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CULTURE COMPLEXES AND CHRONOLOGY IN NORTHERN TEXAS

With

Extension of Puebloan Datings to the Mississippi Valley

By

ALEX D. KRIEGER
Archaeologist, Research in Anthropology
The University of Texas

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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of Democracy, and while guided and controlled by virtue, the noblest attribute of man. It is the only dictator that freemen acknowledge, and the only security which freemen desire.

Mirabeau B. Lamar

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To

Professor A. L. Kroeber

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Introduction

THE PRIMARY PURPOSE of this work is to define a series of culture complexes linking the Southwestern and Southeastern archaeological provinces. A second purpose is to carry the recognized chronology of Puebloan archaeology eastward as far as available material allows, thus attempting to inject into the Southeast, through its western frontiers, a more definite estimate of culture dating than now exists. A third purpose is to define, from archaeology and historical sources, the time, nature, and degree of contacts between peoples of the Southwest, Plains, and western parts of the Southeast (*i. e.*, those parts west of the Mississippi).

As this is probably the first attempt at a correlation across this part of the continent that recognizes factors of time and specific association of traits, it is fully admitted that a multitude of difficulties arise which are only partially overcome. One is caught between widely different points of view, terminology, and methods of organizing data in the eastern states and Southwest. Throughout the greater part of the intervening area there have been very few extensive excavations. In some cases, however, these enable one to evaluate the material in numerous surface collections. Since most of the earlier work, excepting the well-known "Survey of Texas Archaeology" by Sayles, was conducted to solve more or less local problems, data which would bear on the present inter-areal correlations are in many cases not available. Relative chronology of cultures must, of course, generally be found in stratified sites; it is therefore regrettable that in several important excavations the artifacts were recorded by depth only, often leaving their association with physical strata uncertain. On the other hand—as will appear in the various chapters—a very respectable amount of material has been gathered by non-professional and professional archaeologists alike, much of it already published. What is most important is that the available information should be coördinated and interpreted so as to form a cohesive reconstruction of native culture history. It is significant that Sayles, whose "Survey" provides the only comprehensive treatment of the whole Texas area to date, could still write three years later (1938):

> It seems certain that sufficient work has now been done in Texas to begin the correlating of these investigations, even though such a correlation must remain tentative for many years. . . .

It is also important that an integration of Texas cultures be done on a broad scale so that regional problems of general interest to American archaeology can be developed. The reader should realize that under the circumstances it is impossible to develop these problems to the fullest extent at present, for lack of information at key points. Nonetheless, there is a great deal that can and must be done now. The many individuals who have worked and will work in Texas archaeology will continue to discover important material in all sections. In time the initial scheme of culture dating and interrelationships here advanced should be revised, enlarged, and improved —if not wholly replaced by a more comprehensive one.

I wish to make it clear, however, that the present work is not an attempt to analyze Texas archaeological cultures as a whole. The purpose is rather to use a considerable body of material to outline a number of complexes, most of which have not appeared before or have been developed out of previously described material. This data is used to build a tenuous but continuous bridge across the northern half of Texas,—this in order to provide an objective basis for the development of broad problems. Therefore, in the present case, the Texas material is viewed more as an instrument than as an end in itself. It must be understood that in no case is the treatment of a complex or focus as complete as it might be; artifacts are not described in detail, nor are other features of the cultures. However, it is believed that enough is given for the reader to gain a fairly rounded impression of the material which appears to characterize each culture complex.

It is necessary to place certain limitations on the field of inquiry. First of all, it embraces only pottery-bearing associations. It is now established that the Plains "corridor" between Southwestern and Southeastern frontiers was not always peopled by simple nomads. By 1300 or 1400 A.D. the river valleys and much of the northern Texas dune country were populated by agriculturists in practical continuity from New Mexico eastward to the Mississippi and beyond. This is shown by charred cobs, bone hoe blades, and manufacture of utility pottery in the intermediate cultures of north Texas and Oklahoma. A further reason for limiting this study to late cultures lies in the writer's conviction that the chronological position of earlier, nonceramic, Texas cultures will not be understood until the problem is approached, as it were, from the top down. Claims of enormous antiquity for certain Texas remains have been made with a free hand and received widespread acceptance in some quarters, primarily because there has been no attempt to establish continuity from the latest cultural remains, the dates of which can be fairly estimated, backward to the unknown and speculative. An example of what might be accomplished in this respect is mentioned in connection with the Harrell site, type site for Henrietta Focus.

It is also necessary to limit correlations to eastern Puebloan, Plains, and the westernmost Southeastern cultures. Carrying the results farther into these provinces must rest on future studies. In the Southwest, Pecos Pueblo is used as the principal base of reference, partly because it was certainly a gateway to contacts between eastern Puebloans and peoples of the Plains,

and partly because of Kidder's excellent descriptions and organization into time periods. On the other side, connections with Southeastern cultures and periods are limited to those in the "Caddo" area of northeast Texas, eastern Oklahoma, southern Arkansas, and northern Louisiana. An internal organization of this great region and its affiliations with the Southeast in general have been more fully discussed in another paper prepared for publication: "Archaeological Horizons in the 'Caddo Area'," so that only summary remarks on this side of the problem will be made herein.

For several reasons, it appeared advisable to cite comparisons between the northern Texas cultures and some of those so well known and ably described in the central Plains. As the general mode of life and much of the material culture in northern Texas clearly points to affiliation with the north rather than east and west, the study would have lost much of its meaning had comparisons in content and time with the central Plains been omitted. But here, as in discussions on the Southwest, the writer has worked with only second-hand knowledge and it is to be expected that errors have been made.

Use of the McKern or Midwestern system of nomenclature should, in view of the many arguments in recent years, be explained. It appears to me that much of the criticism that this system cannot be used for historical interpretations results from lack of attempts to use it for such purposes. Even its originator states that its purpose is *not* historical but purely classificatory. Nonetheless, I fail to see why, when trait associations representing communities of identical (or nearly identical) material culture have been defined, the resulting aggregates or foci cannot then be placed in such chronological order as may be indicated by the data. It should matter little whether these units are shown to be related in horizontal or in vertical (temporal) directions. All archaeologists use terms of one kind or another to indicate that masses of material are to be divided into units, periods, or stages which contain traits characteristic of a particular group of people during a restricted period. The "focus," it would seem, would indicate just such a restriction of materials. As such, it appears that there are no theoretical or practical limits on the manner in which foci can be arranged to show relationships or sequence. The important thing is to demonstrate as well as possible that the traits included actually formed a cohesive unit which appears repeatedly. Aspects may be formed when any group of foci can be shown to bear a close internal relationship which is clearly distinct in time or content from any other such group.

Since the Midwestern system, if taken with flexibility, appears to me quite as workable as any other organizational tool yet proposed, and since it has already become well established in the eastern states, Plains, and parts of the Southwest and Texas,[1] it has been adopted for this study. One further comment must be made: in using this system, I am strongly convinced that many of the difficulties experienced in its use arise from attempting to classify cultures in the largest units ("patterns") first, then "phases" and "aspects" and finally into foci. Ordinarily, foci are comparatively easy to recognize and

[1]Kelley, J. Charles, T. N. Campbell, and Donald J. Lehmer, *The Association of Archaeological Materials with Geological Deposits in the Big Bend Region of Texas.*

relatively incontroversial, hence I have taken the view that aspects are to be built from foci whenever the material becomes clear enough; "phases" may follow if enough agreement is reached on what they signify; and "patterns" can follow as final products of the whole process. In different circumstances, however, the reverse order might prove more workable. In the present work no attempt is made to go beyond proposals for certain foci and aspects. It is also understood that these are not end-products of research, but merely organizational tools, principally helpful in that they allow one to refer summarily to aggregates of traits found in association, and to refer to a likely source for any specific trait which is at home in one aggregate but foreign in another.

Some explanation may be due on the use of Anasazi period numbers as agreed by the Pecos Conference, rather than names as later proposed by Roberts in his "Survey of Southwestern Archaeology." As Kluckhohn has pointed out, designation of periods by number at times gives rise to serious conflicts in meaning. However, since every source quoted in the present paper employed the numbered periods, there was no recourse but to follow them. In most cases, I have stressed that by reference to Pueblo III or early Pueblo IV, etc., *time* was the chief consideration: a trait was present in such and such a locality during the time span dated 1100-1300, and so on, independently of presence or absence of period diagnostics.

Division of projectile points into those probably for arrows and probably for atlatl darts follows that advanced by Kidder.[2] While everyone admits that points occur for which no decision is feasible, it appears that the main division holds up very well wherever chipped points are recovered still hafted to their shafts. Throughout the Texas field the contrast between heavy, thick, percussion-chipped "dart" points and thin, light, finely pressure-finished "arrow" points usually not over 1½ inches long, is consistently clear and workable; moreover it bears important historical significance since the small, light points always occupy a late position—strictly in conjunction with pottery-making and agriculture wherever these occur.

Figures 1-7 inclusive, 9-13 inclusive, and 15 were drawn by Miss Bettie Lee Lester, and figs. 16-17 by Miss Becky Allen, student assistants in Research in Anthropology, The University of Texas. Other figures were drawn by the author. The photographic plates were made by the author through facilities of the Bureau of Visual Education, The University of Texas. Thanks are due Mr. Donald W. McCavick, Director, for offering these facilities and help at all times.

I wish to express sincere gratitude to Dr. Waldo R. Wedel, United States National Museum, and to my colleagues J. Charles Kelley, T. N. Campbell, and J. Gilbert McAllister for reading and criticizing a short initial draft of this paper. The latter three have also spent considerable time in reading the present draft and offering opinion and criticism. Ever since the idea of such a paper began to formulate about two years ago, Wedel and Kelley have

[2]Kidder, A. V., *The Artifacts of Pecos;* and *Arrow-Heads or Dart Points.*

given freely from materials in their files and their archaeological knowledge. Mr. Elmer H. Johnson, Bureau of Business Research, The University of Texas, has provided me with much detailed information on physiography, soil, and water resources in western Texas, with full appreciation of their bearing on economic life in pre-Caucasian times. Among non-professional archaeologists who have shown a splendid spirit of coöperation are Adolph Henry Witte of Henrietta, Dr. Clarence H. Webb of Shreveport, Frank H. Watt of Waco, Powell Goodwin of Archer City and Austin, Mr. and Mrs. John Henry Ray of Vernon, F. M. and Charlie Parks of Plainview, and Floyd V. Studer of Amarillo. The intimate knowledge of their particular terrain which such persons acquire is something that the professional archaeologist cannot hope to supply. Thanks are also due many others who permitted examination of their collections, whether they were used for this study or not. My wife, Margery, has been an inspiration and helpful critic throughout.

The first section, dealing with excavations in the Texas Panhandle, definition of an Antelope Creek Focus; and affiliations of this focus with Plains and Puebloan cultures, is rather long. This results partly from a desire to gather together the main sources of information on this highly intriguing problem, and partly from the necessity for a thorough understanding of what we are dealing with in attempting interpretations. There are many gaps in our knowledge of these ruins, and the following pages will make these apparent.

In succeeding sections the material given is almost wholly new and therefore described at some length, with organization and interpretation following.

PART I

THE PANHANDLE AND WESTERN PLAINS OF TEXAS

Exploration of Texas Panhandle Ruins

WHERE IT FLOWS eastward across the high plains of the northern Panhandle of Texas, the Canadian River has cut a narrow valley several hundred feet deep. For a considerable distance its course is peculiar among large streams in that it has only a very small lateral drainage basin. Short tributaries rising from springs enter the Canadian from both sides almost across the Panhandle. Above these side canyons the level high plain stretches to north and south, for the most part draining away from the Canadian rather than toward it.[1] Except for sparse cottonwoods and willows along the watercourses, this part of the Panhandle is a vast grassy expanse with scattered sage and mesquite brush. This country agrees on the whole with the High Plains extending far northward. Though much of the Panhandle is still given to grazing, very considerable parts of it are used for summer crops of corn and wheat.

The presence of numerous masonry ruins on or near the short tributary valleys of the Canadian has been known for many years, thanks largely to the labors of Mr. Floyd V. Studer of Amarillo. There is a general idea that they somehow form an important link between Plains and Puebloan cultures, but this has remained vague and undefined. In the following pages a review of the work in this area to date will be made, after which a tentative culture complex which the writer proposes be named Antelope Creek Focus will be defined. Most attention will be given to architectural features, since the available notes are scattered through many short papers, are often vague and conflicting, and it is highly important that these matters be well understood. Less attention will be given to artifacts in this review, for there is more consistency among the investigators as to what forms have been found in and about the ruins. In the list of traits characteristic of these sites given under the definition of Antelope Creek Focus, all artifacts which appear to belong to the complex are included, and the reader may check back through the literature regarding their occurrence for details.

In 1921 Moorehead[2] published an account of his exploration in this region which includes a brief history of the few previous investigations. Working westward from Oklahoma, Moorehead states that the first stone buildings

[1] This is well brought out in Studer's site map, reproduced in Moorehead, W. K., *Archaeology of the Arkansas River Valley*, fig. 74.

[2] Moorehead, W. K., *Recent Explorations in Northwestern Texas.*

were found on the Jackson ranch on Wolf Creek, in central Ochiltree County. These two sites remain to the present day the only masonry ruins reported in Texas outside the narrow Canadian Valley.

Proceeding southwestward into the Canadian Valley, Moorehead viewed successively ruins on the Archie King ranch, others on Cottonwood and Tarbox creeks, on Antelope Creek and Dixon Creek about 25 miles north of the town of Panhandle, the Landergin ranch 40 miles north of Amarillo, and perhaps others. In each case he was surprised by the size of the site, which often covered several acres or extended intermittently for a mile or more along a ridge. At Cottonwood Creek he reported "109 stone graves in one group, and more than 40 buildings." The graves interested him particularly, being "somewhat like those in Tennessee," lined with flat stones set on edge, and "enclosing a space two by one-half meters." Although a grave of this size could have contained an extended burial, Moorehead does not mention the position. Also noted was a general method of building walls with large slabs set vertically. rather than in horizontal coursing as in the classic Southwestern ruins. He specifically states that no Puebloan pottery, turquoise, or "ocean shells" were found in the various sites, but these have been found by subsequent workers. At the Landergin ranch, atop a high mesa, he counted 22 foundations, nearly all circular. Upon questioning an aged Mexican, the information was gained that Kiowa, Comanche, and Apache had camped on the mesa some 60 years before, using stones to weight their tipi covers.

At this time, Moorehead advanced a theory that the Canadian Valley buildings represented an ancient civilization which gradually extended westward and eventually evolved into that of "the Pueblo-Cliff Dweller people." His statement that "They also built irrigation ditches farther up the streams from their villages. . . ." would be interesting if supportable by fact, but no information was given.[3]

In 1929, Dr. W. C. Holden of Texas Technological College, Lubbock, published a short account of his work with students in a ruin on Tarbox Creek.[4] Ruin B, he says, consisted of some 12 to 15 rooms, with outside dimension of 68 by 33 feet; "Some rooms are rectangular; some are round, some are oblong, and some are rectangular on one side and circular on the other." Certain rooms had been made by building partition walls across former large rooms. One wall, he notes, consisted of 16 inches of the usual vertical-slab masonry, plus 10 inches of horizontal coursing.

In 1929 also, Dr. J. Alden Mason made investigations in the Panhandle and northeastern New Mexico for the University of Pennsylvania Museum, accompanied by Satterthwaite and Bache. He notes that the Canadian Valley served as a trade route between Puebloans and Plains Indians, a fact

> . . . indicated by the discovery, on the slopes of the bare hills lining Palo Duro Creek fifteen miles south of Amarillo, of small bits of pottery represent-

[3]Later, he observed irrigation ditches in Meade County, southwest Kansas. These have since come to be recognized as due to the temporary settlement of Taos Indians in this area during the Pueblo Revolt. Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, p. 325, discusses ruins and ditches in Scott County, Kansas.

[4]Holden, W. C., *Some Recent Explorations and Excavations in Northwest Texas.*

ing most, if not all, the types of pottery found at the ancient Pueblo of Pecos near Santa Fe. . . . That the former inhabitants of Pecos journeyed so far east is thus established, but since no ruins of pueblo type are found in this region, it seems most probable that these potsherds represent merely temporary camps of the Pecos people while on expeditions to hunt bison. . . .

But along the Canadian and especially on the short creeks which flow into that river are found the houses of a people whose culture was apparently pueblo and plains elements. . . .[5]

Mr. Studer conducted the party to Alibates Ruin, north of Amarillo.[6] Here,

On one of the hills overlooking the broad low valley of the Canadian are dozens of rings and a few rectangles made of stones, laid flat or placed on edge. These probably represent the walls of semi-subterranean houses, the superstructures now fallen in and the rooms filled with soil. A few artifacts were picked up on the surface. On an adjacent hill are a few more similar sites which were chosen as the expedition's scene of labor. Three sites were partially excavated, a small round ring, a large rectangle and a small hillock with many stones placed on edge. The former revealed nothing of importance. The rectangular site was partially excavated by Mr. Satterthwaite, with help from Mr. Bache. It was outlined by a rectangle of stones, mainly placed on edge, which were found for the greater part to be embodied in a hard material made, apparently, of a lime cement. The flooring was of the same material, but the arrangement was too unusual and intricate to be here detailed. . . .

