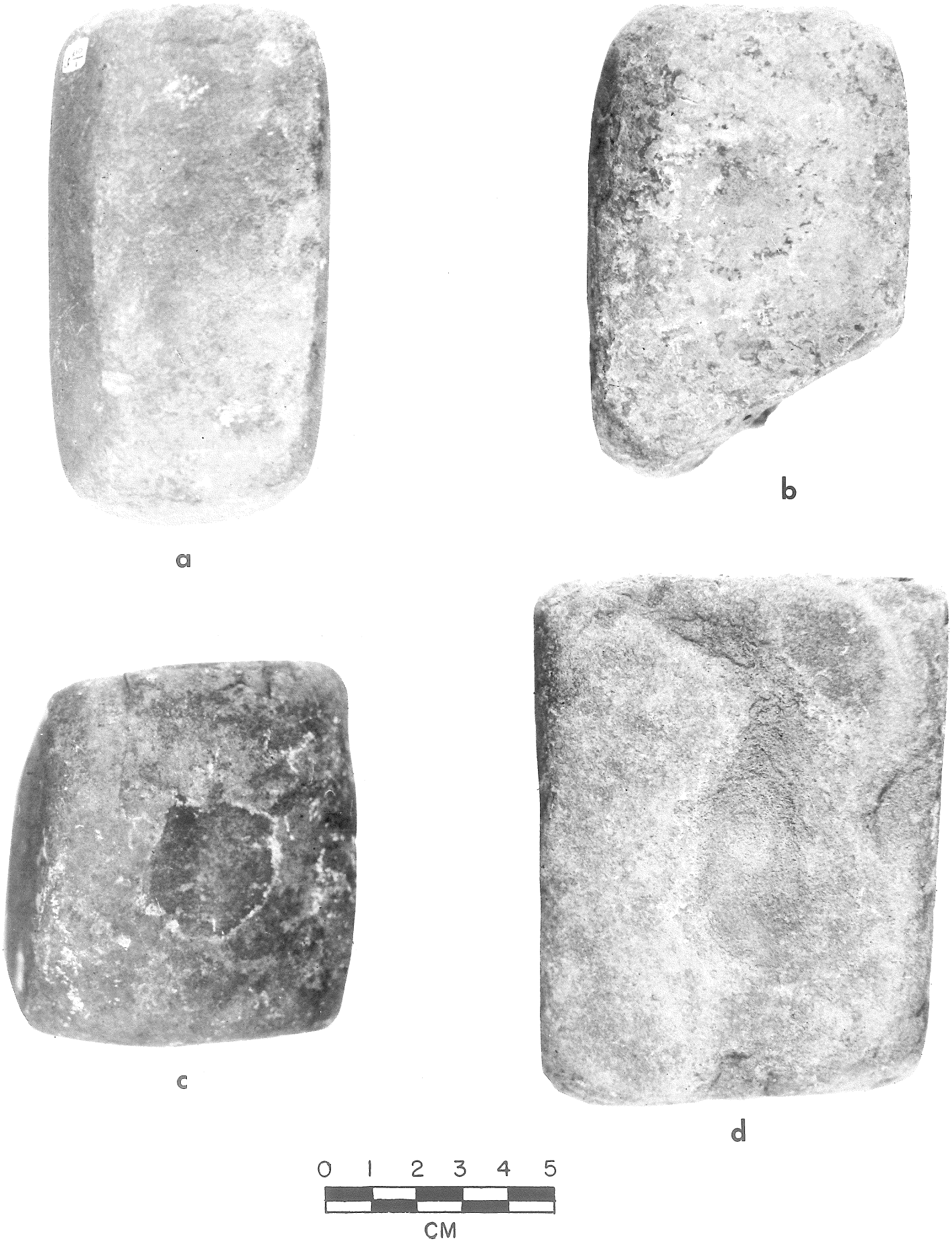


Plate 6. Lf-210 Artifacts: a-d, cupstones.

Description: Unlike the above category, these pieces of lithic material are thought to have been produced by natural agents. Some detritus was probably deposited at the site by stream action. For the most part they consist of stream pebbles and fragments and small pieces of disintegrated rock.

Lithic Type: Ouachita quartzite - 22; Boone cherts - 21; Ouachita Black cherts - 34; Arkansas Novaculite - 30; milky quartz - 1; unidentified cherts - 13.

Historic Artifacts

Eight items of present day or earlier historic debris were found mixed with prehistoric material in square S10-W20 Level I. Specimens present include: a triangular stoneware crockery fragment, two bits of glass, an iron washer, one iron tack, nail and a metallic jean button.

Lithic Analysis

Introduction

The purpose of this study is to determine source areas and describe the lithic materials from the vicinity of Lf-207, the Cotton site. Lithic materials from known source areas are grouped by characteristics and geographic locations and compared to the lithic materials at Lf-207. An area 50 miles in radius around Lf-207 was chosen for this study (Figure 5). All of the lithic materials naturally cropping out within this area that were potentially available to the occupants of Lf-207 are listed.

The study area includes parts of three major geologic provinces (Figure 6): the Ozark uplift, the Arkoma basin, and the Ouachita Mountain uplift (Johnson 1972: 1). Cherts occur in outcrops only in the Ozark and Ouachita Mountain uplifts. Quartz and quartzites are found cropping out only in the Ouachita Mountain uplift. Sandstones are found in all three geologic provinces.