A second room was partially excavated, and a third which had previously been opened, ". . . was continued until the important features were determined."

The room measured about 15 feet in diameter and was mainly rectangular, though one corner was rounded and one side may have been curved. Built in the side of a [refuse] mound, the upper floor was at ground level on the lower side of the mound, but about four feet below the surface at the crest. The underground walls were of adobe or mud, but were solid and not built of adobe bricks as in the modern Mexican style. Most of them were blackened by smoke. . . . A number of different floor levels were noted, the lowest being two or three feet beneath the uppermost. These floors were apparently made of hard packed clay or mud over which was laid a thin film of plaster. In the center of the house on the uppermost floor level was a rather deep conical depression with a few large stones and a large quantity of packed ash in it, undoubtedly the fireplace. . . . The area of the fireplace was marked by a depression of probably six inches in the floor which dropped in a rather abrupt curb with rounded edges. At four points at equal distances from the fireplace were holes in the floor, which details showed plainly represented the posts which upheld the roof. Above most of the floors were found charred beams turned to charcoal, clay burned to brick bearing the imprint of small poles or reeds, and carbonized grass.

The deductions from these data are evident. The house consisted of a room partially underground, the walls and floors made of clay faced with plaster. The roof, which rose to an unknown height above the surface, was supported on four posts placed in the interior of the room and consisted of cross poles with a straw thatch above this and possibly a covering of mud. The walls above ground may have been of the same construction as the roof

[5]Mason, J. A., *The Texas Expedition.*

[6]The site is in Potter County on the great Bivins ranch, 37 miles by speedometer reading from Amarillo, and about five miles west of the highway from Amarillo to Dalhart.

or of solid adobe. The inflammable nature of the building led to frequent conflagrations during which the roof was destroyed and fell to the floor, partially filling the room. Instead of cleaning the debris out to the level of the original floor, it was packed down, leveled off, and a new and higher floor made upon it.

It is clear from this description that a four-centerpost support was used for the roof, which was covered with poles, grass, and mud. Although Mason makes no mention of it, this same room (and several others like it at Alibates) has two parallel rows of slabs on edge which project at right angles to the east wall. These are the remains of a peculiar form of masonry tunnel discussed in more detail in the summary of Antelope Creek Ruin (see pp. 33–35, below).

Although but few artifacts are mentioned, Mason stated that

> All of these artifacts, including the pottery, resemble those of the Plains Culture far more than those of the Pueblo. But the architecture is strikingly Puebloan on the whole, resembling decidedly that of the semi-subterranean rooms of the Post-Basket-Maker or Pre-Pueblo peoples. The culture is therefore probably a hybrid and intermediate one and deserves more attention than has hitherto been paid it.

Continuing his investigations farther west, Mason states that

> Another site of this same culture was observed further to the west on the Canadian and to the north of the town of Vega. Here are a large number of house sites crowded together on the top of a steepsided mesa, obviously for protection. They may therefore be of a period subsequent to the building of those on Alibates Creek, which are open to easy attack. On the slopes of this mesa are pockets in which are found quantities of animal bones, refuse from the houses above, and on the slopes and at the bottom of the mesa quantities of pottery fragments were picked up.

Following this, Mason and his companions proceeded into northeastern New Mexico in the hopes of tracing the relationships of Canadian Valley culture into the Pueblo area. On the Mora River, no sites were found, but near Watrous, at the confluence of Mora River and Sapello Creek, a ruin was seen which in architecture "somewhat resembled that on the Canadian, the underground walls and floors being made of adobe mud, but less smoothed and finished." Superposition of floors, burned roof clay, and the presence of charred beams were noted as similar to the Canadian. Pottery, however, was clearly Puebloan, mainly black corrugated ware but including painted Black-on-White and Black-on-Red. Here Mason reveals an erroneous belief that the Canadian ruins consist of single rooms. As will be seen, most of the Texas Panhandle masonry structures consist of pueblo-like apartments or clusters of rooms.

Another building of stones was found on Loma Parda, a mesa near Watrous, but at a campsite north of Logan, New Mexico, Mason noted bones, chips, and pottery fragments "clearly of plains type."

The following year, Holden reported on an excavation made in the "A-C" (Antelope Creek) Ruin by Texas Tech students under his direction.[7] This

[7]Holden, W. C., *The Canadian Valley Expedition of March, 1930.*

ruin was found to be a solid block of rooms measuring 163 by 52 feet over all. Figure 2 of this work presents an excellent sketch of the peculiar off-set method of wall construction characteristic of much masonry work in the Canadian Valley of Texas. Briefly, this consists of placing two parallel rows of large, flattish limestone slabs on edge about three feet apart to form the base of a wall. The space between the slabs was then filled with adobe and small stones. The second course was laid by placing two more rows of slabs on edge, just inside the tops of the first rows and resting on the fill. The second space was likewise filled with rubble, and the third set of slabs placed on edge inside the second, and so on. Four or five courses usually served for a wall about five feet high, perhaps a yard wide at the base and tapering to a width of one foot or less at the top. The earth fill may have been dampened so as to make it sticky, for much of it still remains in place even when the sand is removed from around the walls.

Holden further notes the regular manner in which Antelope Creek Ruin was constructed. Many corners were neatly right-angled, and the whole pueblo built in more orderly fashion than some others (*e.g.,* Saddleback). Construction evidently began at the north end and progressed southward, the rooms being increasingly larger and better built in that direction.[8] Hearths floored or lined with flat stones were found in several rooms, in some cases two to a room. Under room 12 were two hearths, not connected with the room itself, but suggesting occupation of the site previous to the beginning of masonry construction.

Among brief descriptions of the artifacts recovered, Holden mentions that

> A comparison of the A-C sherds with sherds from the Tarbox ruin, something like twenty miles to the northeast, shows the two types to be similar in appearance, workmanship, and material; but all the A-C potsherds have a thin black slip on the inside while those from Tarbox have no slip. . . .
>
> It is significant to note that no arrow points were found in the excavation. . . . It is also to be remembered that no arrow points were found in the Tarbox. Many were found on the surface, but none on or near the old floor levels. Spear heads were found there in abundance, but no arrow heads. . . .[9]

Though perhaps only an accidental omission, no mention occurs in this report of diamond-shaped, four-bevel flint knives, which have been found in nearly every Canadian ruin. A few fragments of bison-scapula hoe blades were recovered from different rooms.

In the summer of 1930 another student expedition under Holden made attempts to find connecting links between the Puebloan and Canadian Valley cultures in east-central New Mexico.[10] Tecolote Ruin, on Tecolote River, was partially explored. As this site is near the Santa Fe-Las Vegas highway and not far east of Pecos Pueblo, it is not surprising that Tecolote Ruin was

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[8]It appears to me, however, that some of the very small, irregular, north "rooms" might have been storage bins (see Holden, W. C., *The Canadian Valley Expedition of March, 1930,* fig. 1). Many stone-walled bins were built adjacent to regular rooms at Alibates.

[9]This statement on Antelope Creek Ruin was altered by Johnson, who found arrow points associated with the rooms. (Johnson, C. Stewart, *A Report on the Antelope Creek Ruin.*)

[10]Holden, W. C., *Texas Tech Archaeological Expedition Summer 1930.*

wholly Puebloan. No suggestion of Canadian Valley architecture or artifacts appeared.

Moorehead, in his well-known work on the archaeology of the Arkansas River Valley,[11] re-mentioned many of the sites visited by him in 1919–1920, and quoted extensively from the works of Mason and Holden already discussed above. The reader will find in this book the best photographs yet available of the topography, vegetation, sites, pottery, and other artifacts typical of the Canadian ruins and the nearby Wolf Creek sites. Further brief notes on Cottonwood, Tarbox, Dixon Creek, King, and Handley ruins add little specific information on the area. Many graves in stone-lined cists were observed but few, apparently, were cleared. The most important new information concerns a strange structure called Gould ruin, part of the Handley group on Wolf Creek, Ochiltree County. Moorehead's party spent some three weeks here. The Gould ruin or "Temple" was a rectangular enclosure, described as follows:

> . . . Its major axis along the east wall is 70 feet, and the southern end is 23 feet in diameter, whereas the northern measured 34 feet 6 inches wide. Within and without the soil is dark and heavy. . . .
>
> The west wall, Figure 32, 62 feet in length, was more prominent than the east, and the stones were larger. There were 4 openings or doorways. In some places the diameter of this wall is almost 5 feet.
>
> The east wall, shown in Figure 34 is lower and not quite so massive, and there are 5 openings or doorways. In the foreground the 2 blocks of wall between the openings are chiefly of adobe and not so much stone, although slabs were used to hold the adobe in place. A marked contrast is observed in the rest of the wall, which like the western wall, is almost entirely composed of stone. Our party extended a trench outside the west wall, full length of the building, finding near the center a large ash pit or fireplace, 5 or 6 feet in extent.
>
> It was long in use, being hard burned, and its base was some 5 feet below the present surface, and extended under the wall. With this discovery, we were led to the conclusion that a lodge site existed before the walls of Gould ruin were erected. Indeed, 2 or 3 ruins presented similar conditions. . . .
>
> A trench nearly 60 feet in length was extended through the center of Gould ruin from north to south. About 18 inches down the ground was found very hard, probably an upper floor, if there were two floors. . . . Near the south end of the trench we found a fragmentary bunched burial, down 20 inches—no skull and no large bones. In the small room marked A on the diagram, Figure 33, were portions of another skeleton, a broken skull, femur, tibia, and fragmentary arm bones. This room, A, was the only one we could positively identify. It was very small, 4 feet 8 inches in diameter, and adobe walls extended to a height of about 2 feet. . . .
>
> The artifacts discovered were not numerous, and consisted of small arrow points, a few knives, and fragments of several bone hide dressing tools. Some of these are shown in Figure 41. . . .[12]

The chief point of interest here is the occurrence of graves within a large rectangular walled enclosure with open "doorways." Pottery is said only not to be of Pueblo forms. Brief notes are given on other buildings in the

[11]Moorehead, W. K., *Archaeology of the Arkansas River Valley.*
[12]*Idem.*, pp. 100–102.

Handley group. In one, also called "Handley ruin," another burial was found within a room. The impression gained is that the Handley group consists principally, if not entirely, of single stone rooms thickly clustered over a large area, rather than that there are large multiple-roomed structure. This, if true, is of considerable importance in comparison with the ruins farther west in the Canadian Valley proper. Again, Moorehead's statement on the Wolf Creek valley as a whole is interesting:

> We are of the opinion that it was inhabited prior to the erection of the stone ruins because, as previously stated, we found fire pits, chips, and buffalo bones, in the banks of Wolf Creek, at various points on the plain, and occasionally under the walls themselves. In most of these no pottery was in evidence, all of which is important. . . .[13]

In his conclusions, Moorehead went into considerable detail to validate his theory that the "Texas Panhandle Culture" represents an ancient form of life dependent on the bison and agriculture, that the art of masonry was hit upon there, and that as this art spread westward into New Mexico it formed the basis upon which Southwestern Puebloan architecture and associated culture gradually developed. "Certainly there is steady improvement in architecture and art upstream from Handley and King ruins until we reach well defined Pueblo settlements at the head of the Mora." That the Panhandle villages represent peripheral Puebloan culture he regarded as improbable because this would entail complete loss of Puebloan ceramic art.[14]

Holden, in a letter to Moorehead,[15] gives a clear statement of three alternative interpretations. In addition to the two discussed by Moorehead (above), Holden suggests that "A third alternative would be that the Panhandle culture had no relationship to the Southwestern Pueblo culture, and that it was a glorified Plains development which existed during early Pueblo time or before."

Studer, in a chapter added to Moorehead's study, gives a summary of his work and discovery in the northern Panhandle area.[16] Up to that time (1931), he had located and mapped 110 "major ruins" in 23 years of investigation, together with "Plains sites in abundance." To the masonry villages Studer gave the name "Post Basket Maker culture," while "Plains" designates camp sites attributable to bison-hunting nomads without agriculture or pottery, and marked by rings of stones which probably were used to weight tipi covers. In addition to these, Studer had located a few rock shelters in the canyons, sand-dune sites farther south in the arid expanses of the Llano Estacado, and numerous pictographs.

Studer's account includes the interesting statement that, "Perhaps, without exception, every Post Basket Maker site shows an intrusive, or later occupation, by the Plains tribes." Site 80 is a "Plains" camp, on which were found considerable flint fragments, broken flint artifacts, fewer bones than usual,

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[13] *Idem.*, p. 105.
[14] *Idem.*, pp. 120–130.
[15] *Idem.*, pp. 129–130.
[16] Studer, Floyd V., *Archaeological Survey of the North Panhandle of Texas.*

"exceedingly large spear points," a beautiful lance point of flint foreign to this section, and many hide scrapers, three of which "were somewhat unusual for this section in that they were triangular and worked on all three sides." No pottery was found.[17]

Studer goes on to describe site 63, Saddleback Ruin, on the south side of the Canadian Valley opposite the town of Tascosa, and one of the more westerly sites in the Panhandle. This building "has not less than 12 rooms," and "shows long occupancy by these people, followed by Plains occupation, which latter is a matter of historical record. It was here that intrusive Pueblo-Pecos pottery was found." This, however, is not the only ruin to yield such pottery. Two rooms were opened, one of which gave the respectable dimensions of 29 by 15 feet, the adjacent one 11 by 14 feet. The first of these revealed four superimposed floors, the uppermost one foot and four inches below the surface, the lowest five feet six inches deep and resting on bedrock.

> Between each floor level was found an unusual amount of buffalo, deer, antelope, turkey and other bird bones. . . . Many pieces of pottery, several bird points and scrapers were at a depth of 5 feet 6 inches.[18]

Other artifacts recovered include "an unusually large amount of whole and broken metates," many manos, one tubular pipe, a combined hide scraper and drill, several beautiful bone implements, including an incised awl, "a great number of perfect points," "many beveled types, one perfect specimen being a double beveled knife," and obsidian flakes, of which one worked specimen is stated to be the only worked obsidian found by Mr. Studer, although most of the sites show obsidian flakes.

Another ruin, site 13, is mentioned. One large rectangular room measured 25 by 30 feet, but "most of these rooms are small." Only one potsherd was found here, several "arrowheads of flint and quartzite", two metates, two manos, and two "unusual notched knives." Still another ruin, site 85, Studer estimates to contain 60 to 80 rooms. There is also a brief description of the great flint mine, site 58, from which source comes the vast amount of red-banded "Alibates flint" or agatized dolomite used so commonly throughout the Panhandle for chipped artifacts.

Burials are said to be found in abandoned rooms and in proximity to the ruins. Some are either covered with large, loose stones, or surrounded with stone slabs set on edge. In some instances, however, these "small circular stone affairs of vertical masonry" probably do not represent graves, for they contain no skeletal material. That is, they seem rather to have been storage cists; while, conversely, storage cists appear to have been at times used as graves.[19]

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[17]Site 80 is two miles from a stone ruin, site 5, on the north side of the Canadian, Potter County (see map, Moorehead, W. K., *Archaeology of the Arkansas River Valley*).

[18]See his figures 69–71 for locus of ruin and stratigraphy of room A.

[19]When visiting Alibates Ruin in July, 1945, some of these stone-lined cists were pointed out by Mr. Studer. Many of them, at least those nearest the building walls, were probably originally storage cists for the walls were carefully chinked with small stones, evidently as rodent-proofing. The sides slope slightly, while the bottoms are flat. Flexed burials are thus found in circular or oval pits lined with slabs and apparently made specifically as graves, while other burials were placed in abandoned cists; chinked cists are found outside the buildings, however, while stone-lined graves may be found either inside or outside. Mr. Studer plans to publish this material in detail.

Under "General Observations," Studer lists traits which apparently apply to the northern Panhandle as an area, including both Post Basket Maker and Plains sites. The following, however, apply to the masonry rooms:

> The rooms of all these sites vary in size, and shape, therefore no approximate measurements can be given. Some are as small as 6 or 7 feet square, and others 20 to 30 feet in extent. Some of the square, or rectangular outlines, show many rooms upon excavation. The fire pits are very interesting and are of two types. One made of plaster, or adobe, was 12 inches deep and 20 inches across, with a raised edge of clay around each pit. The adobe, or burnt clay, was quite smooth and the fire pit symmetrical. Other types are made of small, flat stones, even as we would build a hearth today. A few mortar holes, in solid rocks, are found, but the metate or grinding stones predominate for they are portable. We do not observe many objects for personal adornment. I have observed no irrigation ditches, yet it is reasonable to assume they practised irrigation. One 'cist' at site No. 77 was 7 feet in diameter at its widest point, and oval shaped rather than round. Flat, well laid stones extended to a depth of 7 feet. There was undisturbed soil beneath the flat stones. A few bones, charcoal and ashes were found, but there was no evidence of skeletal remains.[20]

Two years later, Holden published a description of excavations at Saddleback Ruin, a single building containing 33 rooms.[21] The method of building walls with vertical slabs is again reviewed, and the dimensions of each room with the thickness of its walls given in some detail. In this structure there was a fair amount of horizontal masonry, especially in the eastern outside wall, which "is of horizontal masonry and is of good workmanship, showing that the original Panhandle masons could do good work on occasion. The stones are sized and evenly placed. Often the inside partition walls are composed of a first course of heavy slab-stone upon which crude horizontal masonry is super-imposed." He notes that several of the rooms at Saddleback are too small, or their floors too steeply inclined, to have served for living purposes, and hence may have been storage rooms or bins built against the sides of living rooms. No doors were found, and "it is probable that entrance into the rooms was through hatch-ways in the roof." It may be seen in Holden's plate 11 that the smaller rooms or bins are of various shapes—rounded, rectangular, oval, triangular, etc., but they were all built into a single multiple-roomed pueblo which is itself of triangular shape.