The artifact categories at Lf-207 were broken down by lithic types to determine if any preference for a specific litic type exists at the site. The percentages derived from the study of these lithic materials were compared to other sites in the vicinity for which comparative information was available. These percentages were then analyzed to ascertain if any patterns of lithic-type utilization could be established.

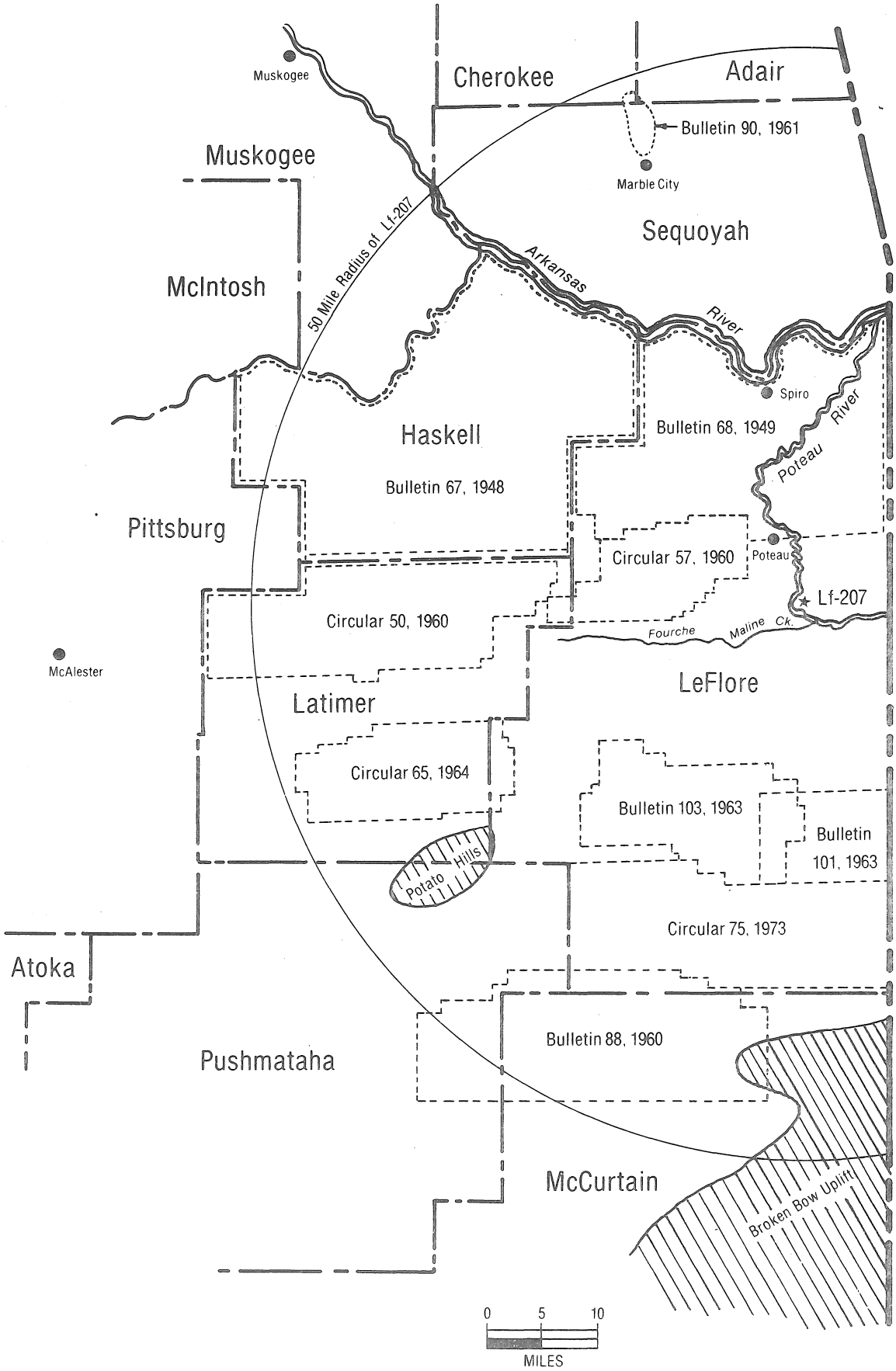


Figure 5 MAP OF STUDY AREA SHOWING SOURCES OF MAJOR GEOLOGICAL PUBLICATIONS

Cherts and other lithic types were identified on a megascopic basis only. Geological publications, which cover most of the study area (Figure 5), were used extensively. The investigation also included limited field work and study of known collections from reliable sources.

Description of Lithic Materials by Geologic Origin

This section of lithic analysis deals with chert and other lithic types occurring in formations within the study area. A search of the geological literature revealed several chert-bearing formations, some of which have never been previously mentioned in archaeological literature. A total of 14 formations were found to contain lithic materials. One type of material (quartz) was not restricted to any one formation, another type of material (sandstone) occurs in most formations, and one type of material (Zipper chert) cannot yet be assigned to a formation.

Bigfork Formation

The Bigfork Formation is the oldest major chert-bearing[1] formation in the Ouachita Mountain system. Cherts occur abundantly throughout the entire formation, although they are most abundant in the lower parts. Outcrops are restricted to the Potato Hills area and the Broken Bow uplift (Goldstein 1959: 142, Figure 8) in the study area previously designated (Figures 5 and 6). The Bigfork chert occurs as nodular chert, bedded chert, limestone-replacement chert, and concentric chert. The bedded cherts are seldom more than 4 inches thick, whereas the limestone-replacement cherts are commonly 2 to 3 feet thick. The nodular and concentric cherts range from 2 to 3 inches up to 1 or more feet in diameter. The cherts are dominated by dark colors, especially black, with the ratio of black to dark gray increasing toward the top of the formation. Roe (1955), conducting studies in the Potato Hills, noted in his measured sections that almost all the cherts in the Bigfork Formation are black with very little gray. Miser and Purdue (1929: 37), doing research in the Benton-Broken Bow uplift of western Arkansas, noted only black chert that was intensely fractured.

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[1]As a means of simplification, only the term "chert", as defined by Gary, McAfee, and Wolf (1973: 122), will be used for all chert or flint materials.

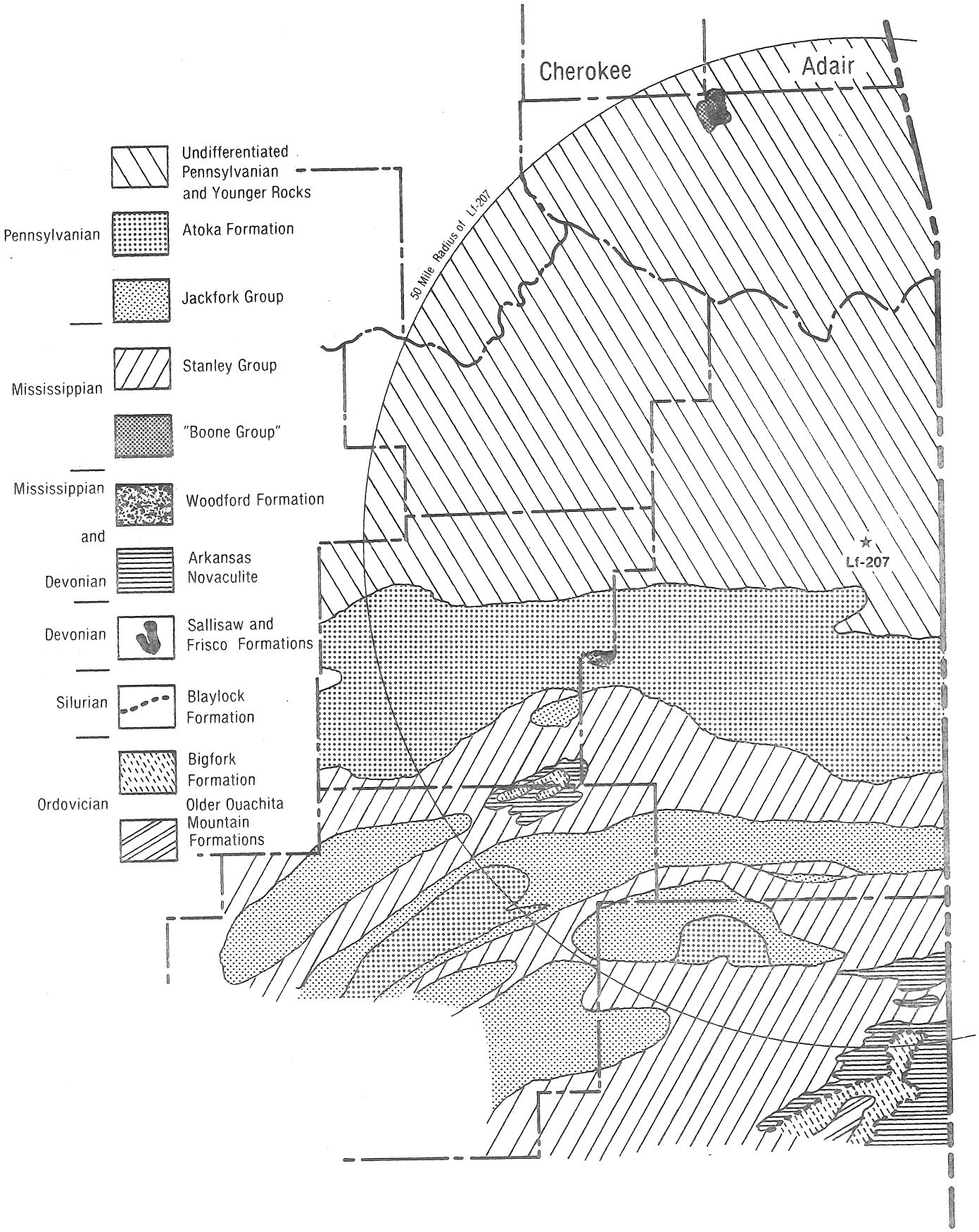

Figure 6

GENERALIZED GEOLOGIC MAP OF STUDY AREA

The Bigfork chert is dull lustered, opaque, and fine grained and has a sub-conchoidal to conchoidal fracture. A fresh fracture on a large specimen usually emits a petroleum odor (like asphalt), a characteristic it shares with the Woodford cherts of the Arbuckle Mountains and the frontal belts of the Ouachitas. The cherts are commonly intensely fractured. Some of these fractures have been filled with calcite and/or chalcedony; also present in some specimens are small (1 to 2 mm diameter) white spots of cryptocrystalline silica. Fossils are scarce, but occasionally graptolites, ostracods, small brachiopods, and conodonts are found.