There is no mention of interior posts. That the roofs were made of light poles with clay covering is shown by the discovery of a lump of hard, reddish adobe with impressions of small poles and twigs on one side. Room 10 is said to have had in it a plastered "cist" with stones laid flat around it; from the description this would seem rather to have been a fire basin with prepared clay lining. Room 25, with four floor levels, contained a hearth in the second level, against the north wall. This was rectangular, four feet long and 18 inches wide, lined with "flat stones on edge in such a way that the wall formed the back side."

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[20]Studer, Floyd V., *Archaeological Survey of the North Panhandle of Texas.*
[21]Holden, W. C., *Texas Tech Archaeological Expedition Summer 1930.*

Since flint artifacts are mentioned as "of the Panhandle Indians," it is not clear whether those listed were actually found at Saddleback. If so, the site yielded triangular arrow points, diamond-shaped beveled knives, and snub-nosed scrapers, awls fashioned from "shin bones of antelope, the leg bones of turkeys, and the rib bones of larger animals," bones with grooves cut across them, antler flaking tools, and "spades made from buffalo femurs." A total of 4,901 cordmarked potsherds were recovered in the one ruin, and subdivided into 3,034 grey, 1,215 orange and red, and 625 so fire-blackened their original color is unknown. Temper is stated to consist of quartz and mica. Other artifacts are again referred to "the Panhandle Indians," including pipes of clay and soapstone, turquoise pendants, necklaces, turquoise inlaid objects, "certain kinds of shell beads from the Pacific coast," rattles made of terrapin shells encasing small, black, polished pebbles, necklaces of bone beads, and "metates."

Most important was the finding of about two dozen potsherds from the Pueblo area. Taken to the Laboratory of Anthropology in Santa Fe, these were identified by Mera and Nusbaum as of Glaze I and Biscuit A types. From this proved contact with Puebloans of the Upper Rio Grande area, Holden infers that the peoples of the Texas Panhandle might also have acquired Puebloan social institutions, especially in view of their settled mode of life in large communal houses, and partial dependency on agriculture.

In 1934, Studer published an account of Ruin No. 55,[22] located in Potter County, 38 miles north of Amarillo, not far from Alibates Ruin. The name Texas Panhandle Culture Ruins is here adopted for the masonry houses, replacing the term "Post Basket Maker." Studer mentions that three ruins of similar, if not the same culture, were recently reported to him from the vicinity of Optima, in the Oklahoma Panhandle, by Mr. C. S. Johnson, thus extending the probable range of this general civilization farther north. Several general observations on the Canadian Valley stone buildings are given:

> Among the several types of house structure found are pit houses, circular slab houses, and rectangular houses of stone or adobe. Some were semi-subterranean, some were built on mesa tops, others apparently were on original ground level, and a few were built to utilize vertical cliff walls. The houses containing rectangular rooms of rock and mortar with roof supports of posts predominate. This type of structure appears to correspond somewhat to the houses of the Basketmaker III, Pueblo I and II Culture phase. In several respects these people advanced well into the Pueblo horizons. . . .
>
> Most of the ruins indicate the builders followed no definite plan of house construction. There is one house plan example, however, showing a very definite original arrangement of rooms. Many semicircular rooms, uniform in shape and size, were built adjacent to and utilizing one wall of a large rectangular cluster of rooms. These clan houses, while perhaps small in size compared to the true Pueblo ruins and cliff houses, are many in number.

It is not stated which ruin is referred to in the last paragraph quoted. From the plan given of Ruin 55 (Studer's plate 14), it is not this site, for its rooms are all square to rectangular, with a number of circular structures or cists

[22]Studer, Floyd V., *Texas Panhandle Culture Ruin No. 55*,

lying nearby but separate from the main building. Possibly Antelope Creek Ruin is the one indicated, to judge from an excellent scale model on display in the Panhandle Plains Historical Society Museum in Canyon, Texas. This model includes a number of extremely interesting features which are treated in more detail below.

Of Ruin 55 itself, we learn that it is "a typical unit-type dwelling, built with indefinite original plans." New rooms were built "when needed," with much re-building on top of rooms destroyed by fire. Fire had evidently razed the whole structure more than once, complicating the task of reconstructing its history. In the north wall of room A there again appears a combination of horizontally laid masonry above the characteristic vertical construction. Wall plaster remained in place in several rooms, concealing the masonry, but irregularly laid stones in massive adobe were seen here and there. "More adobe-mortar and less stone work appears than in the other ruins." More evidence concerning roofs was gathered here in the form of interior post holes and much hardened clay with imprints of reeds. Excavations along the eastern side showed that the rooms had been dug only slightly below the original ground level. No communicating doorways were found between rooms.

Rooms A and B are described by Studer in some detail, summarized here. Room A, rectangular, measured 17 feet east to west and 22 feet north to south, inside the walls. Within this space was a rectangular pit seven by eight feet, sunk 12 inches below the "lower floor level." The sides of this pit were smoothly plastered and the corners "nicely rounded." The plaster was about one inch thick and well burned. Dug flush with the floor of this (or another) pit was a fire basin, circular and bowl-like, 26 inches in diameter and 10 inches deep, also well plastered. It had no raised rim or curb, and was filled with "clean, white wood ashes." The position of the sunken rectangular areas is not given, but the circular fire basin was three feet four inches into the room from the "ventilator" about to be described.

At about the center of the east wall, a long masonry tunnel was found, extending 13 inches into the room, and about 10 feet outward to the east. This tunnel was 18 inches wide and 18 inches high, square in cross section, and of uniform dimensions from end to end. It entered the room on a "level floor," hence seems to have been placed well above the circular fire basin in the rectangular pit, for this pit was dug from the lower floor. Mr. Studer refers to this tunnel as a "ventilator" and, "No deflector was in place, though a few stone slabs were found in about the right location."[23]

Several holes were discovered in the floor of room A, some probably marking the location of upright support posts, but one located within the rectangular depression "was perhaps the sipapu, if this room is finally determined to be a kiva or ceremonial room." This room had a fill averaging four to five feet deep, of which the upper foot was "rather barren wind and water borne sand and clay." Unburned artifacts were found in the upper parts

[23]Although I have difficulty in visualizing the exact relationship between the "ventilator," floors, and pits in this room, Studer's plate 13 shows them in part.

of the fill, while in the lower parts burned artifacts occurred including bits of coiled basketry. The floors were unusually hard and well smoothed.

Room B, adjacent to room A on the south, was of similar size and proportions, except that the west wall was oblique. The charred remains of four central supporting posts were found toward the center and in the "lower floor." Wall plaster is said to have been in splendid condition. Like room A, there was a "ventilator" extending from the east wall; it was only four feet long and unroofed, but parts of it may have been washed away. This passage was 20 inches wide and its walls two and a half feet high. It opened directly onto a large rectangular pit within the house which extended completely across from the east to the west wall, and there was "a nicely plastered apron around the aperture." The shaft itself extended 27 inches into the room, at which end the walls were eight inches thick, well rounded and plastered.

The long pit into which the "ventilator" opened within the room appeared "to have been used in its entirety as a fire place" and was seven inches lower than the lower floor level. As the floor of the ventilator was flush with this lower floor level, the pit bottom was seven inches lower than the mouth of the ventilator. This "fire pit" was 13 feet, 11 inches long, three feet two inches wide at the east or ventilator end, expanded to a width of four feet seven inches in the center, and narrowed to a width of two feet three inches at the west wall. Expansion at the center may have been made to accommodate the four centerposts, the holes of which were within the pit. Its side walls were "uniformly rounded and plastered." The floor itself sloped gently away from this trench, toward the north and south walls. Actually, this room had two floors, separated by 21 inches of rubble fill, probably indicating that a new house had been built on top of a previous one, destroyed by fire. No holes in the floor were found "to suggest a 'sipapu,' " and no deflector was in place, but several flat slabs lay on the floor near the ventilator. In the southeast corner was a slab-lined storage bin, 30 inches across and 13 inches deep. Another bin about three feet square (stones not mentioned) was found in the northeast corner.

We have here for the first time a brief description of storage cists which helps to clarify this important point:

> Storage pits and bins are found in the floors of various rooms, and near the houses. The bins within the dwelling[s] were round and rectangular in shape; one example was lined with stone [room B], but the usual types were merely pits dug in floors. A few of them were plastered.
>
> The outside cists were placed at most any convenient location. They were built by first digging a round or oval pit in the ground. The walls were lined with flat stones over which plaster was probably placed. A superstructure of brush was probably used as a covering. Occasionally a double row of slabs were used as the first circle of stone. One example was 5 feet long, 4 feet wide, and 3 feet deep. Each cist examined contained the usual house refuse. The number found indicates that the people had much use for the storage places.

As in practically every ruin excavated, No. 55 had a refuse heap on one side of the pueblo. These are often referred to as "mounds" in the reports, but it should be clear that they are purely incidental accumulations. That at

No. 55 was about three feet high, and it is interesting to note that it consisted of "well defined strata" revealing ashes, charcoal, broken bones, windblown sand, washed-in clay and sand, potsherds, flint and bone artifacts, and charred corn cobs. Studer adds that no burials have been discovered in the refuse heaps at any location.

No burials were found within rooms at No. 55, but no floors had yet been removed. The remains of two children were discovered on a mesa top nearby. They were 30 inches below the present surface and three feet apart, heads to the east. A large flat stone had been placed on top of each body, and the grave (or graves) were marked on the surface by irregularly laid stones. Only portions of the skulls and finger bones remained; but it was ascertained that 56 pierced *Olivella* shell beads and a mussel shell pendant were around the neck of one child, the only artifacts with the burials.

Here Studer includes the description of "a splendid burial example" of the Texas Panhandle Culture. This was discovered at Ruin 28, not part of No. 55 but near by. The burial was on a hillside slope within 30 feet of the house walls. A number of stones were placed on edge and sloping inward, around a circular pit six feet four inches, inside measure, and 27 inches deep. The skeleton was flexed and placed upon an adobe shelf 37 inches long, head north with face east. Six rectangular stones about four by six inches lay on top of it. There were many broken sherds near the skull, probably representing a restorable vessel. This, so far as I know, is the sole reference in the Panhandle area to possible inclusion of a pottery vessel in a grave.

As the report of Ruin 55 includes the most complete artifact inventory of any Panhandle pueblo to date, all the traits mentioned are compiled below, with Studer's plate numbers. It must be assumed, for lack of statements to the contrary, that all these traits form a single association with the stone building.

Woven material:

Carbonized fragments of coiled basketry, bundle fibers, and grass matting found deep in rooms A and B. Some basket fragments large enough to estimate size of vessel; multiple-rod foundation (?), willow (?), yucca-strip (?) thread.

Bone:

Numerically, awls rank first; including cut, shaped, and polished splinters of leg bone and rib, probably deer and antelope. Some awls have heads completely worked down (Pl. 16); some have incised-line decoration. Some stubby-pointed implements of leg bone probably flaking tools. Several "scrapers" of deer and antelope scapulae. Two "sounding rasps" of deer or antelope scapulae (rooms A, B) and five bison ribs with notches cut across edge and side but not completely around (Pl. 16). Also listed but not described: disc and tubular beads, punches, fleshers, needles, spatulate awls, worked and unworked antler material.

Shell:

Mussell shell pendants, polished and pierced, most common; also a "sizeable number" of *Olivella* and other Pacific shells in burials and rooms; *Olivellas* have tip ground off.

Stone:

Whole and broken "metates" of quartzite, sandstone, and dolomite, on surface and within ruins, "typical" specimen 20 by 14 by 4 inches, the "trough" (actually, an oval basin) worn in both sides. Manos usually oval, worn on both sides, same materials as "metates." Mortar holes in large immovable boulders; no stone pestles. Many hammerstones, various sizes, of flint and dolomite. Chipped axes present, but none polished or notched. "Arrow points" of flint, leaf-shaped, small plain triangular, and small triangular with side notches (Pl. 16). Flint "drills or perforators," butt ends usually unshaped (Pl. 16). Flint side scrapers and snub-nosed end scrapers (Pl. 16); many knives, diamond-shaped form with four beveled edges predominating (Pl. 16). Also mentioned but not described: picks, hoes, pendants of turquoise and other polished stones, mauls, arrow-shaft polishers, smoothers, and pot polishers.

Pottery:

Despite large numbers of sherds, no complete vessels found; those most nearly complete (Pl. 15) indicate "nearly all were fairly wide-mouthed, cylindrical-necked, round bottomed, globular bodied vessels," probably all intended for culinary use alone. Examination does not reveal "any particular change in shape, composition, or progressive development." Stratigraphic tests reveal no change. Nearly all sherds bear impression of cords on exterior. Interiors range from poorly smoothed to well smoothed. Thickness ranges from very thin to very thick. Of colors, black predominates, while some are gray, dark gray, and light red. Black appears in the center (core) of some sherds (due to low firing, non-oxidizing temperatures). Tempers are sand, shell, mica.[24] Paste usually very coarse. A red "slip" or "fugitve red" found on some sherds, difficult to remove. Possible handles found, none attached to sherds. One typical vessel about 11 inches high, 10½ inches greatest diameter, mouth 8 inches, thickness ¼ inch, neck vertical and 2¼ inches high (incomplete). Several tubular pipes of pottery found; one (Pl. 15, No. 54) from room T, 2½ inches long, mouth one inch across, bowl one inch deep, decorated with groups of dots, indentures, and cross.

Unfired clay:

Several pieces, smoothed inside and out, on lower floor room B, "indicate a sun dried jar or pot"; thickness about ½ inch, clay yellowish and without temper; probably molded by hand. A small jar or bowl (Pl. 15, No. 55) found in same place, consists of 3 pieces equalling one-fourth of vessel; height 2 inches, diameter two inches, thickness ¼ inch; cord marked, with some fingernail punctations.

Food remains:

Apparently general: numerous charred corn cobs found within ruins. Numerous bones of bison, deer, antelope, rabbit, and turkey found in refuse heaps and within rooms. Mesquite beans, plums, grapes, acorns, and tuberous plant *(Rumex hymenosepalus)* grow in the region today and were probably utilized.

Probably all the items given apply specifically to Ruin 55, with exception of the food remains. There is a specific statement that no intrusive Pueblo

[24]This identification of shell tempering is probably open to question. My observation of Panhandle pottery is that no shell occurs whatever. Some sherds, however, contain abundant fragments of crushed animal bone which, when fired, turn white and pale blue, somewhat resembling shell flakes.

ware was found either in the ruin or on the surface of site 55. It is added that "The writer has found a number of true Pueblo-ware sherds at several other Panhandle Culture sites in this area."

No further reports were published until C. Stewart Johnson reported on further excavations at the important Antelope Creek Ruin.[25] This work was conducted by the Works Progress Administration with the sponsorship of the West Texas State College, Canyon, Texas, under the direction of Floyd V. Studer. Most important, an excellent scale model reproduction of the ruin was made and is now on display in the museum of the Panhandle Plains Historical Society at Canyon. This model clarifies many significant points of construction which are not brought out in the various published accounts (see pp. 32–34).

Antelope Creek Ruin, previously described in part by Dr. Holden in 1930 (see pp. 20–21 above), lies on the west bank of Antelope Creek, a small tributary flowing northward to the Canadian, in the southwest corner of Hutchinson County, three miles east and one mile north of Fritch. This is about 40 miles northeast of Amarillo and approximately midway between the western and eastern boundaries of the Texas Panhandle. Significantly, Johnson states that the walls of the building can be traced on the present surface only by the slight protrusion of vertical slabs belonging to the upper parts of the walls. Thus, the flat surface gives no indication of the actual depth of the floors,

> . . . *which may be buried under several feet of wind-blown dust.* . . . The evidence in this location does not indicate that the houses were of the semi-subterranean type. (Italics mine.)

Johnson states that there were 23 rooms in the main part of the village, all of one story and adjoining one another in a block, the longer axis in a north to south direction. In agreement with Holden he thought that the rooms were progressively added from the north end toward the south.

> The entrances are all low, averaging about three feet in height, and all are located on the east sides of the houses. . . . Each of the larger houses was provided with two small rooms which were possibly used for storage, between which was the entrance way leading into the main room. . . .
>
> The small rooms on the east side of the ruin that adjoin the larger rooms do not seem to have been as high as the large rooms, and entrance to them was probably attained through the roof. Although their purpose is uncertain, it appears likely that they were used as storage chambers, as were also the circular, rock-lined cists in front of the ruin at the southeast end.
>
> The floors of the larger rooms are unusual in construction, though characteristic of many of the Panhandle Culture Ruins of both Texas and Oklahoma. Against the west wall there is an adobe platform, the purpose of which is unknown. This platform is about sixteen inches in height, and five feet square. From the platform toward the entrance the floor is flat but depressed several inches, and in its center is the basin-shaped fire pit. Bordering this depressed portion of the floor on both sides are ridges several inches high by about six inches wide, which separate the depressed portion of the floor from the flat elevated portions that extend to the north and south walls. Over the entire surface the floors are hard and smooth with a thin pavement of sandy, buff colored clay.

[25] Johnson, C. Stewart, *A Report on the Antelope Creek Ruin.*

The paragraphs just quoted are important for an understanding of the true nature of rooms which may be regarded as characteristic of the Canadian Valley pueblos. They constitute the best description to date, yet do not sufficiently emphasize the peculiar and unique construction. On a recent visit to the museum of the Panhandle Plains Historical Society in Canyon, I made a crude sketch of such a room reproduced in miniature beside the scale model of Antelope Creek Ruin. Next day, I was able to view several very similar cleared rooms at Alibates Ruin, through the courtesy and able guidance of Mr. Studer.[26] This visit was quite revealing in that, for the first time, it was possible to gain a fairly clear picture of the floor plan of typical rooms which, it now seems, are the rule rather than the exception, at most of the buildings so far excavated. Using my hasty notes and sketch, Miss Lester has been able to draw a very reasonable reproduction of this typical Antelope Creek house (fig. 1).

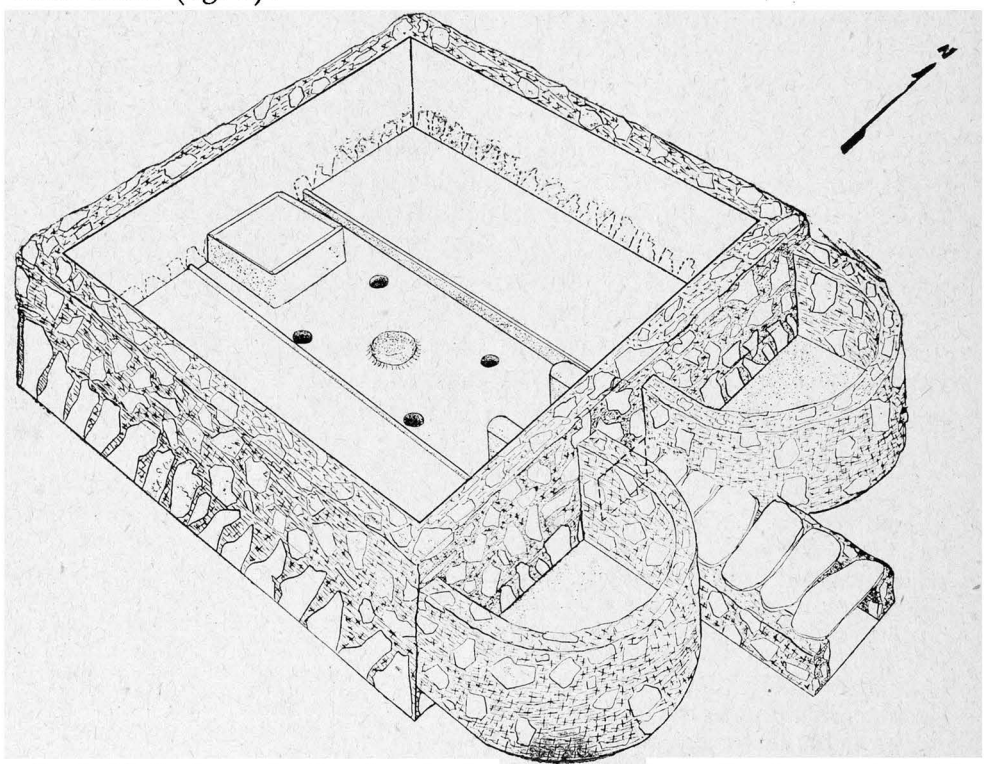


FIG. 1. Idealized reconstruction of an Antelope Creek Focus house. Based on a scale model of Antelope Creek Ruin in the Panhandle Plains Historical Society Museum at Canyon, Texas, and reproduced by permission of Floyd V. Studer, director of archaeology. Inside measure of original house about 20 by 22 feet. Walls constructed of unshaped stones held with liberal quantities of adobe. Base of walls of main room formed by parallel lines of thin slabs set on edge. Stones of upper walls sometimes set in more regular horizontal courses than shown, but always set in adobe. Whole floor, wall interiors, firebasin, and ends of ventilator jutting into room were carefully and evenly plastered with clay or adobe. Side floors and square bank (altar?) at rear had raised and rounded curbs at edges. Note four holes for central roof supports, and slabs covering ventilator shaft, which invariably points to the east. Semicircular anterooms probably used for storage. Entrance probably gained through roof hatch. The clay bank or altar at rear is only rarely found in these rooms.

[26]Also present were Mr. H. C. Pipkin of Amarillo, and Dr. Clarence C. Webb and Clarence Webb, Jr. of Shreveport, La.

First of all, it should be noted that the main room is rectangular or nearly square, being slightly longer north and south than east-to-west. The walls of this room are of heavy masonry plastered over with clay, about three feet wide at the base and narrowing toward the top in the usual fashion. The floor is divided into three nearly equal sections by a depressed area running completely across from east to west and occupying about the middle one-third of the room. The north and south thirds are on an equal level, six inches higher than the central section. The north and south sections of the floor might be regarded as built-up clay banks on a floor which was originally level, but Mr. Studer is inclined to think that they represent the original ground level, whereas the central section was dug downward. These banks do not dip directly to the lower floor, but each has a raised and rounded curb at the edge. The entire floor was probably plastered with a thin covering of adobe, carefully smoothed and evenly leveled. At the west end of the central depression there is a most interesting built-up clay bank, probably the one described by Johnson as being five feet square and about 16 inches high. Thus it is about 10 inches higher than the north and south floors. It is level on top and carefully smoothed and like the north and south floors, it has a raised and rounded rim or curb. This rim extends around three sides of the bank, the west wall forming its fourth side. It appears very likely that this bank represents an altar, although no one has reported finding any objects upon it.

Almost against the eastern corners of this bank or altar are two large post holes, and about six feet farther east are two more. The four large holes thus form nearly a perfect square some six feet across, about in the center of the room, although they may have been somewhat west of center. Exactly in the center of the square formed by the post holes, is a circular fire basin with a rather high raised rim; when found, the basin, rim, and floor around it were nicely smoothed with adobe, baked hard.

Adjoining the main room on the east are two semi-circular anterooms. Their walls are notably thinner than those of the main room, but well built and evenly curved. As they approach one another, they turn back toward the main room and straighten to form the sides of a masonry tunnel called by Johnson an "entranceway." The walls of this tunnel continue past the east wall, jutting about two feet into the room. The tunnel floor is level and flush with the sunken central portion of the main room floor, while the inner ends of the tunnel walls are smoothed with plaster.[27] The tunnel is square in cross-section, about 30 inches by 30 inches, inside measure. Its total length would have been about 12 feet. Since the two anterooms are each completely walled in, access must have been by individual roof hatches, or perhaps by short ladders from within the main room, for the partition walls are but little more than waist high. The anterooms may have served as corn bins or for other storage.

[27]Johnson's Plate 41 gives an excellent view of a main room floor, its sunken central portion, and the plastered buttresses of the tunnel where it extends into the room. Another view is of a tunnel where it passes through an east wall, with a "lintel" stone in place to bear the weight.

The complete scale model of Antelope Creek Ruin in the Canyon museum is an extremely interesting reconstruction of the whole pueblo, from ground to roof. It shows several rooms quite like the one described, here and there in the building, but not placed at any regular intervals. There are also several rooms which have the extended tunnel to the east, but lack the semicircular anterooms. The roof of the entire pueblo is shown as flat and covered with grass and adobe, while square hatchways in the roofs of larger rooms served as smoke holes and as entrances. Miniature ladders propped against these hatches lead downward into rooms as in the Pueblo villages of the Southwest. Large, thin slabs of rock are said to be found in some rooms in such a way as to suggest that these were once kept on the roof to serve as covers for the hatches. Similar large slabs have also been found at the mouths of tunnels, suggesting that they had merely to be swung around to close the tunnel.[28]

To summarize, the individual house reproduced in cross-section in the Canyon museum may be taken as representative of many Canadian Valley dwellings, except for the raised bank (altar?) opposite the tunnel mouth. Aside from this, such features as plastered walls, a plastered floor with its central portion sunk from six to ten inches below the sides, the raised and rounded curb along the edges of the two side banks, the placement of four central supports and a circular, plastered (or stone-lined) fire basin within the central depressed area, a tunnel which projects slightly into the room and extends outward to the east, and the seemingly careful alignment of such rooms in the cardinal directions, all seem to be fairly constant features of the larger rooms in the Canadian Valley pueblos. It must not be thought that all, or even most of the rooms, follow this pattern, for within each pueblo the reports constantly stress variety in shape and size. However, it appears to me that much of this variety applies to small anterooms, bins, or secondary rooms built to fill odd angles between other rooms. Again, partitions were often built to sub-divide original rooms. Still, if we take the accumulated knowledge of these structures which went into the reconstruction of Antelope Creek Ruin under Mr. Studer's direction, I think it may fairly be said that the features described for the larger rooms and shown in figure 1 are common enough in such sites as Antelope Creek, Alibates, Tarbox, Saddleback, Ruin 55, etc., to be regarded as typical of the more carefully built dwellings. Further, the depressed central section of such rooms now makes clear some of the numerous early references to "upper" and "lower" floors. However, many houses had obviously been destroyed by fire in each ruin, then been rebuilt after covering the debris with clean soil.

It will have occurred to the reader that the masonry tunnels, so solidly built and consistently (perhaps invariably) aligned toward the east, if not entrances, must have performed some ceremonial function. In several cases, the possibility of stone "deflectors" in line with the tunnel has been mentioned. Whether or not rooms of this nature were specialized ceremonial

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[28]Johnson, C. Stewart, *A Report on the Antelope Creek Ruin*, p. 196; Mr. Studer, in conversation.

chambers is a question which must be left to further detailed study and comparison. The impression at present is that these were dwellings, and that the tunnels, while possibly serving some quasi-ceremonial function, were also of practical use in promoting fire draft and efficient circulation of air. Entrance must then have been gained through roof hatches. Occasionally, a round, walled structure has been reported as "possibly a crude kiva," etc., but as specific details are lacking, this important point cannot be settled.

Within the rooms and near the outer pueblo walls, numerous circular and oval cache pits have been reported. When their sides are lined with flat slabs placed on edge, these are commonly called "stone cists"; that they were used for food storage is indicated by the careful chinking of spaces between the stones. The dead were evidently sometimes placed in abandoned cists and covered with stones, but in other cases the descriptions suggest dug graves, oval and circular, with slabs around and on top of the skeleton. It is not clear whether burials found in rooms were placed in abandoned storage cists, or in prepared graves with stone linings, or both.

To return to the account of Antelope Creek Ruin, several burials were found, all in rooms. One was found in the southwest corner of room 10, a very small room or bin at the north end of the pueblo.[29] The others were in a single large room about 100 yards downhill from the pueblo. All were semi-flexed to tightly flexed, heads north and faces east. Age ranged from about two months to forty-five years. A knife, a drill, and one arrow point are mentioned as the sole artifacts with these burials. "One burial was uncovered in the east wall of the house, but the others were in the corners and close to the centers of the rooms [center of the room?] in cists which were cut down into the floor." The cists were oval with vertical sides. The bodies had been covered with six inches of earth, over which was placed a layer of stone slabs. The skulls are said not to have been artificially deformed.[30]

Artifacts listed are as follows:

Woven material: none.

Bone:

Awls most frequent (Pl. 42). Hoes of bison scapulae, proximal end hafted, distal edge ground to a bevel. "Digging implements" of bison limb bones sharpened to a chisel-like point, some held in hand, others hafted by inserting stick into hole drilled in proximal end. "So-called sounding rasp"; i.e., notched bones. Deer antler used for flaking tools and handles "for various tools." A few small beads.

Shell:

Olivella beads. Mussels cut into pendants (Pl. 42).

Stone:

"Metates," elliptical, of coarse-grained sandstone; oval basin shows rotary motion. Manos not mentioned. Arrow points: typical small side-notched triangular (Pl. 42); some similar but unnotched (Pl. 42). Knives mainly dia-

[29]See plat in Holden, W. C., *The Canadian Valley Expedition of March, 1930*, fig. 1.

[30]Six skulls are on display in the Panhandle Plains Historical Society Museum, Canyon. These seem excellently repaired, and none reveal any deformation.

mond-shaped with four beveled edges (Pl. 42). Also "hide scrapers" (both side and snub-nosed) and "drills" of chipped flint (Pl. 42) in abundance. Fragments of elbow pipes of fine-grained siltstones, incl. a reddish material resembling catlinite; also a grey argillaceous sandstone (Pl. 42).

Pottery:

Description similar to Studer, 1934, except for following additions or differences: No handles; only variation in rim of universal jar shape is that it is either vertical or inclined outward slightly; no paint or slip of any kind (Studer reported a red slip occas. found); hardness about 3.5; thickness aver. 7 mm.; temper generally "coarse sand"; interior always smooth but not polished; exterior always cord-marked and impressions often at angles to each other. Remark that cord-marked ware from Nebraska (Strong, 1935) and Mississippi (Collins, 1932) "seems to be indistinguishable from that of the Texas Panhandle."

Food remains:

Maize agriculture definitely proved by charred cobs and kernels. Raising of beans and squash inferred, "since they seem to be an inseparable part of the maize-beans-squash agricultural complex so widespread in aboriginal America"; however, no direct evidence. Refuse heaps rich in remains of bison, antelope, deer, rabbit, and turtle; occasional bird bones.

In addition, Johnson states that "several pieces of glazed pottery were found, which evidently came in as trade articles from the west and thus serve to establish the Antelope Creek Ruin as Early Pueblo IV of the Southwest." In his introduction he had remarked that Lowery had worked for several weeks in this site, finding several pieces of Pueblo pottery which Mera "correlated with Little Colorado Glaze I."[31] He concluded that there had been little, if any, cultural influence from the Pueblo area. On the other hand, pottery, bone, and stone implements, as well as "the general structure of the houses" (i.e., rectangular plan, four centerposts, extended "entrance" to east, central fire basin) led him to believe that "The affinities and relationships of the Panhandle Culture seem to be definitely correlated with the Upper Republican Culture of Nebraska as indicated by Wedel in his preliminary classification."[32]

Hobbs[33] has recently published certain notes on Alibates and Antelope Creek Ruins and presented a floor plan of a "typical" Alibates house. The details agree in all particulars with those given above (pp. 31–34) for the scale model of an Antelope Creek house in the museum at Canyon. Hobbs notes that Alibates "is made up of small rooms and small groups of large rooms." One instance of a wall constructed of small poles set vertically and plastered over with clay is mentioned. Also, it is said that some walls were set three to six inches below original ground level. The tunnels are called

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[31]Ernest J. Lowery, "The Archaeology of the Antelope Creek Ruin," Thesis for Master's Degree, Library of Texas Technological College, Lubbock, 1932. Kidder, A. V., *The Pottery of Pecos*, Vol. II, p. 608, has tentatively concluded that the year 1375 marks the beginning of importation of Glaze I pottery into the Pecos valley, north-central New Mexico, probably from the Little Colorado drainage area in west-central New Mexico.

[32]Wedel, Waldo R., *Reports on Field Work by the Archaeological Survey of the Nebraska State Historical Society*, p. 251.

[33]Hobbs, Hulda R., *Two Texas Panhandle Ruins.*

"passageways" despite being so low that they "could have been traversed only by stooping or crawling on hands and knees." And again, "In *some* of the Antelope Creek rooms there is a raised platform in the channel [central depression], against or very near the west wall. . . . It averaged about 7 feet north-south and 5½ feet east-west." In one case there was a "bin" on each side of the platform, while a "considerable number" of circular and oval pits, two to four feet across, were found in houses and often stone-lined.

In addition to trade sherds of St. Johns Polychrome, Aqua Fria black-on-red (Glaze A), and Cieneguilla glaze-on-yellow (Glaze A), Hobbs mentions an "incised ware, probably a Caddoan type," without comment on how such an identification is to be made.[34]

By way of conclusions, we may note the following important one:

> The lack of changes in style of architecture, artifacts, and pottery, the homogeneity of refuse, and the presence of only one level of occupation in the majority of rooms, indicate that the ruins were occupied for a comparatively short time.

Mr. Ele Baker is quoted as feeling that the circular rooms have no kiva-like features. We also learn that

> . . . the dwellings are a local variant of a Caddoan type of structure which has been reported in Nebraska, Kansas, Oklahoma, Arkansas, and eastern Texas. . . . The pottery is of a widely distributed Plains, probably Caddoan, type. Many diamond-shaped, or four-edged, beveled knives . . . are also said to be one of several traits which the Panhandle culture has in common with cultures of eastern Texas, southwestern Arkansas, and western Louisiana. . . . the type 1 rooms, pottery, and four-edged knives are mentioned here because they appear to be striking examples of a Caddoan type of culture.

I do not know by what magic such statements can be made as to the place of this material. What is "a Caddoan type of culture"? Even if the statements were based on the "Caddoan Root" concept, which apparently embraces nearly all archaeological remains associated with pottery in the Plains from Canada to the Gulf of Mexico, what is the "Caddoan type of structure" to which these houses belong? A comparatively minor protest is that there is no record of similar pottery from eastern Texas, Arkansas, or Louisiana, and four-edged knives in this area are extremely rare and rather obviously trade pieces.