Frisco Formation

Chert is rather scarce in the Frisco Formation, and indeed most of the previously designated "Frisco Flint" from the quarries in Pontotoc County, Oklahoma (Evans 1958), probably has its origin in the basal Woodford Formation (T. W. Amsden, Oklahoma Geological Survey, personal communication 1978). The Woodford Formation, where present, directly overlies the Frisco Formation. Most geologists put the contact at the appearance of large quantities of chert (Ventress 1958: 17-18), which they assign to the Woodford Formation (Ventress 1958: 18; Amsden, personal communication 1978). The Frisco Formation in the study area (Figure 6) is present only in the Marble City area, Sequoyah County (Amsden 1961). Amsden (1961: 30) noted that some beds include scattered chert nodules up to 2 or 3 inches long. These cherts occur sporadically, as only a few localities in Amsden's measured sections (pp. 90-109) exhibit chert. The chert is described as being light colored and vitreous. No samples of the Frisco chert are presently available from the Marble City locality and no further description can be given.

Sallisaw Formation

Chert occurs abundantly in the Sallisaw Formation in the vicinity of Marble City (Figure 6). The cherts from the Sallisaw Formation are opaque and are white, buff, brown, gray, pink, and red. The chert occurs in a single color or in a combination of colors. Mottled areas are common as well as blue-spotted or blue-clouded areas. Some of the chert contains small (1 mm to several centimeters) vugs lined with drusy quartz. Fossils are common in the chert

with brachiopods being the most abundant. This chert is megascopically very difficult to distinguish from the cherts of the "Boone Group". Banks (n.d.: 10) attempted to describe the Sallisaw chert as being different petrologically from the Boone cherts. However, field collections made by the author from outcrops of the Sallisaw Formation, positively identified as Sallisaw chert by Dr. Thomas W. Amsden, Oklahoma Geological Survey on the basis of fossils, show the Sallisaw chert to be petrologically identical, in most cases, to some of the Boone cherts. The only way to megascopically separate these two cherts would be by their fossil content.

Arkansas Novaculite

The Arkansas Novaculite is one of the major chert-bearing units of the Ouachita Mountain areas. Outcrops of the Arkansas Novaculite are restricted to the Potato Hills and the Broken Bow uplift area within the study area (Figures 5 and 6). The term novaculite has been a source of confusion in recent times, as Griswold (1892) and, later, Purdue (1909) concluded that novaculite was not chert or was different from chert. Later, Goldstein (1959: 139) stated that it is not possible petrographically to make a rigid distinction between chert and novaculite. A more modern way of looking at the term novaculite is to use it as formational term or characteristic. Used in this manner, a novaculite can be characterized as a massive accumulation of bedded cherts with few partings of any type and no nodular chert. These extremely massive accumulations of thick-bedded chert deposits are found in the United States only in the Ouachita fold-belt. It is partly this uniqueness that inspired early writers to describe the cherts found in this area as a different rock type.

The cherts of the Arkansas Novaculite are of several types, including spicularite, calcareous chert, radiolarian chert, sapropelic (bituminous) chert, and argillaceous (clayey) chert. Light colors are dominant in the formation, with white and apple green being predominant (Hendricks et al. 1947: Goldstein and Hendricks 1953: 429-430). Other colors present include light blue (Miller 1955: 18), red gray, brown, and black (Goldstein and Hendricks 1953: 428-430). The cherts are commonly color banded, but solid colors, especially

white, are common in some areas. The luster ranges from dull to vitreous. The chert is opaque to translucent; as a general rule, dull-lustered cherts are opaque, and vitreous cherts, translucent. Chert texture is splintery to smooth and fracture ranges from uneven to conchoidal. Fossils are scarce, but occasionally charaphyte oogonia (an alg), silicified wood, linguloid brachiopods, and conodonts are seen.

Woodford Formation

The Woodford Formation is mostly a fissile, siliceous shale, with some bedded and nodular cherts, especially in the lower 7-8 feet. The cherts in the lower parts of the formation are dissimilar to the cherts in the remainder of the formation. The lower cherts are multicolored, banded or mottled in a number of light to dark colors. The remaining upper sequence of the Woodford Formation contains mostly black and dark gray to steel-blue opaque, dull to semi-vitreous cherts with joint or fissure fillings of white silica. In the study area the only outcrop of Woodford is just north of Bengal, Oklahoma in eastern Latimer County, where the Woodford Formation is exposed by an upthrown fault block adjacent to the Ti Valley fault (Figure 6). Fellows (1964: 20) stated that at the Bengal locality only the upper 36 feet of the Woodford is exposed. Thus, only the dark cherts of the upper Woodford can be seen.

"Boone Group"

The term "Boone" has been used frequently as an informal group term for the many formations making up the Osagian rocks of the Ozarks by many geologists, but it has never been formally elevated to the rank of group. It remains a junior synonym for the St. Joe, Reed Springs and Keokuk Formations of Oklahoma. Nevertheless, for the sake of continuity, the term "Boone cherts" should be retained by archaeologists as it has appeared in the literature for a long period of time and any change in nomenclature might be confusing. Huffman (1958: 44) noted that the Keokuk Formation (one of the major Boone chert bearers) crops out over 50 percent of the flanks of the Ozarks in Oklahoma. Chert found in the Reed Springs Formation is essentially identical to the chert found in the Keokuk Formation. The cherts in both formations change laterally and vertically in color

and other characteristics, making it very difficult to trace a particular chert back to a particular outcrop. Colors of the Boone cherts include black, gray, blue-gray, brown, buff, pink, white, and mottled combinations of these colors. The chert is semi-vitreous, opaque, fine grained, and fossiliferous (mostly brachiopods, corals, and bryozoans). Banks (n.d.) attempted to break the Boone cherts down into several types, but the types he listed (pp. 12-17) are not recognized geologically, as they do not correspond to any specific member or outcrop of the Boone cherts. For this report, no division of the Boone cherts is made and the term includes the cherts of both the Keokuk and Reed Springs Formations.