Accounts differ on whether the rooms were subterranean. Johnson specifically stated that such was not the case at Antelope Creek ruin, the buildings having been filled with wind-blown material.[35] My impression at Alibates Ruin was that these buildings had also been nearly filled with wind-blown dust shortly after abandonment; wash from slightly higher ground may also have contributed a small proportion of the fill. Mr. Studer at this time expressed his belief that many ruins had been filled in this way, for upon clear-

[34]In examining pottery from these and other northern Panhandle sites, the writer has seen no examples even faintly suggesting an origin in the southern Caddo territory, or that of the "Caddo proper."

[35]Holden, W. C., *The Canadian Valley Expedition of March, 1930*, p. 25, had previously written that "Subsequent centuries of wind action filled in soil above the old floor of room 1 at Antelope Creek ruin."

ing the sand and soil from these walls, many are found to be excellently preserved; the sand must have filled around them rapidly enough to hold the walls upright before they could crumble or fall. Probably in no case was a building completely buried over the tops of the walls. Three or four feet of fill seems to be usual, with one to two feet of wall remaining exposed. Rains have washed the adobe mortar from exposed walls, thus loosening the rocks or leaving them protruding above the present surface, while the same walls will be almost perfectly preserved below the surface.

The problem of whether or not any of the Canadian Valley houses were built in excavated pits is important for two reasons: (1) for determining the presence of this trait for cultural comparisons, and (2) for its bearing on whether these agricultural villages were abandoned for reasons of climatic change. Besides the point given above that some, at least, of the ruins seem to have filled rapidly with wind-blown material (and possibly some wash) after abandonment, we may also consider that the tunnel or ventilator floors are level, whereas they would slant downward if leading into pit houses; also, they do not seem to have vertical flues at the end, leading to the surface, as do some of the Southwestern underground ventilators found in pit houses. Again, the rooms are grouped into apartments or pueblos, and for each unit added a new pit would have to be dug. This is, of course, not at all impossible, but if done we need evidence of it.

Mr. Studer, with his usual courtesy, supplied me with a picture of room 19 at Antelope Creek Ruin, which provides a clue to the manner in which the rooms were built. This shows a series of vertical slabs lining the *base of the wall,* around the room, while above them there is stone-and-adobe masonry (in this case, the wall stones are laid in rather neat horizontal courses, with several inches of adobe between the courses). It is possible or even probable that in this case the floor was first excavated to a depth of perhaps one foot, and the sides of the excavation lined with thin stone slabs set on edge as a sort of subsurface footing for the wall.[35a] The wall was then built upward, resting on the original surface bordering the pit edge. This should not be taken as an established fact, however, and archaeologists must await Mr. Studer's publication of this material for fuller and more reliable information.

Even though some of the Canadian Valley houses were constructed over shallow, slab-lined pits, it is nevertheless entirely likely that the walls themselves were above ground, and that the fill in and around the buildings was deposited by wind action during a period (or periods) of subnormal rainfall. The present sparce rainfall in the western Panhandle and the High Plains in general makes this region one of marginal utility for agriculture at the present day, and subject to disastrous droughts. The Texas Panhandle and much surrounding territory has even today not fully recovered from the devastations of the "Dust Bowl" drought of 1934-1936. A possibility of

[35a]The effect is quite like that called "Slab Base Rubble" by Hawley, Florence, in *The Family Tree of Chaco Masonry* (pp. 250, 253). The Canadian Valley work may be a marginal survival of this building technique and probably dates some 400 years later than the 850–900 A.D. date given by Hawley for the Chaco area (see p. 65 below).

correlating the abandonment of these villages with droughts in western Nebraska in the 15th century is discussed on pp. 48–49.

On the other hand, a general evacuation due to persistent enemy pressure is not to be overlooked. The various authors have repeatedly remarked on the frequent burning of houses and the strategic position of many villages on promontories, mesas, and small terraces where they could be best defended. Not all the ruins, however, are found in defensive localities, and the burials do not seem to reveal effects of warfare such as arrow points in or between the bones. Needless to say, all these matters require serious attention and further observation in the field.

Antelope Creek Focus

SUFFICIENT DATA FOR a full analysis of the Canadian Valley remains are not yet available. Nonetheless, it seems possible to attempt to outline a complex of culture traits which will form a focus in the Midwestern system of nomenclature. If this can be shown to represent communities of people with the same, or practically the same, material culture, and existing at about the same time, a basis for strict comparisons with neighboring cultures will be provided.

Various names have already been offered to designate the Panhandle ruins and their contents, so that proposal of a new one may seem to add confusion. However, the names so far employed, "Panhandle Culture," "Slab-House Culture," "Panhandle Phase,"[36] "Canadian Valley Culture," etc., have been intended to include all remains in the Texas Panhandle in any way connected with masonry, whereas there is reason to suspect that enough differentiation exists in the material here and in contiguous areas to provide, eventually, for the recognition of more than one specific complex. Thus, in order to leave room, as it were, for the possible addition of new specific associations should occasion arise, the establishment of an "Antelope Creek Focus" as a starting point serves, I believe, a useful purpose. In the larger sense, then, such a term as "Panhandle Aspect" may be used to include all the intimately related materials in the northern Texas Panhandle, together with whatever appears in neighboring areas (northeast New Mexico, southeast Colorado, western Oklahoma, etc.) to form a closely related series of foci. Thus "Panhandle Aspect" would serve the same general purpose as the present "Panhandle Culture," with the considerable practical advantage of being flexible enough to include any number of focal subdivisions.

ANTELOPE CREEK FOCUS TRAITS

The list below has been compounded from the following sources: careful consideration of the published material just reviewed; personal examination of materials on display in the museum of the Panhandle Plains Historical Society in Canyon, Texas; information from Floyd V. Studer in correspondence

[36] "Panhandle Phase" is employed by Sayles, E. B., *An Archaeological Survey of Texas*, in his application of the Gladwin system to Texas archaeology. In this system, "phase" has a meaning very close to the McKern (Midwestern) "focus," but with "Panhandle" as the qualifier in this case, this term also seems too broad.

and conversation, a visit to Alibates Ruin, and a brief examination of his collections in Amarillo; a letter from Dr. W. C. Holden; and the probability of valid association in the light of the principle of "recurring complex." The last-mentioned is of considerable importance, since the published material on the provenience of artifacts is often indefinite; sometimes locations are recorded within specific rooms, but at other times the text switches to references such as "from the ruins" or "used by the Panhandle Indians." Therefore, those items listed under the various headings are those which are reported from at least two ruins, or mentioned by at least two authors as "typical" features, while the odd and unusual elements are grouped under "Miscellaneous." Items included in the published material are followed by the source in parentheses: (Canyon) refers to the museum in that town, (Studer) indicates notes gained personally from him, etc. The relative frequency with which the traits occur in the various sites will have to remain in question.

Type Site: Antelope Creek Ruin, located on a small terrace on west bank of Antelope Creek, 3 mi. E and 1 mi. N of Fritch, S. W. corner Hutchinson County.

Other Components: Tarbox (Holden, 1930), Saddleback (Studer, 1931 *a*; Moorehead, 1931; Holden, 1933), Alibates (Moorehead, 1931; Mason, 1929); Ruin 55 (Studer, 1934). Probably others, not yet excavated.

Economy: Joint dependence on maize agriculture and hunting—gathering. Maize certain from numerous small charred cobs (diameter about ½ inch, length 1 to 2 inches). Beans and squash inferred from supposed invariable association with maize, but no direct evidence. Irrigation suggested (Moorehead, 1921; Studer, 1931 *a*) but no actual evidence. Animals hunted were principally bison, antelope, and deer; also various small animals and birds. No fish remains reported. Various seeds, nuts, berries probably used where obtainable.

Villages: Primarily situated in comparatively good defensive positions; on ridges and promontories overlooking Canadian or its short tributaries, on mesa tops, and small terraces with steep banks (see Moorehead, 1933, pls. 1–2). Usually within mile or two of small stream or spring, but convenience to fields and water plainly sacrificed for wide view and defensible features. Number of houses in village ranges from 6 or 8 to perhaps 80 or more. Multi-roomed pueblos of one story found in excavated sites, which also contain scattered single rooms. No plan or arrangement of possible social significance has yet been reported. Present indications are that many large villages were occupied simultaneously in the narrow Canadian corridor, with a considerable, concentrated population.

Architecture: Each pueblo consists of an irregular one-story block of rooms, evidently built by adding rooms to a small starting core. Each has a number of large rectangular to nearly square rooms oriented with sides in cardinal directions, plus numerous small rooms of odd shapes which may have been sleeping quarters, work rooms, or storage places. Some small rooms were made by building out from the side of large ones, others by partitioning large rooms, still others by building across odd spaces and corners. Stone-walled rooms are found separate from the main block in each village, but without apparent plan of arrangement. (However, details are needed.)

Greatest emphasis has been placed on the peculiar method of wall construction in which large slabs were placed vertically in parallel rows, then the space filled with adobe and rubble, and other slabs mounted on them in the off-set system described by Holden (1930, fig. 2). While this may have been a common construction, many walls were built simply of unshaped stones held together with liberal amounts of adobe mortar. In each ruin excavated a small amount of horizontal masonry has appeared, in corners or along one wall of a room, evidently to strengthen them; such coursing usually appears above an initial course of vertical slabs. One case of a wall of small poles covered with clay has been reported (Hobbs, 1941).

Whether these rooms, single or contiguous, were constructed in pits is not known definitely. Some authors have felt that they were made in pits from a few inches to three or four feet in depth, others that the rooms had subsequently become filled with wind and water-borne sand. Mr. Studer has described to the author a method of footing the walls with vertical slabs which may have been placed around the walls of a shallow pit (fig. 1).

Apparently each excavated site shows a consistent pattern of room construction in that the best-made ones are large and follow a definite plan, while the small, odd-shaped rooms are either built-on additions to the large ones or otherwise supplementary to them. Dimensions of the larger, more regularly built rooms appear to range from about 10 by 12 feet to 22 by 24 feet (in one case 25 by 30 feet). A general description of such rooms, with their plastered walls and floors, sunken central part, central clay-lined firebasins, four roof supports, masonry tunnels extended from the east wall and jutting into the room, and occasional use of two small anterooms or bins flanking this tunnel, will be found under the discussion of Antelope Creek Ruin (pp. 31–38). Discussion of the tunnels as probably representing ventilators, with entrance consequently gained through roof hatches, will be found on p. 33. Other significant items include the discovery of large slabs in such position that they may have served as deflectors between the tunnel and central fire basin, other large slabs inside rooms which may once have lain on the roofs to serve as covers for entrance hatches, and occasional appearance of a raised clay bank at the west end of the central depression, opposite the tunnel, which the writer suggests may have served as an altar (see also Hobbs, 1941; Johnston, 1939).

All previous suggestions about roofs are that these were flat, supported by four central posts in the wider rooms. It may be pointed out, however, that considering the present dearth of good timbers, the central portion may have been supported on short stringers laid on the posts, with slanting beams laid from the walls to these stringers. Such construction would have made the roofs dome-shaped rather than flat and also have given more head-room inside. Whether such construction would be incompatible with multiple-roomed buildings is open to argument.

The larger, rectangular rooms were presumably dwellings, for they commonly contain broken bones, mealing slabs and other artifacts, and cache pits of oval and rectangular shape.

Every report stresses abundant evidence for destruction of these houses by fire. However, they were often rebuilt, the charred refuse being tamped down and covered with clean sand rather than removed. It is not clear whether the walls were built higher in such cases, or whether there was any connection between interment in the floor and destruction of the house.

Agricultural Implements: Hoe blades of bison scapula have been found in every ruin in which appreciable work has been done (Studer, letter of April 27, 1945). Bison metapodials with beveled ends have been called "digging-stick points." Double-bitted implements chipped from quartzitic pebbles,

bearing two notches, have been called "chipped hoes" (Canyon; Studer) but may have been axes; these have been found in two sites only.

Food storage: Slab-lined oval and circular cists were made in house floors and outside within 20 to 30 feet (Moorehead, 1933, pl. 3, fig. 8). These were carefully chinked with small stones, seemingly for rodent-proofing (Studer). Also, circular and rectangular unlined pits were made in floors. *Bell-shaped cache pits,* undercut so as to be wider at the bottom than top, have not been previously mentioned but were described by Studer during our visit to Alibates Ruin; these were some five feet deep and possibly plastered around the interior with adobe.

Food preparation: Grinding implements consisted mainly of sandstone slabs with shallow, oval basins in which rotary motion was used; these were both unshaped and shaped by chipping into oblong and oval forms. (See Studer, 1931 *b*, pl. 11, fig. 1, for a "typical metate" with oval basin.) Manos are of oval to rounded-rectangular shapes, oval in cross-section with slightly flattened faces. "Perhaps four of five" manos found in various ruins were worn to wedge shape, indicating back-and forth motion (Studer); however, this motion is certainly atypical. (See also open-end trough metate mentioned under Miscellaneous.) No two-hand manos on record. Bed-rock mortars near ruins, but no stone pestles.

Certain pits with stone-slab lining have been called "hearths" (Moorehead, 1933, pl. 3, no. 8), but as the slabs are unbroken by heat, these may rather have been storage cists.

Crushing implements are represented by numerous hammerstones of heavy, tough quartzitic material. These range from oval to round in section, are sometimes chipped to a rude point, but never notched or grooved.

Pottery, except for trade ware, was exclusively utilitarian. It is much more common in some sites than others, but apparently very uniform wherever found in the Canadian Valley. No entire specimens known, but Studer collections in Amarillo and Canyon museum include many restored specimens. No adequate study of pottery have been made in the Panhandle; it is uncertain whether or not this ware was coiled. Vessel forms, so far as known, consist entirely of globular, round-bottomed jars with straight rims placed vertically or flaring outward slightly. (For restored vessels see Moorehead, 1931, fig. 37; Smith, 1936, pl. 15, no. 3; Studer, 1934, pl. 15. For miscellaneous sherds see Moorehead, 1931, figs. 38, 49, 50.) Handles generally, if not completely, absent. Exteriors completely covered with cord impressions, usually made vertically but occasionally laid in checks at different angles. Cord marks sometimes smoothed over on rim zone. Deep notches in outer edge of lip fairly common; a single deeply incised line or row of fingernail gougings sometimes occurs around base of rim. Interiors poorly smoothed (with fingers ?) to fairly smoothed (with stone ?), but never polished. Some interiors have a light red wash. Colors center around shades of grey and brown with some orange-brown and tan; however, pottery commonly sooty-black and greasy. Walls range from ⅛ to ½ inch in thickness, varying in same vessel due to poor interior smoothing. Paste hard and compact (hardness centers at about 3.5); tempering of crushed quartz, sand, and occasionally bone, but shell probably absent.

Cutting, Scraping, Skin Preparation, etc.: Chipped knives of various shapes, diamond shape with four oppositely beveled edges probably most common; others are of ovate shape, thin, flat, up to 8 inches long, and a narrow, slightly curved form (Studer coll.). Snub-nosed scrapers very common. Side scrapers of large spalls with edge retouch very common. Mussel shells with serrated

edge occur. "Fleshing tools" of bison (or deer ?) humerus, cut across with bevel, with cutting edge sometimes serrated (Studer coll.).

Sewing, Punching Implements: Chipped flint awls or "drills" common, delicate shaft 1 to 2 inches long; bases unworked, shaped to a square, or narrow and crossing end of shaft like a "T." Bone awls very common, mainly of antelope and deer leg bones but also (Holden, 1933) of bison rib and turkey leg bones. Metapodial awls range through head intact, head partly removed and smoothed, head wholly removed and finished-round, and splinters unworked except for tip. (This is the full range described for Pecos; see Kidder, 1932, figs. 171–178, 183–184). Some slim, pointed awls (?) are square in crosssection with all four faces well smoothed (*idem.*, fig. 189.) All forms of awls are sometimes decorated with incised lines. Long, slim, eyed bone needles present but rare. (Studer coll.)

Unshaped sandstone fragments bear grooves in which awls, needles, etc., were probably sharpened. (Canyon.)

Woven Artifacts: Charred fragments of coiled basketry recovered from several ruins, foundations probably willow-rod bundle, sewing weft of willow splint.

Chipping Implements: Flint and quartzite hammerstones. Bone and antler tools with blunt, rounded tips. Sections of antler with squared ends; considerable battering and smoothing at ends indicates use as drifts, tapping tools, or similar uses.

Weapons: Common use of bow indicated by very numerous small, thin, light, finely chipped triangular projectile points. Those with two side notches may predominate over unnotched, but no study has been made. Base notch with side notches occurs, but seemingly infrequently. Aside from notches, these forms are indistinguishable, edges usually quite straight, base straight to concave; lengths average about one inch, range ½ to 1½ inches; both faces finely flaked.

Use of atlatl indicated by a few heavy, percussion-chipped projectile points in each ruin. At Alibates, 18 dart points have been found, against about 500 triangular arrow points (Studer coll.), a proportion which may apply to other ruins as well. "Dart" points are broad, thick, 2½ to 3 inches long, with broad notches in corners, stems ranging from parallel-sided to expanding; stem base straight to convex. They are rather uniform in these features and closely resemble dart points found infrequently at Pecos (Kidder, 1932, fig. 3, *w–y*).

No other weapons, such as spear or lance, appear to have been used.