Stanley Group

The Stanley Group, which crops out over a large part of the Ouachita Mountains (Figure 6), contains two major siliceous shale members, the Battiest chert member and an unnamed siliceous shale at the base of the Moyers Formation. The Battiest chert is characterized by 3-6 inch beds of black chert cut by veins of milky quartz (Shelburne 1960: 18). The basal Moyers siliceous shale contains up to 3 inches of black chert beds (Shelburne 1960: 21). The quality and other characteristics of these cherts are unknown.

Jackfork Group

The Jackfork Group crops out over much of the central part of the Ouachita Mountains (Figure 6). There are two important chert-bearing formations in the Jackfork Group, the Chickasaw Creek Formation, at the base of the group, and the Wesley Formation, in the middle of the group. The Chickasaw Creek Formation contains chert beds in two siliceous-shale members. These cherts are from 1 to 6 inches thick and are black, opaque, and spiculitic, containing numerous white specks (averaging 2 mm in diameter) and/or light-blue-white cloudy patches (Briggs 1973: 10; Shelburne 1960: 25). These bedded cherts are dull lustered and fine grained. Goldstein and Hendricks (1953: 432) also noted numerous quartz veinlets forming a network in many of the chert samples.

In the Wesley Formation, chert occurs as beds 1 to 3 inches thick at the top of the formation in a siliceous

shale (Briggs 1973: 13-15). The chert beds are dark gray to black and are opaque, dull lustered, and fine grained. Shelburne (1960: 32) noted white spots similar to those found in the Chickasaw Creek cherts and abundant sponge spicules.

Atoka Formation

The Atoka Formation dominates 15 to 20 miles of the frontal belt of the Ouachita Mountains (Figure 6). The basal Atoka Formation contains several siliceous shale units, some of which contain black bedded cherts up to 6 inches thick (Shelburne 1960: 41; Goldstein and Hendricks 1953: 434). Little else is known at present about these cherts other than that they are spiculitic. The quality of these cherts is also unknown.

Quartzites

Quartzites are found throughout the Ouachita Mountains in the form of orthoquartzites, which are silica-cemented (or more than 90 percent silica) sandstones. These orthoquartzites are found massively in the Atoka Formation, the Jackfork Group, the Stanley Group, the Arkansas Novaculite, and various Silurian and Ordovician units, including the Blaylock (Broken Bow uplift only), Womble, and Crystal Mountain Formations (Figure 6). In addition, these orthoquartzites have undergone slight metamorphism in the Broken Bow uplift area (Figure 5) which altered them from the other orthoquartzites. The quartzites are tan, light gray, gray, brown, and black. They are all opaque, and the grain size ranges from poorly sorted to well sorted. Occasionally, inclusions or discolored areas of lighter or darker color are seen. These quartzites are resistant to wear and erosion. Owing to stream transport, they may be found several miles from their source.

Sandstones

Sandstones occur throughout the study area. These sandstones contain mostly quartz clasts and are cemented by calcite, barite, or a loose matrix of silica. Colors are white, tan, buff, pink, reddish brown, brown, gray, black, and combinations of these colors. It is very difficult to

assign a particular sandstone to any formation, although sandstones utilized at various sites probably came from nearby sources. Fossils are scarce in most sandstones, although many of the Pennsylvanian sandstones contain plant fossils. In some instances a paleobotanist can identify some of these plant remains and assign them to a particular stratigraphic zone, thus helping in the determination of the sandstone's source area.

Quartz Veins

Quartz veins, which are up to 100 feet thick (Miser 1959: 37) and extend laterally for several miles, crop out in McCurtain County, particularly in the core area of the Broken Bow uplift (Miser 1959: 39) (Figure 6). The vein quartz in this area has milky-white, translucent, and/or clear colors, and it is crystalline to massive. Quartz veins also occur throughout the Ouachita Mountains near and along reverse and thrust faults (Miser 1959: 37) and along and below the Hatton Tuff lentil near the bottom of the Stanley Group in the Broken Bow uplift. These isolated quartz veins are of hydrothermal origin and were formed during the close of the Pennsylvanian orogeny, which formed the Ouachita Mountains (Miser 1959: 37).

Zipper Chert

The Zipper chert was first noted in archaeological literature by Lopez and Keith (1976: 136-137) for materials derived from gravels in Latimer County. The unit is a translucent, brown, blue, gray, green, or amber chert. It has a waxy or vitreous luster, a splintery fracture, and spherical mineral or rock inclusions averaging about 0.5 mm to 1 mm in diameter. Some of these inclusions occur in banded layers and are typically yellow or gold in color.

In the original description of the Zipper chert (Lopez and Keith 1976: 136-137), the chert was thought to be either a possible form of the Bigfork chert or an "exotic" Pleistocene wash-in. It is unlikely that the Zipper chert is a form or variant of the Bigfork chert because of differences in color, luster, and clarity. Other than the possibility of its being a washed-in "exotic," (Dr. R. O. Fay, personal communication, 1977) the Zipper chert might be a variety of chert from the

Arkansas Novaculite. The chert from both the Arkansas Novaculite and the Zipper chert has the same colors, a splintery fracture, about the same luster, and translucence. This tentative correlation has been suggested by staff geologists of the Oklahoma Geological Survey; however, it cannot be supported until thin-section analyses and fieldwork have been completed.

In the descriptions given for each lithic type by known or unknown geologic source, some can be grouped together. The criteria for grouping these lithic types is very simple on a megascopic basis. The grouped cherts must first occur (crop out) in the same geographic area and have similar ranges in color, texture, and luster; any special characteristics (e.g., banding, crystal vugs, and spots) must overlap or be the same. An example of a chert type in the Ouachita Mountains that fits this category would be the Bigfork chert. The Bigfork chert, as described previously, can fit any number of other cherts that crop out over the same area or a larger area in the Ouachita Mountains. Such cherts include part of the Arkansas Novaculite, the Stanley Group, the Jackfork Group, the Atoka cherts formation, and the Woodford Formation (only in the outcrops within the Ouachita Mountains or in adjacent areas where the Woodford chert and some other Ouachita black chert would occur together). In the past, all of these cherts would probably have been assigned to the Bigfork, which, as noted, has a very limited outcrop area; the other cherts, though scattered, have a rather large outcrop area. These cherts should be, and here are, grouped into one lithic category. I will use the name Ouachita black chert for this material, as it denotes its geographic origin and one of its major characteristics (black color).

It should be noted, however, that just because a chert occurs in a separate formation it is not necessarily different. Cherts are relatively common in sedimentary strata, and throughout geologic time similar depositional environments and subsequent processes have produced similar cherts. Cherts are also hard to identify as to geologic origin by petrographic methods; thus, only a limited separation can be made by petrologic means. Cherts, because of their nature, also change quite dramatically, both laterally and vertically, in just a few feet, in color, texture, and luster.

Grouping can greatly simplify any problems of identification. However, there are some exceptions to these groupings:

1. If a site is located on, or very near, an outcrop of a given lithic type that has been grouped with other lithic types, it can be assumed that most of that particular lithic type came from that outcrop. For example, it has been shown that many different rock units in the Ouachita Mountain area produce black colored cherts. However, for instance, if a site is situated on or very near an outcrop of the Woodford Formation, then it may be assumed that at least a large percentage of the black colored cherts at the site came from the Woodford Formation.

2. If a chert or lithic type can be identified to a particular formation on the basis of fossil content.

3. If a controlled data base over the entire outcrop of any particular chert type was made, and this data base studied by a trained petrographer, sufficient unique characteristics may be noted. These cherts possibly could then be identified by a trained petrographer by thin-section analysis.

Obviously, the latter two exceptions require skills outside the training of archaeologists. In any case, the third exception may not always apply, as some petrographers doubt that, even with a data base, enough could be learned about any chert to be able to link it with a particular formation.

For this report, no such exceptions in grouping are noted, and a simple grouping was made based on characteristics given previously. This grouping is shown in Table I. These lithic types constitute all but 1.5 percent of the sample from Lf-207, and most of the lithics left unidentified were either too small to note distinguishing characteristics or could not be identified to a particular geologic unit.

Conclusions

In this section of the Lithic Analysis, the following subjects are examined: local lithic resources, comparative analysis

TABLE I.

Name of Chert	Geographic and geologic origin	Mode of Occurrence	Interior color(s)	Cortex color(s)	Luster	Texture	Distinguishing features	References
Ouachita black chert	Ouachita Mountains (numerous formations)	Bedded, nodular	Dark gray to black	Tan to reddish brown	Dull to semi-vitreous	Fine grained to smooth	Numerous 1- to 2- mm white spots, some light-blue-white cloudy patches, numerous fissures filled with white calcite or silica	Goldstein and Hendricks (1953) Goldstein (1959)
Arkansas Novaculite	Potato Hills, Black Knob ridge, Broken Bow uplift; inch all but black chert from Arkansas Novaculite	Bedded only	White, apple green, light blue, red, gray, brown, tan, pink	Tan, green brown	Dull to vitreous	Sugary, smooth to splintery	Unique colors for geographic area, banding, splintery texture, translucence	Goldstein (1959), Goldstein and Hendricks (1953), Miller (1955)
"Boone" cherts	Ozark Mountains all cherts are from Keokuk Reeds Spring, and Sallisaw Formations.	Bedded, nodular	White, buff, pink, brown, gray, blue, black	Tan to brown	Dull to semi-	Fine grained	Mottling, texture, luster	Huffman (1958)
Zipper chert	Potato Hills and streams therein.	Unknown (stream cobbles)	Amber, brown, blue, gray, green	Unknown	Vitreous	Smooth to splintery	Numerous yellow or gold spots less than 1 mm in size	Lopez and Keith (1976)
Ouachita quartzites	Large distribution over nearly all of Ouachita Mountains and streams therein.	Bedded	Tan, gray, brown, black	Light brown or same color as interior	Dull	Uneven sorting, poor to well; grain size, silt to sand	Easily distinguished by graininess and texture	Cline (1956), Hendricks et al. (1947)

of tools and debris of a given lithic type, and possible preferences for a particular lithic type at Lf-207.

A large percentage of cores (72.2 percent) and unmodified flakes (12 percent) show a cortex. Of these, 100 percent show rounding, polishing, and other direct evidence of stream transport. This percentage indicates that most of the lithics utilized at Lf-207 were transported by streams. Currently four major streams within the study area carry gravels in sufficient quantity to make them potential source areas for lithic materials. These are the Poteau River (approximately 200 yards west of the site), Fourche Maline Creek (approximately 10 miles southwest of the site), the Arkansas River (approximately 20 miles north of the site), and the Canadian River (approximately 35 miles northwest of the site).