Shaft smoothers are represented by small brown sandstone blocks with groove the length of one face (Canyon); these neither common nor well shaped but appear similar to usual Plains implement. Two more elaborate specimens mentioned under Miscellaneous.

Shaft wrenches ("straighteners") indicated by few worked sections of bison rib, but no definite examples. Antler wrenches not reported.

Ornaments: Pendants of mussel shell unworked except for small hole at end. Bird-bone sections may represent beads, but not common. Most ornamental material imported: *Olivella* shells (source not determined) with spire removed; small disk beads and pendants of turquoise; cylindrical beads, probably of conch columnella, from Gulf of Mexico (?); small disk beads of red stone (jasper ?), rare (Canyon).

Ceremonial Objects: Possibly in this category: Pipes, elbow form, of fine-grained sandstones and/or argillaceous limestones, commonly grey but occasionally deep red material (not catlinite). Arms of these pipes are barrel-

shaped, thickest in middle and tapering toward elbow and end; arms of about equal length but one (the bowl ?) may be thicker than other; one or both ends have slightly raised flange which may be incised with simple lines (Studer coll.).

One short tubular clay pipe from Ruin 55 (Studer, 1934, pl. 15); others mentioned by Hobbs (1941) from Antelope Creek and Alibates Ruins.

Bone "rasps" of bison rib (Studer, 1934, pl. 16) and deer metatarsal (Canyon) with regular, parallel grooves incised across edge and face.

Burials: Flexed and semi-flexed in oval graves, sometimes lined with slabs. Lined storage cists sometimes served for graves, both inside and outside houses. Graves sometimes found on ridges near ruins but not in rubbish heaps (Studer, 1931 *a*). Some have slabs laid on grave fill. No durable offerings, but some objects probably left on corpse as worn in life.

Miscellaneous:. Pottery disks cut from sherds, both plain and centrally perforated, occasionally found (Studer coll.).

One fragment of channeled Folsom point from Ruin 22 (Studer coll.).

One tortoise-shell rattle containing small, polished black pebbles (Holden, 1930) may have had ceremonial usage.

Polished greenstone celts, oval in crosssection with tapered poll, rarely occur in or on ruin sites and must have come from eastern tribes by trade (two complete in Canyon museum; three or four fragments in Studer coll.).

Two shaft smoothers more elaborate than the sandstone blocks: one has polished groove at right angles to a ridge pecked out in relief, the groove crossing this ridge at its center (compare Kidder, 1932, fig. 52 *c*). Another has a groove running length of one face and a short ridge flanked by peck-out pits at right angles to the groove but on one side only (something like *idem.*, fig. 54 *b*). These objects are in Canyon museum, labeled "from the ruins"; both are made from brown quartzitic material.

One troughed metate of Pueblo form, the trough open at one end only, found in place in Antelope Creek Ruin (Canyon), said to be the only such specimen found in Canadian Valley sites in Texas (Studer).

Obsidian flakes, unworked, found in various sites, indicating trade with New Mexican tribes. These very rarely shaped into artifacts (Studer).

Plaited and twined basketry reported from Ruin 28 (Studer, 1934, p. 90).

Six restored skulls from Antelope Creek Ruin (Canyon) show no artificial deformation.

Puebloan trade sherds are discussed in text below.

It should be mentioned that practically all chipped artifacts found in the Canadian Valley sites were made from the peculiar red-banded material commonly called "Alibates flint" from the enormous outcrop on the ridge above Alibates Creek, and smaller quarries to the north, across the Canadian. The material is actually a silicified dolomite, but in chipping it behaves almost exactly like flint.

Perhaps it should be stated again that the writer makes no claims as to the absolute occurrence in a single association of all the items given above. It will be quite obvious that specific data is needed on nearly every point. Questions which arise in reading the above compilation may be checked in some cases by reference to the published papers, but it is, I think, a fair summary of what is known to date by one who can treat the material only secondarily. Assuming that this is a valid representation of general characteristics in Antelope Creek Focus, except for several of the Miscellaneous items, the next question is: can the focus be dated?

DATE OF ANTELOPE CREEK FOCUS

The finding of Puebloan trade sherds was mentioned for Saddleback Ruin near Tascosa, with identification as Glaze I and Biscuit A types dating approximately 1350 to 1450 A.D.[37] Johnson listed sherds from Antelope Creek Ruin as early Pueblo IV, and quoted Lowery that they belonged to a Glaze I type.[38] Studer has informed me (letter of April 27, 1945) that the following types were found at Alibates and Antelope Creek Ruin:

Lincoln Black-on-Red, *circa* 1350
Glaze "A" Cieneguilla Glaze-on-Yellow (Mera), *circa* 1400
Aqua Frio Glaze "A" (Mera), *circa* 1350–1400
St. Johns Polychrome, *circa* 1200

One cannot, of course, state that the entire life of the focus is to be dated by these sherds. This general mode of life may have been established for some time before Puebloan trade relations were opened, but of this we know little. On the other hand, there is no reason to doubt that this culture was flourishing during the time suggested by the majority of trade sherds—about 1350 to 1450 A.D. The presence of St. Johns Polychrome probably indicates that this time should be extended back somewhat, as does the one open-end trough metate from Antelope Creek Ruin. These items suggest contact with Puebloans by 1300 or possibly shortly before. It is also problematical just how much time should be allowed for actual carriage of trade pottery over long distances. Thus, if Glaze I pottery was first brought into the vicinity of Pecos Pueblo from farther west at about 1375,[39] how many years should be allowed for its transport some 300 miles farther eastward? Similarly, how much lag seems reasonable in the occurrence of St. Johns Polychrome and the open-end metate?[40]

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[37]Holden, W. C., *The Canadian Valley Expedition of March, 1930.*

[38]Johnson, C. Stewart, *A Report on the Antelope Creek Ruins.*

[39]Kidder, A. V., *The Pottery of Pecos*, Vol. II, p. 608.

[40]St. Johns is said by one authority to have been manufactured between about 1100 and 1200 A.D. (McGregor, John C., *Southwestern Archaeology, Appendix II*). Kidder, A. V., (*The Pottery of Pecos*, Vol. II, pp. 350–353) has discussed the distribution of this type in detail, arguing that it was probably made for about 100 years, from 1125 or 1150 to 1225 or 1250, and that by 1275 it had gone out of fashion in its homeland, the Little Colorado basin of eastern Arizona. Kidder states that of all Southwestern potteries, St. Johns was traded over the greatest territory and that its then (1936) most eastward occurrence was at Tecolote Ruin near Las Vegas, New Mexico. In the Forked Lightning Ruin near Pecos Pueblo, abandoned at about 1300, Kidder found some 200 sherds of St. Johns, whereas at Pecos itself, established when Forked Lightning was abandoned, only six were recovered. It might then be argued that after 1300 the type became so rare at Pecos (as elsewhere) that its chances of reaching the Texas Panhandle were slight.

Bartlett, Katherine, *Pueblo Milling Stones of the Flagstaff Region and Their Relation to Others in the Southwest*, lists both troughed and slab-in-bin metates for the Pueblo III period and states that in Pueblo IV the slab-in-bin had "entirely replaced" the troughed form in the plateau area (but not elsewhere in the Southwest). Hobbs, Hulda R., *Two Texas Panhandle Ruins*, wrote that "troughed and basin metates" were found at Antelope Creek Ruin, as though there were several of each, but according to Mr. Studer only the one troughed example has been found in the Panhandle ruins. Whether this indicates a lingering use or a pre-1300 date here cannot be decided on a single specimen. No troughed metates were found at Pecos, and only two at Forked Lightning (Kidder, A. V., *The Artifacts of Pecos*, p. 69, fig. 43 *a*).

Some reports have mentioned discovery of ash beds and rubbish under the masonry walls, pointing to a possibility of earlier occupation.[41] For this and other reasons it will be best to reserve judgment on the most probable beginning date. Present indications are that 1300 seems reasonable.

At the other extreme, the Canadian Valley agriculturists appear to have abandoned their villages completely before the time of Coronado. By the time of the great entrada, 1541, there is no hint in the records of anything suggesting these people or their towns. Instead, what is now the Texas Panhandle was populated by roaming bands of bison hunters, who, from the descriptions, possessed many culture elements easily identifiable with those of historic Plains tribes.

> . . . In an easterly or northeasterly direction from Pecos, Coronado's party, after 18 days march, began to encounter roaming bands of people "who lived like Arabs," and whose sustenance "comes entirely from the cows, because they neither sow nor reap corn." One of the camps is said to have had 200 tents. These people used the skins of the bison for clothing, ropes, and tent covers, the sinews for thread, and the wool in cord making. For transporting their baggage they used large dogs, of which they had many. There is unmistakable mention of the conical tipi, dog traction, the breechcloth, skin clothing, the bow and arrow, pemmican, face painting (or possibly tattooing ?), and sign language. Pottery was absent. In winter these people brought hides and robes to the pueblos, especially Pecos, in exchange for corn. Two "tribes" are noted: the Querechos, supposedly Plains Apache, and the Teyas. Beyond and northeast of these nomads, where the country was more broken and fertile, near some large rivers [in southern Kansas], were found settlements of quite another character. . . .[42]

One cannot, to be sure, determine that Coronado actually crossed the Panhandle at a point near enough to the stone villages to have seen or heard of them, but on the other hand, the Puebloan sherds, so far reported do not yield dates later than approximately 1450. Later trade sherds have been found in the Texas Panhandle, but not in the ruins.[43] Moreover, as discussed on pp. 37–39, there are some indications that the abandonment was forced by adverse climatic conditions. In this connection, an interesting speculation, one which will bear further study, is that a long drought in this area may possibly be correlated with one of the prehistoric droughts in western Nebraska, as determined from tree-ring dates by Weakly.[44] These are:

1587–1605 (except for 1594–96)
1539–1564 (26 years)
1459–1468 (9 years)
1439–1454 (15 years)

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[41]*E.g.*, Holden, W. C., *Some Recent Explorations and Excavations in Northwest Texas* (Tarbox Ruin); Moorehead, W. K., *Archaeology of the Arkansas River Valley* (Gould Ruin in Handley group, and tests made along valley of Wolf Creek).

[42]Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, p. 324; see also Wedel, Waldo R., *An Introduction to Pawnee Archaeology*, pp. 9–10, and Wedel, Waldo R., *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira.* An interesting account of the expedition may be found in Day, A. Grove, *Coronado's Quest*, Chapter 12.

[43]Kidder, A. V., *The Pottery of Pecos*, Vol. II, p. 381, states that he has seen sherds ranging from Black-on-white to Glaze V in the collection of Mr. Leslie Nunn, near Amarillo, Texas.

[44]Quoted in Wedel, Waldo R., *Environment and Native Subsistence Economies in the Central Great Plains*, p. 24.

With these figures, Weakly added that "Several of the droughts were of sufficient severity to very largely depopulate the plains even now." Wedel furthermore remarks that

> They [the drought conditions in the western plains] have significant implications, however, for they suggest that prolonged droughts comparable to those held responsible for extensive ethnic disturbances in the Southwest in 1276–1299, and again in 1573–1593 (Douglass, 1935, p. 48), might well have occurred in the Great Plains, though not necessarily concurrent.[45]

The two droughts mentioned by Weakly, 1439-1454, and 1459-1468, might also be regarded as one very long period of desiccation extending from 1439 to 1468, or 29 years, with a five-year interruption. Having seen what havoc was wrought in the "Dust Bowl" drought of the southern plains in three years, 1934-1936, one may imagine the consequences of such periods lasting several times as long. As the period 1439 to 1468 appears to agree rather well, from the information given above, with the approximate time of abandonment of the Canadian Valley agricultural communities, a correlation with the fifteenth-century Nebraskan drought is not unlikely. On the other hand, the possibility of evacuation forced by inroads of warlike tribes, perhaps the very Querechos and Teyas mentioned in the Coronado journals, is not to be neglected. But such a factor must have been present for at least a century or two before the final abandonment. We may recall the defensive position in which most of these villages are found.

This circumstance is remindful of that discussed by Mera in the glaze-paint area of central New Mexico.[46]

> Information based on analyses of the ceramic content of a large number of sites from this section appears to indicate that most, if not all, of the sedentary settlements had been deserted by the middle of the 15th century, never to be reoccupied. The reason for such a statement is posted on the fact that there have been found no intrusive glaze-paint sherds later than late Group A nor any other alien types having a like time implication. . . .
> . . . it seems logical to postulate an abandonment of the former region rather than a discontinuance of trade.

Three possible reasons for this large-scale abandonment are considered: disease, drought, and warfare. The last seemed to Mera the most plausible, the farming population having been terrorized by "an enemy having no fixed adobe and hence possessing great mobility," and ". . . the deserted area was later the acknowledged range of the Mescalero Apache."

There is no reason why both factors may not have operated to finally bring an end to the Canadian Valley civilization: a protracted period of enemy raids perhaps climaxed by long, crop-killing drought.

RELATED MATERIALS IN ADJACENT AREAS

To work this matter out thoroughly would require an extensive publication in itself. The following notes are necessarily abbreviated and intended mainly to block out what appears at present to be the general position of this culture

[45] *Idem.*, p. 24.
[46] Mera, H. P., *Population Changes in the Rio Grande Glaze-Paint Area*, pp. 38–39.

in relation to adjacent materials. A start may be made by outlining the southern limits of cordmarked pottery with associated traits suggesting a Plains mode of life jointly dependent upon agriculture and hunting-gathering.

Stretching southward from the Canadian Valley, on the western side of the Panhandle and extending far into eastern New Mexico, lies the great arid plateau known as Llano Estacado or Staked Plain, a region of sand dunes, brackish lakes and small, intermittent streams. Archaeological remains are discussed in a subsequent section (pp. 75–82), but it may be said here that traits specifically characteristic of the Canadian Valley do not occur, so far as known, any appreciable distance into this arid plain.

The eastern Panhandle, below the north-south escarpment or "break of the plain," differs from the western in that there are a number of permanent streams forming the headwaters of the Red and Washita rivers. No stone buildings are known south of the Canadian, but a number of traits closely comparable to those listed for Antelope Creek Focus are to be found, including a very similar cordmarked cooking pottery. I recently had the privilege of examining the collection of Mr. Troy Moore of Childress, Texas, and noted a number of artifacts which appear to be common in this area. The common pottery differs little from that on the Canadian, except that about one-third is bone tempered, a much higher proportion than farther north, and Mr. Moore has two rim sherds from bowls, a departure from the seemingly universal globular jars along the Canadian.

From the sites yielding cordmarked pottery, Mr. Moore has collected thousands of notched and plain triangular arrow points and a few score dart points;[47] a number of other small, light points that will be discussed below under Henrietta Focus; diamond-shaped knives with four beveled edges; knives of ovate and leaf shapes; snub-nosed end scrapers; side scrapers; chipped "drills" or awls with unworked and T-shaped bases; large "drills" with stem at one corner of the base; end scrapers made by squaring the end of broken dart points; brown sandstone "hones" for sharpening bone implements; grooved sandstone shaft smoothers; and hammerstones of flint and quartzite. The greater part of the chipped artifacts are made of red-banded "Alibates flint," proving that the favorite material was obtained from the great quarry on the south side of Canadian River north of Amarillo. There are also about 50 pieces of polished elbow pipes of fine-grained sandstone in the collection; these are cream, light brown, and reddish brown in color. Most of the pipes were obviously of the same shape as those on the Canadian, i.e., with fat, barrel-shaped arms, one or both of them flanged at the end. Bone artifacts are rare, but Mr. Moore has one bison-bone "chisel" or flesher, and a number of well-made awls and needles. Objects of shell include several whole *Olivas* with spire removed, probably obtained from the Gulf of Mexico

[47]The triangular points from one site divide into the following groups: plain triangular, 37; triangular with two side notches, 219; same, with added base notch, 51; extra pairs of notches in blade, 7; triangular with but one notch, in center of base, 1. Against this total of 315, 15 or 20 dart points, all corner-notched with straight to expanding stem, were found by Mr. Moore. Thus a proportion of about 20 to one may be seen in the two classes of projectiles, about that noted in Mr. Studer's collection from Alibates Ruin.

and not to be confused with *Olivellas;* some 30 small disk beads apparently cut from the side of *Olivas;* other disks which may be from clam or conch shells; disks, squares, and triangles cut from mussels, unperforated and possibly inlays rather than beads; a small square piece of mussel shell with two holes near one edge; and two mussels with serrate edges. Other beads include three or four tiny turquoise disks and some very tiny polished beads of black stone. There are several obsidian flakes, and one very small bi-pointed object of obsidian, finely flaked along both edges.

While the turquoise beads point to Puebloan trade, and obsidian would seem to also, the number of Puebloan trade sherds collected by Mr. Moore in this vicinity was somewhat of a surprise. As the owner did not care to lend his specimens for positive identification, they are mentioned for what I think they are. First, there were 16 hard, black, scraped and smoothed but unpolished sherds, including seven rims all turned sharply outward. These are apparently identical to Kidder's "culinary ware" from Pecos. Four body sherds show faint striations, and others might be classed as "Faint Blind-corrugated," and "Plain-surfaced Glaze III."[48] Examination by an expert would be necessary for exact identity. No handles were present. Next, there were 33 sherds unquestionably of Rio Grande glaze-paint types; 20 of these are body sherds and plain except for a hard red slip, five are bright red olla pieces with rectilinear design in black glaze, one has a black-glaze-on-white interior and black-red-white exterior, and four have alternate white and black-glaze bands. The remaining three are rim sherds, one of which has a Glaze II or III form and exterior design of black-glaze vertical stripes on white background,[49] another is a Glaze III rim with horizontal and diagonal black-glaze bands on white background,[50] and the third another Glaze III rim with horizontal black lines on white background. Next, there were 21 sherds of Chupadero Black-on-White with the characteristic grey paste and scored interior; 13 of these have solid black bands and triangles, three have hatched black lines, and five have no design but clearly belong to the same type. Next, there were three sherds with sets of diagonally incised lines, the ware being thin, crudely smoothed, and dull brown-grey in color. These seem to be of the type Potsuwi'i Incised of north-central New Mexico.[51] One of these sherds has a great deal of glittery micaceous material in the paste. Lastly, Mr. Moore has one sherd similar to the three just mentioned, which has two rows of punctations just below the lip, made with fingernail or blunt stick.

The occurrence of such pottery so far east is of great interest in the present attempt to extend Puebloan datings as far as possible toward the frontiers of the Mississippian cultures. As in the Canadian River collections, I specifically looked for sherds that might have come by trade from the east, but

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[48]Kidder, A. V., *The Pottery of Pecos*, Vol. II, fig. 227 *b, c, j, m.*

[49]*Idem.*, compare with figs. 102 *a*, 118 *a-c*, and 101 *d.*

[50]*Idem.*, figs. 68 *k*, 97 *e*, and 98 *c* are the closest comparison in rim shape.

[51]*Idem.*, fig. 293 *a–e.* On p. 370 he states that of 22 sherds of this type found as trade ware at Pecos, all "whose position could be ascertained came from Glaze IV refuse." Type described and illustrated in Mera, H. P., *Wares Ancestral to Tewa Polychrome.*

could find no definite examples. However, four pieces in Mr. Moore's collection very likely represent the pottery characteristic of Sanders Focus far down the Red (see pp. 185–191). Unlike Panhandle and Puebloan pottery, these pieces are tempered with clay lumps mixed with particles of sand. The surfaces are smoothed to poorly polished, one bears a faint red wash, and one is a rim sherd but the vessel shape indeterminate. At any rate, it is to be hoped that somewhere in this area eastern and western sherds will be found in precise association. Mr. Moore informed me that the "painted pottery" occurs still farther east, within Oklahoma about the town of Hollis. He was quite certain that the Puebloan sherds came from the same sites on which he finds abundant cordmarked ware, small triangular projectile points, four-edged beveled knives, stone elbow pipes, etc.

The question arises: how far down the Red from the Panhandle corner do cordmarked and Puebloan pottery extend? Mr. and Mrs. John Henry Ray of Vernon, Texas, 63 miles east of Childress, have collected from the surface of scores of sites in this vicinity for 12 or 15 years, and rather thoroughly explored an area about the lower Pease River and its junction with the Red. They state that cordmarked ware occurs in abundance at but one site (Lowery place) at the junction of the two rivers, whereas shell-tempered plain pottery occurs in several sites. In all their collecting they have never found a single piece of Puebloan pottery, although a few pieces of Chupadero Black-on-White have been found still farther eastward down the Red (see Henrietta Focus). Thus the trade in glaze-paint wares seems to have carried across the Panhandle to the upper Red valley, barely entering southwestern Oklahoma, but not much farther, if at all. The distribution of cordmarked pottery extends slightly farther, to the mouth of Pease River, but no farther east, in our present knowledge. Thus it may be ventured that the agricultural people of the eastern Texas Panhandle were in many respects closely related to those of Antelope Creek Focus, and like them, engaged in trade with eastern Pueblo towns, in which Pecos itself must have played a leading role. It seems, however, that trade pieces found in the more southern area range appreciably later than those to the north, namely, into Glaze III and perhaps even Glaze IV (depending upon the identification of "Potsuwi'i Incised" sherds and their association). Also, Chupadero trade pottery is not known to occur as far north as the Canadian Valley in Texas.

During the visit to Childress, Mr. Edwin Cato of that city was kind enough to show me a small collection gathered by a local Scout troop. We also drove to a campsite on a sandy knoll overlooking the Salt Fork of Red River, nine miles north of Wellington, Collingsworth County. Here we found a few cordmarked sherds, side scrapers with crudely chipped edges, fragments of thick, oval manos and grinding slabs on which rotary motion was used.[52] The Scout collection also includes the ubiquitous plain and side-notched triangular arrow points and a few dart points.

[52]Lt. Daniel M. McKnight (letter of June 12, 1945) reports having found sherds of Chupadero Black-on-White on this site, the most northward known occurrence of this type in Texas.

From Wheeler County, adjoining Collingsworth on the north, two small collections have been donated to The University of Texas by Bill Hise. One includes seven cordmarked sherds quite like that on the Canadian and tempered with crushed quartz; these came from a camp midden on Alum Creek 12 miles S. E. of Shamrock. The other includes 17 sherds of similar pottery from a camp on Sweetwater Creek northwest of Shamrock. It should be noted that these sites are just west of the Texas-Oklahoma border and in the upper drainage of the Red River North Fork.

We may now turn westward into northeastern New Mexico. Kidder[53] has presented two maps of the Southwestern Culture area and its subdivisions. Both of these show the whole northeastern part of New Mexico as outside the Southwestern province, and I believe this circumstance is regarded as true to the present day. The few collections point to Plains, rather than Southwestern, affiliations. Mason[54] briefly investigated in this area, finding no true Puebloan sites until reaching Mora River. Moorehead[55] and Holden[56] found a similar situation. At a campsite north of Logan, New Mexico, on or near the Canadian, however, Mason noted bones, chips, and pottery "clearly of Plains type." A small surface collection from Sand Springs near Tucumcari, New Mexico, contains 40 sherds of which six are cordmarked, the remainder hard, thin, grey to black utility ware quite similar to Pecos "Indented blind corrugated" and "Faint blind corrugated," which Kidder refers to Glaze periods II-IV.[57]

In southeastern Colorado, Gebhard[58] has reported a cave excavation on Purgatoire River, a branch of the Arkansas. He carefully describes 118 sherds in detail, from which one may gather that they are practically indistinguishable from cordmarked utility ware of Antelope Creek Focus. No handles were present, and rims suggest both vertical and everted necks. Other artifacts, though few, appear to agree well with those typical of Antelope Creek Focus, though not, of course, confined to it. Renaud[59] has noted a very wide occurrence of cordmarked ("stamped") pottery in eastern Colorado. He does not, however, regard it as of a uniform type; on the contrary, "Every site shows marked individuality in some way. . . ." A few cordmarked sherds were also found in the northeast corner of New Mexico, which ". . . belonged to the same types as seen in eastern Colorado." Other examples were collected from a lava cave east of Raton, New Mexico, and from a camp on the south bank of Cimarron River. From these occurrences, Renaud inferred ". . . a western extension of what probably is typical pottery of the Plains, in its general classes, appearance, and quality."

From this data, it appears that the southern limit of cordmarked pottery lay approximately as entered on Map 1.

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[53]Kidder, A. V., *An Introduction to the Study of Southwestern Archaeology*, figs. 3, 5.
[54]Mason, J. A., *The Texas Expedition.*
[55]Moorehead, W. K., *Archaeology of the Arkansas River Valley.*
[56]Holden, W. C., *Texas Tech Archaeological Expedition Summer 1930.*
[57]Kidder, A. V., *The Pottery of Pecos*, Vol. II. Collection donated to The University of Texas by R. A. Prentice, April, 1935.
[58]Gebhard, P. H., *The Excavation of an Archaeological Site on the Purgatoire*, pp. 22–29.
[59]Renaud, E. B., *Archaeological Survey of Eastern Colorado*, pp. 88–94.

Turning north from the Canadian Valley of Texas, we may recall Moorehead's discussion of test excavations in Handley's ruins on Wolf Creek, a stream which heads just north of the Canadian, parallels it in an eastward course across the northeastern Panhandle corner, finally to join the North Canadian in Oklahoma. His remarks on the buildings strongly point to the predominant, if not exclusive, occurrence of separate, one-room stone houses, while no mention is made of multiple-roomed pueblos. In the Gould Ruin he found regular openings in the walls which suggest doors.[60]

Still farther north, he made casual mention of stone houses seen by Professor Thoburn on Beaver Creek in the Oklahoma Panhandle, near Guymon, Texas County.[61] Johnson later remarked on sites in Beaver County, adjacent to Texas County on the east.[62]

Whether the buildings occur in Texas or Beaver County, or both, they must be on or near the North Canadian. At any rate, there hangs in the Panhandle Plains Historical Society Museum at Canyon, Texas, a most interesting painting representing results of one of Johnson's excavations in the Oklahoma Panhandle, probably near Guymon or Optima (nine miles northeast of Guymon), Texas County. The painting shows a village of square stone-walled houses scattered over terrace land overlooking a large stream, presumably the North Canadian. Each house is a single unit and stands on the level ground; some are equipped with the same low masonry tunnel or entrance as those on the Canadian, and have a square smoke-hole hatchway in the center of the flat roof, with a ladder leading into the house. Here we note the same problem as before: do the low tunnels represent entrances or ventilators? If, as the picture shows, roof hatches served as entrances, the low tunnels would seem to have been ventilators. There is no apparent order or grouping of the houses. Oval grinding slabs with oval basins, cord-roughened jars, and hoes with scapula blades are among the objects depicted in use by the village inhabitants, while large stone slabs are shown in place for use as covers for tunnel mouths and hatches.

One may hazard a guess that these sites, including Handley's on Wolf Creek, indicate another focus, very closely similar in content to Antelope Creek, but differing mainly in the seeming absence of multiple-roomed pueblos. This seems significant in view of the greater distance of these sites from true Puebloan culture.

In southwestern Kansas, Wedel[63] has reported remains "attributable to the Upper Republican culture of southern Nebraska" on Salt Creek, Lane County. In one site were found two small pit houses, each with four centerposts, "typical" Upper Republican pottery, "arrow points," a bone fishhook,

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[60]Moorehead, W. K., *Archaeology of the Arkansas River Valley*, pp. 94–106, figs. 32–34.

[61]*Idem.*, p. 92.

[62]Johnson, C. Stewart, *A Report on the Antelope Creek Ruin*, p. 190, "There are numerous sites of the type here described [Antelope Creek] located in the Panhandle of Texas, and others are known in Beaver County, Oklahoma. . . . In the summer of 1934 Dr. Forrest E. Clements directed the excavation of a ruin of this type two miles south of Optima, Oklahoma [Texas County], through the coöperation of the Federal Relief Administration. It was the writer's privilege to have supervised this work under the direction of Dr. Clements."

[63]Wedel, Waldo R., *Archaeological Explorations in Western Kansas.*

and indications of horticulture. Below these remains was a one-foot layer of sterile deposit, and below this were thick cord-roughened sherds, large stemmed "arrowpoints," and a rocker-stamped sherd which reminded Wedel of Hopewellian pottery near Kansas City. The cord-roughened sherds and large projectile points suggested some form of "Plains Woodland" culture. In addition, he states that local collectors report Pawnee sherds, shell-tempered sherds, copper, glass beads, and catlinite from surface sites hereabouts.

AFFILIATIONS WITH UPPER REPUBLICAN ASPECT

In the central Plains of Nebraska and northern Kansas, Wedel has recently listed the following general characteristics of a mode of life following on the Woodland, yet definitely pre-European:

> Primary dependence upon horticulture with maize, beans, and squash as the staple crops and the [bone] hoe the characteristic implement; use of the semipermanent subrectangular (rarely circular) partly subterranean earth lodge; a pottery tradition readily distinguishable in nearly all respects from that of the Woodland peoples; small to medium fixed villages in open locations with no apparent attempt at concealment or fortification; and a fairly extensive series of artifact types in stone, bone, horn, and shell. . . .[64]

In Nebraska at least three principal variants of this mode of life are recognized: Upper Republican Culture (Aspect), Nebraska Culture (Aspect), and a "Dismal River Culture." In the present study it will be possible to discuss only the first of these in relation to Antelope Creek Focus. However, we may note that

> From cross finds of sherds and for other reasons it is now generally believed that the Upper Republican and Nebraska cultures flourished at about the same time. The numerous similarities indicate a common ancestry at no very remote time. . . . Neither has been convincingly identified with historic tribes in the Great Plains. . . .
>
> . . . Careful studies of skeletal remains may show the direction from which the peoples themselves [of both cultures] came. There is not the slightest evidence of incipient or nascent cultures in the area from which they can be thought to have sprung. This negative evidence confirms what general theoretical considerations suggested long ago, viz., that the basic elements were carried in virtually full blown from an older cultural environment. Just where we should look for the source of specific items is not clear, but the general direction indicated is probably the southeast and east. . . .[65]

The "Dismal River Culture" is said to be very imperfectly known from scattered traces of one or more pottery-using peoples who once roamed the Sandhills and High Plains of western Nebraska, and were "at least in part coexistent with some of the Upper Republican peoples." Also, recent researches "apparently confirm the general protohistoric position" of this complex.[66] From these suggestions, the Upper Republican Aspect is seen to occupy a relatively late, but nonetheless definitely prehistoric position in the central Plains.

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[64] Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, p. 310.
[65] *Idem.*, pp. 313, 319–320.
[66] *Idem.*, p. 323.

Upper Republican culture has been discussed by many able writers. It appears to be characterized by the following general traits, compiled from the summaries of Strong, Champe, and Wedel.[67]

Villages: loosely arranged, "varied in size from a few to several score houses, each presumably a communal affair sheltering two or three families," perhaps numbering some 50 to 100 persons per village. (Wedel.) On terraces along smaller streams, less commonly on larger rivers; no concealment or fortification.

Houses: earth lodges constructed in shallow pits one to two feet deep; usually rectangular to square (rarely, circular) with four central supports, central unlined fire pit, and tunnel-like entranceway extended from center of one side, sometimes facing away from prevailing northwest winds (Wedel) or not consistently oriented. (Champe, Strong.) Walls and entranceway of posts set individually; roofs "low, dome-shaped" (Wedel), of poles covered with grass, brush, and earth.

Agricultural Implements: planting sticks (Wedel) and hoe blades of bison scapulae notched or scored around neck for haftment.

Food Storage: large cistern or bell-shaped cache pits inside and outside houses; "pocket caches" in houses.
Food Preparation: no evidence of grinding implements; wooden mortar and pestle possibly used for corn, but no evidence.

Pottery abundant, entirely utilitarian. Exclusively jar shapes, fullbodied with round bottoms and rounded to flattened shoulders; mouth wide, rim slightly everted or vertical, lip rounded. Temper of crushed rock and grit, paste coarse and crumbly, hardness aver. 3.5. Color medium to dark gray, often sooty and blackened. Exterior almost invariably marked with cord-wrapped paddle on body. Rim is characteristically greatly thickened, sometimes beveled toward lip; this rim commonly decorated with incised lines in hachured and grid designs or parallel to lip. Lips sometimes notched. Handles "characteristically absent." (In Sweetwater complex incised lines on rim are sometimes replaced by lines made with impressed cords; loop handles and lugs also occur here—Strong, 1935, p. 248; Champe, 1936.) For illustrations of Upper Republican pottery see Champe, 1936, pls. I–VIII; Strong, 1935, pls. 5, 21; Wedel, 1935, pls. V, VI, XI. For rim and vessel outlines see Wedel, 1935, figs. 4, 5, 9.

Numerous "plain" and "discoidal" hammerstones may have served for crushing bone and mashing food, among other purposes.

Cutting, Scraping, Skin Preparation, etc.: variety of flint knives, incl. ovate triangular, and diamond shapes, the latter with beveled and unbeveled edges in about equal numbers. Snub-nosed (plano-convex) end scrapers and oval side scrapers of flint common. Scrapers also made from bison metapodial ("beamers," "dehairing tools") and scapulae split lengthwise, both probably being used like drawshaves.

Sewing and Punching: flint "drills" or awls with T-shaped heads. Wide variety of well-shaped bone awls, bodkins, and punching tools. Ulna "picks." Eyed bone needles. Sandstone hones.

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[67]Strong, W. D., *An Introduction to Nebraska Archaeology*, pp. 30–54, 68–123, 224–236, 245–248, 271–281; Wedel, Waldo R., *Reports on Field Work by the Archaeological Survey of the Nebraska State Historical Society*, pp. 185–194, 204–208; Champe, John L., and Earl H. Bell, *The Sweetwater Culture Complex*, esp. pp. 280–281 (table of traits of Sweetwater complex compared with those of Strong and Wedel); and Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, pp. 310–312.

Woven Materials: no evidence recovered.

Chipping Implements: flaking tools of bone and antler; antler sections with blunt rounded ends ("tapping tools," "drifts"), possibly used in flaking.

Weapons: bow represented by flint arrow points of triangular shape, plain and notched. Those with two side notches and base notch are finely made with straight sides, while unnotched are less well made, range somewhat larger in size, and sides and base tend to be more convex than straight (Strong, 1935, pl. 7-1 a, c, d, f, g, j, m, o); hence two distinct types indicated (*idem.*, p. 249). Atlatl dart points not mentioned as such. Lance possibly used (Wedel).