The Ouachita quartzite was the most abundant lithic type at Lf-207, making up about 47 percent of the sample (Table II). It is very widespread in its distribution throughout the Ouachita Mountains, and virtually every stream that flows from the Ouachitas carries some of these quartzites. As the Poteau River and some of its tributaries flow from the Ouachita Mountains, it may have carried the Ouachita quartzites utilized at Lf-207.

The Ouachita black chert makes up a little more than 17 percent of the sample at Lf-207. This, along with milky quartz (0.17 percent of the sample), is scattered in outcrops over much of the Ouachita Mountains. Most of the streams that flow from the Ouachita Mountains probably carry some amount of both of these materials.

The Arkansas Novaculite (11 percent of the sample) and the Zipper chert (less than 0.1 percent of the sample) pose the problem of being restricted in outcrop. The only known area of occurrence for the Zipper chert is the Potato Hills and the surrounding drainage system (Lopez and Keith 1976: 136-137). The Potato Hills is also the closest area where the Arkansas Novaculite crops out. Using current drainage patterns, it is physcially impossible to place the Zipper chert or the Arkansas Novaculite in either Fourche Maline Creek or the Poteau River (the two streams with drainage areas closest to the Potato Hills). However, during the Pleistocene or earlier these lithic materials may have been

Table II. Artifact and Debris Material by Lithic Type

Lithic Debris	Ouachita Quartzite	"Boone" chert	Ouachita black chert	Arkansas Novaculite	Milky Quartz	Zipper chert	Sandstone	Unidentified cherts
Dart points and fragments	5	5	1	1	-	-	-	-
Drills	-	-	-	1	-	-	-	-
Scrapers	-	-	-	1	-	1	-	-
Cupstones	-	-	-	-	-	-	3	-
Unidentified biface fragments	9	10	4	1	1	-	-	-
Preforms	6	1	-	-	-	-	-	-
Utilized flakes	16	2	4	3	-	-	-	-
Cores and fragments	8	5	3	1	-	-	-	-
Blocky angular debris	15	5	16	8	-	-	-	2
Unmodified flakes	457	216	139	76	-	-	-	1
Natural detritus	22	21	34	30	1	-	-	13
TOTAL	538	269	201	122	2	1	3	17
TOTAL PERCENTAGE	47%	23%	17%	11%	.2%	.1%	.3%	1.5%

deposited north of the divide of the current south- and east-flowing drainages. Subsequent redeposition and transport of these cherts may have deposited these materials to a source locale near the site. The other possibilities for the acquisition of these materials would be by travel to outcrop or gravel areas south or west of the site, and through trade.

"Boone" cherts represent the second largest lithic type at Lf-207 (23 percent of the sample; see Table II). The presence of small (½ to 1½ inches in size) waterworn pebbles of "Boone" chert found in situ at the site, and larger cobbles utilized as cores at Lf-210, may indicate a local source for this chert. Further investigations should show if "Boone" chert-bearing gravel deposits can be found in the nearby vicinity that contain chert cobbles in sufficient size for utilization in the manufacture of tools. Until such an investigation is made, it is not possible to determine accurately the source of these gravels.

The age of these "Boone" chert-bearing gravels at Lf-207 is unknown, but they may be quite old, possibly Tertiary. Because the modern stream drainage is northeast at the site, and the source outcrops of the "Boone" cherts is to the north, a south- or southwest-flowing drainage pattern would be required to deposit these gravels. It is possible that these gravels may be part of the "Lafayette" gravels that cover parts of Illinois, Missouri, Kentucky, Tennessee, Arkansas, and Louisiana. These gravels are of Pliocene age and have a northeasterly source.

If these gravels prove to be of insufficient size for utilization by the occupants of Lf-207 and surrounding sites, then there are two possibilities: (1) the occupants went north and acquired "Boone" cherts in gravel deposits of the Arkansas River (or any of the other streams carrying these gravels), or (2) the occupants traded for this material. Any of these hypotheses, or any combination thereof, are possible. But, it is not possible at present to say which, if any, of these possibilities represents the source of "Boone" cherts at Lf-207.

Twelve sites, and one group of sites, were examined for types of lithic-debris material (Table III). These sites are

TABLE III. COMPARATIVE ANALYSIS OF SELECTED LITHIC TYPES

Area[1]	Site	Percent of: Ouachita quartzite	"Boone" Chert
	Lf-207	47%	23%
Southwest	Lake Wister sites	50 to 80%	8%
West	Lf-243	10.7%	66%
North	Lf-236	17%	76%
	Lf-222	8%	83%
	Lf-221	4%	91%
	Lf-242	16%	77.5%
	Lf-265	22.4%	50%
Northeast	Lf-213	11.1%	78%
	Lf-212	5.2%	82.9%
	Lf-211	7.7%	80%
South	Lf-209	73.7%	10.5%
	Lf-208	42.9%	26.4%
	Lf-210	35.9%	48%

[1]Point of reference if Lf-207.

all situated within a 14-mile radius of Lf-207. The sites are listed on Table III in descending order, in which the first site listed for any direction is the farthest from Lf-207.

Data from these sites were obtained by examining material from all of the sites except the Lake Wister sites, where information was obtained by personal communications with Jerry Galm, Director for the Oklahoma River Basin Survey. The Lake Wister and Lf-221, Lf-222, Lf-236, and Lf-242 sites were found and recorded by the Oklahoma River Basin Survey. The remaining sites were found and recorded by the Oklahoma Highway Archaeological Survey.

Of the eight different lithic types found at Lf-207, only two, the Ouachita quartzite and the "Boone" cherts, occur with sufficient frequency to warrant comparisons between sites. The Ouachita quartzite has its origin in the Ouachita Mountains, and the "Boone" cherts are non-Ouachita lithic materials.

In general, the greater the distance southward from Lf-207 (toward the Ouachita Mountains) the more Ouachita quartzites are encountered. The greater the distance northward from Lf-207 (toward the Arkansas River), the more "Boone" cherts are encountered. There are, however, four anomalous situations within the study area. Sites Lf-222, Lf-236, and Lf-213, all of which are north of Lf-207, contain more quartzites than sites to the south. Lf-243, which is west of Lf-207, contains greater amounts of "Boone" cherts than other sites around it. The reasons for these anomalies are unknown.

The only tentative preferences for any particular lithic material seems to have been a selection of chert over quartzite over chert for utilized flakes. These preferences probably depended on the quality of material (or knappability of material).

Percentages of debris to tools for any lithic type at Lf-207 are about equal to the other lithic types. This equality tends to support the idea that sources for these cherts are local (gravels, etc.) rather than from trade. If a lithic type had been acquired by trade, there would probably be a higher ratio of tools over debris.

Area Survey

Naturally, archaeological reconnaissance by the Highway Archaeological Survey is limited to proposed right-of-way or alignment corridors. This type of survey prevents the archaeologist from evaluating other potential habitation areas outside highway land and their relationship to known sites. This problem again presented itself upon completion of Lf-207 test excavations. The amount and nature of excavated material was considered inadequate for a thorough site interpretation. Therefore, the Highway Archaeologist instituted a survey of the region surrounding the Cotton site that resulted in the discovery of Lf-210 (Figure 2). Lf-210, located approximately ¼ mile west of Lf-207, can be described as a large open site of several acres extending east and north of a terrace knoll overlooking the Poteau River. Two hundred and fifty-eight (258) specimens taken from the surface included 5 cupstones (biface and uniface), a celt fragment, cores, cobbles, contracting stem dart points and 19 projectile point fragments, incomplete bifaces, utilized flakes, and numerous examples of flake debitage (Plates 5 and 6). A comparison of Lf-210 and Lf-207 would indicate that the two sites may be interrelated. Lf-210 appears to have been the major occupation and Lf-207 possibly an outlying activity or workshop area. Had Lf-210 been situated along the survey route, it would have been tested rather than the Cotton site.

Site Interpretation

A histogram, showing frequency of lithic material by provenience was drawn to aid in site interpretation. It could be readily seen that most artifacts and debris were concentrated in the upper two levels. Beyond this layer, the numerous of specimens rapidly tapers off until sterile soil or natural sandstone lens is reached. These findings suggest a short-term occupation/utilization for Lf-207. Geographical proximity and a similar cultural assemblage indicates probable affinities with Lf-210. Placement of either site into a chronological sequence is difficult, especially on the basis of recovered artifacts. Nonetheless, dart point types imply a relationship with Archaic traditions in the area such as so called "Fourche Maline" manifestations. Fourche Maline focus sites are principally known from a ten-mile section along Fourche Maline Creek and the Poteau River

in southern LeFlore County, although surface collections from southeastern Oklahoma signify a probable wider distribution. Though evidence is inconclusive, peoples at this time level were probably nomadic hunters and gatherers having close ties with both the Southeast Archaic in some respects and Early Woodland (Bell and Baerreis 1951); however, as mentioned previously, the Fourche Maline focus construct is undergoing reexamination and any conclusions are only tentative. Regrettably, certain salient characteristics normally associated with Fourche Maline occupations (midden deposits with burials, double-bitted flaked axes, boatstones, various bone artifacts, etc.) are not presented at Lf-207 or Lf-210. The recovery of a single clay-tempered pottery sherd thought to be Williams Plain is considered insufficient evidence to align the site with any particular cultural assemblage. However, the presence of the sherd possibly narrows the temporal relationship of Lf-207 to some time after the birth of Christ. Excavations and survey of the Lf-207 area has provided some new information as to archaeological resources in LeFlore County, but the accumulated data cannot be considered highly significant.

Summary and Conclusions

Lf-207 was the first archaeological site to be excavated by the Oklahoma Highway Archaeological Survey since being established as part of the Planning Division, State Highway Department in May of 1972. The Cotton site was located during an environmental investigation along the proposed realignment of US 59 near Poteau in LeFlore County. Prehistoric artifacts and debris found by the Highway Archaeologist indicated a need for further testing. As a result, a field crew was assembled and carried out preliminary excavations from July 24 to July 28, 1972. During this period, one feature and over 900 individual pieces of lithic material were salvaged. The project terminated with a survey of the region surrounding Lf-207 which was responsible for identifying another early occupation, Lf-210. Generally speaking, test excavations proved unrewarding. Artifact analysis did, however, enable the site to be provisionally identified as a small Archaic camp and/or activity area probably associated with Lf-210. Conclusions reached concerning the nature of Lf-207, its inhabitants, their tool assemblage and cultural affiliation are supported but not conclusively proven by available data. It is hoped that this brief report will

be of value in assessing the sites in question, as well as being a worthwhile addition to our knowledge of Oklahoma prehistory.

Postscript

Members of the Highway Archaeological Survey returned to the site during and after construction in the hope that subsurface features or additional diagnostic artifacts might be exposed. Only a few pieces of lithic debris, historic trash and natural sandstone detritus were observed. No significant data which might further increase our understanding of Lf-207 were recovered. Today one-half of the site has been completely graded away, while the remaining portion (eastern section) has been deep plowed and converted into an orchard for commercial fruit production (Plate 3,b).

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