Supplementary implements include elongate sandstone blocks with longitudinal groove, probably shaft smoothers; shaft wrenches of bison rib and deer antler with hole through which shaft could be run.

Ornaments: red and yellow minerals. Incised bone and antler bracelets. Incised gorgets of bone. Tubular bone beads. Cylindrical conch-shell (?) beads; small, perforated claw-like pendants and other cut-shell ornaments of Gulf coast species. One site has yielded wooden disks covered with thin beaten copper sheets.

Ceremonial Objects, Games, etc.: pipes nearly all of elbow form, of fine-grained soft stones; elbow pipes of pottery rarely found. Cup-and-pin game suggested by pierced deer phalanges, and dressed bone objects suggest gambling pieces (Wedel).

Burials: corpses exposed and subsequently bones gathered and buried in large ossuary pits; shell beads and potsherds found in ossuaries. Unsubstantiated reports of graves lined with stone slabs (Strong, 1935, p. 250).

Miscellaneous: pottery disks. Obsidian (from Yellowstone area?). Steatite fragments and quartzite (from west—Wyoming ?). Pecked and polished celts, very rare. Chipped axes, very rare. Evidence of dog. Bone fish-hooks.

It is plain that the economic basis of Upper Republican culture and Antelope Creek Focus was very similar. Crops were grown on sandy, arable terraces along small streams, and corn was stored in underground caches. Bison, deer, and antelope as well as some smaller animals and birds were hunted, and wild plant foods were undoubtedly used to supplement the diet. We have one interesting difference in that the Upper Republican peoples caught fish with bone hooks, whereas this trait has not been noted in the Canadian Valley villages. Also, the various works on Upper Republican state that beans and squash were grown with maize, while in the southern area this has been assumed without proof, only maize having been found in charred form. In both, the bison-scapula hoe was used. Villages were rather permanently fixed and consisted of sturdily built, fairly spacious houses. House features held in common were a quadrilateral, more or less square plan, four centrally placed roof supports, central fire place, and a tunnel-like extension from the middle of one side wall. In Upper Republican this has always been described as an entrance passage, while in the Canadian Valley occasional stones in place over the tunnel show that it was probably too low for an entrance and may have been a ventilator shaft, entrance being gained through the roof. In both areas roofs were probably made of poles covered with grass, reeds, or brush,

in turn covered with earth or clay. That Upper Republican houses were built in pits one to two feet deep seems well established; there is some evidence that those of Antelope Creek Focus were also built over shallow pits (pp. 37–38). In both cultures storage pits were dug both inside and outside houses; these were often simply shallow holes, but deep, bell-shaped pits were made both inside and outside of Upper Republican houses, and have been described to the writer by Mr. Studer as occurring outside some houses in Canadian Valley villages.

In the field of artifacts, chipped stone objects were practically identical. Thus, ovate and beveled diamond-shaped knives, small "drills" or awls, snub-nosed end scrapers, crude side scrapers, and both notched and unnotched triangular projectile points were common to both, although the unnotched Upper Republican specimens range somewhat larger and cruder than the notched and probably represent a type not found in Antelope Creek Focus. Ungrooved hammerstones, sandstone hones and shaft smoothers, flaking tools of bone and antler, antler "tapping tools" or "drifts," a wide variety of well-made bone awls, eyed bone needles, tubular bone beads, and elbow pipes carved from soft, fine-grained stones were also common to both. Pottery was very similar in that it was exclusively utilitarian, poorly smoothed, of coarse texture with temper of crushed rock and grit, predominantly gray in color but often sooty from use, exclusively of jar shapes with globular body, rounded bottom, rim vertical to slightly flaring, and fairly wide mouth. In both cultures vessel bodies were almost always completely covered with cord impressions applied with a wrapped paddle and the lip sometimes notched. However, the typical Upper Republican thick or "collared" rim with incised and cord-impressed designs is so far completely lacking in the Texas Panhandle and adjacent areas mentioned above, though it occurs in southwest Kansas (see p. 54).

Still other traits held in common are the use of Gulf of Mexico shells for ornaments, such as cylindrical conch-shell beads; very rare occurrence of polished celts, probably gained by trade from more easterly peoples; similar rare occurrence of chipped axes possibly gained by trade; and occasional presence of obsidian probably obtained from sources in the western mountains.

Upper Republican traits which have not appeared in connection with the Canadian Valley villages, in addition to those mentioned incidentally above, include incised bone and antler bracelets; bone gorgets, claw-shaped shell pendants, cup-and-pin game, bone gambling (?) pieces, beaming tools of bison metapodial and scapulae, shaft wrenches or straighteners of antler (those of bison rib possibly occur in Antelope Creek), possible use of the lance, disposal of dead in ossuaries, and occasional appearance of steatite, sheet copper on wooden disks, and elbow pipes of pottery. The steatite may have been acquired from somewhere to the west of Nebraska, while copper and pottery elbow pipes may have been gained through contact with the east, perhaps with the more or less contemporaneous Nebraska culture. There are also evidences in both Upper Republican and Nebraska of ceremonial elements

referrable to the "Southern Cult."[68] The design "of a spread hand marked with incisions and often having a circle or eye in the palm . . . is only a more specialized example of a number of generalized or attenuated southeastern characteristics to be noted in both the Nebraska and the Upper Republican cultures."[69]

Occasional trade sherds also suggest contact with tribes to the south.[70] All this indicates that the trade relationships of Upper Republican peoples were mainly with groups to the east and southeast of them, while those of Antelope Creek Focus lay mainly to the west with peoples of an early Pueblo IV period in the Southwest.

Traits we have noted for Antelope Creek Focus which have not been reported for Upper Republican culture include the use of stone house walls, wall plaster, plastered floors with sunken central part, fire-basin with clay or stone lining, anterooms or storage places of small rooms attached to the main rooms, grouping of rooms into pueblos, ventilator (?) shafts extended to east and jutting into the rooms, raised clay altar (?); roof entrance; stone-lined oval and circular cists inside and outside houses; individual flexed burials in abandoned cists and dug graves sometimes covered with stones; sub-floor burial; common use of unshaped and oval-shaped grinding slabs with oval basin and oval mano, indicating rotary motion; and stemmed dart points occurring in small numbers along with arrow points. We may also note notched bones (musical rasps?) and bison-bone fleshing tools, which do not appear in the central Plains until protohistoric times. Bone temper appears occasionally in the cordmarked pottery, but has not been reported for Upper Republican. Other elements of uncommon occurrence in Antelope Creek Focus which are not mentioned in Upper Republican include stone shaft smoothers with ridge at right angle to groove (two specimens in Canyon museum); bone awls (?) of square crosssection (Studer coll.); mussel shells with serrated edge; tortoise-shell rattle (one); small polished-stone beads; coiled basketry; plaited and twined basketry; turkey bones; tubular clay pipes; turquoise and *Olivella* beads; and Puebloan trade pottery.

As to the age of Upper Republican culture, there is every reason to believe that it was in existence between 1300 and 1450 A.D., the time projected above for Antelope Creek Focus, and for an appreciable time before that. We may quote from Bell:

The Ponca were probably in this region for a minimum of three hundred years. This could well be extended to five hundred years as a conservative

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[68]For discussions of this widespread "cult" in the Southeastern states, see Ford, J. A., and Gordon Willey, *An Interpretation of the Prehistory of the Eastern United States;* Waring, A. J., Jr., and Preston Holder, *A Prehistoric Ceremonial Complex in the Southeastern United States;* Griffin, James B., *The De Luna Expedition and the "Buzzard Cult" in the Southeast;* Krieger, Alex. D., *An Inquiry into Supposed Mexican Influence on a Prehistoric "Cult" in the Southern United States.*

[69]Strong, W. D., *An Introduction to Nebraska Archaeology*, p. 262.

[70]Wedel (letter of August 12, 1944) writes that ". . . square pithouses, native copper, the 'eye-in-hand' motif, and occasional polished and incised 'Red River' blackware sherds crop up in the Upper Republican and *not* in later central Plains horizons." A photograph of such a "Red River 'blackware'" sherd strongly suggests to me, not Red River pottery, but that typical of Spiro Focus in east-central Oklahoma.

maximum. I can find no traditions, either in the scientific literature or in my ethnological researches, indicative that the Ponca came into contact, or conflict, with the rectangular-house people who possessed the Upper Republican and Nebraska cultures. It may well be that at the time of the arrival of the Ponca, this earlier people was already disappearing from the region. From the great profusion of sites of the prehistoric Upper Republican and Nebraska cultures, we must either deduce the presence of a very great population for a short time, or a smaller population which existed in this region over a relatively long period. The latter proposition appears much more tenable than the former. We might estimate that peoples with the Upper Republican and Nebraska cultures occupied this region for five hundred years. Assuming their population to be roughly that of the Ponca, I see no reason to believe that they were here for a shorter length of time. In fact, since the village sites are more extensive and more numerous than the Ponca, it seems that we are justified in this rather conservative estimate. From the data at certain sites it seems apparent that during a portion of the time the Upper Republican and Woodland cultures were contemporary. On the other hand, there seems no doubt that the Woodland culture was in the region before the arrival of the later prehistoric groups. The presence of Woodland sites in old terraces, several feet beneath the present surface upon which are the remains of Upper Republican villages, in my mind clinches this interpretation. It would seem that the minimum and most conservative estimate for the span of history represented by pottery-making peoples would be one thousand years, and I do not believe that a 50 percent addition, say 1500 years, would be unreasonable.[71]

Probably most authorities would agree with Bell that, with the inclusion of Woodland in this span, 900 A.D. would approximate the latest reasonable date for the first appearance of pottery-making peoples in the central Plains. Just where Upper Republican would first enter is of course debatable and must be threshed out by Plains archaeologists. At the other extreme, all, I think, will agree that Upper Republican, as a distinct entity, had disappeared from most of Nebraska and Kansas by the time of Coronado, 1541, if not some time before. There is a general belief that Pawnee tribes were those referred to as the inhabitants of the "kingdom of Harahey" to the north of the "kingdom of Quivira" when Coronado visited the latter, probably in south-central Kansas.[72] Arguments on the relationships between Upper Republican and Pawnee culture are many and involved and need not be discussed here. Strong felt that Upper Republican might eventually be called "Prehistoric Pawnee" when transitions had been better worked out, and Wedel has discussed many similarities between them.[73] Yet there are numerous differences which indicate that the Pawnee, if not a new people taking over certain traits from their predecessors, were subject to new influences which produced a culture different in many respects from Upper Republican.

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[71]Bell, E. H., *Great Plains Area*, pp. 356–357.

[72]Lesser, A., and G. Weltfish, *Composition of the Caddoan Linguistic Stock;* Weer, Paul, *Preliminary Notes on the Caddoan Family;* Strong, W. D., *An Introduction to Nebraska Archeology*, p. 7; Wedel, Waldo R., *An Introduction to Pawnee Archaeology*, pp. 9–10; Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, p. 325; Day, A. Grove, *Coronado's Quest*, pp. 249–251; Handbook of the American Indians, article "Harahey."

[73]Strong, W. D., *An Introduction to Nebraska Archeology*, p. 245; Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, pp. 321–322; Wedel, Waldo R., *Environment and Native Subsistence Economics in the Central Great Plains*, p. 26.

There is reason to believe that they [the Pawnee] were in the area [of southeastern Nebraska] long before the first Europeans arrived. At any rate there are those who believe that the structure of historic Pawnee material culture and economy stood with at least one leg on some such prehistoric horizon as the Upper Republican of southern and central Nebraska and northern Kansas, which it seems to resemble more closely than any other precontact complex. The unlikenesses may be due to influences from other peoples and areas operating at various times throughout a culture history of several centuries.[74]

There is no reason to believe that the "kingdom of Harahey," which may have been a group of Pawnee tribes in southeastern Nebraska, had recently become established in 1541, and it would probably not be going beyond the facts to postulate a century or so of Pawnee occupation before this date. On the other hand, the close of Upper Republican and Nebraska cannot easily be set much farther back because of elements they contain indicating a temporal position roughly equivalent to the great "Mississippi Pattern" or "Temple Mound I-II" of the eastern states.[75]

From these reckonings, I believe there can be little doubt of contemporaneity between Upper Republican culture in the Plains, and what I have called "Antelope Creek Focus" in the Texas Panhandle at least between 1300 and 1450 A.D. But as Upper Republican surely enjoyed a life of more than 150 years, its beginnings could safely be set back at least a century or two.

AFFILIATIONS WITH THE SOUTHWEST: ARTIFACTS

As we have seen, cordmarked pottery and associated artifacts suggesting a Plains form of life based on hunting combined with agriculture, occur in a wide area extending across the Texas Panhandle and a considerable distance into New Mexico. True Puebloan remains, on the other hand, are not known to extend farther east in northern New Mexico than the upper Mora River in the neighborhood of Watrous. Lack of information as yet precludes any statement on transitions, if any, between the Texas Panhandle ruins and eastern outposts of Puebloan culture. Some interesting and probably significant comparisons may nevertheless be made with Pecos Pueblo and certain other Southwestern discoveries.

Kidder has described and illustrated a number of Pecos artifacts which compare so favorably with some of those here listed for Antelope Creek Focus, that his figures will serve as well for the latter. Since Kidder noted many changes, shifts, and innovations at Pecos from late Glaze IV onward, and since it seems certain that Antelope Creek Focus was in existence during Glaze I-II times as seen at Pecos, we will here divide the seemingly foreign elements found at Pecos into those occurring (1) from Black-on-White times to the end of Glaze III, and (2) from Glaze IV into historic times. The table below lists the items which Kidder found to be exceedingly rare or as probably

[74]Wedel, Waldo R., *Culture Sequences in the Central Great Plains*, p. 314.

[75]Ford, J. A., and Gordon Willey, *An Interpretation of the Prehistory of the Eastern United States*, present a reconstruction of eastern United States prehistory in terms of their Burial Mound and Temple Mound periods.

present due to contacts with "tribes to the east," "Plains Indians," etc.; during the first of these periods.[76] Several items for which Kidder did not mention the periods of occurrence are also included here because of indications that they were foreign and might have been present in all Pecos periods.

Type	No. found	Period	Pages	Figures
Snub-nosed scrapers	185	All, but not common until Glaze IV–V	35–39	18–19
Side scrapers	291	All, but not common until Glaze IV–V	39–40	20–21
Four-edged beveled knives	10	Glaze I (but 8 unknown)	31–34	14
Flint "drills" or awls, bases unworked	27	Not given	24–28	11 d–f
Flint "drills" or awls, bases shaped like T or squared	27	Not given	24–28	11 g–j
Sandstone shaft smoothers with longitudinal groove	55	Mostly B/W and Glaze I but continue throughout	80–82	56–57
Eyed bone needles	15	Probably B/W to historic	.....	188 a–f
Shaft wrenches, bison rib	3	Not given	240–241	201
Antler "rubbing tools" (same as plains "tapping tools" ?)	17	All	276–278	231
Cylindrical beads, conch shell? (type "eastern rather than SW")	6	Glaze III ? grave (3)	188	160
Quartzite "hoe," 2 side notches ("resembles Caddoan hoe")	1	Not given, but similar notched objects in B/W	58	35 a
Stone beads, "excessively rare"	10	"Refuse," period not given	100	35 b–c

That the chipped artifacts listed above represent introductions at Pecos from the east seems undeniable; that they were introduced specifically through contact with peoples of the Antelope Creek Focus seems very likely. Not only is contact shown by trade sherds, but the majority of the Pecos chipped artifacts were fashioned from "Alibates flint," a red-banded agatized dolomite, which could only be obtained from the quarries north of Amarillo. That many of the objects were actually chipped at Pecos rather than being carried in as finished specimens is shown by large numbers of flakes of this material in the upper rubbish.[77] Again, Kidder states that chipped stone artifacts are relatively more common at Pecos than elsewhere in Pueblo sites.[78] It should further be noted that, although the types listed above occurred in early Pecos levels, they were far more numerous from late Glaze IV on to historic times (i.e., from about 1550 onward). Thus all indications are that Pecos was in strong enough contact with tribes of the southern High Plains during early Pueblo IV times to have taken over several artifact types which were the common property of Antelope Creek, Upper Republican, Nebraska, and perhaps other cultures. The traits which seem most likely to have been borrowed from the Plains at this time (whether by Pecos itself or some closely related and contemporaneous towns) are these: snub-nosed scrapers and possibly side scrapers; four-edged, beveled, diamond-shaped knives; and chipped drills or awls with delicate shafts and bases either unworked, T-shaped, or square. To this list might be added Kidder's "antler rubbing tools"

[76]Kidder, A. V., *The Artifacts of Pecos.* Pages and figures are given in the table.
[77]*Idem.*, p. 31.
[78]*Idem.*, p. 13.

which may be analogous to the Plains "tapping tools" or "cylindrical antler tools," for he found only 17 specimens scattered through all periods of Pecos rubbish. The three shaft wrenches of bison rib at Pecos also seem to have been introduced from the Plains, perhaps from Upper Republican culture; the trait is not certainly present in the Panhandle, and the date of the Pecos specimens is unknown. Shaft wrenches of antler, characteristic of Upper Republican, have not been found in the Texas Panhandle or at Pecos. Simple sandstone shaft smoothers may have entered the Southwest earlier, during Pueblo III.[79] It is difficult to form conclusions about such traits as eyed bone needles and small stone beads as they appear uncommonly in all these cultures. However, in the case of six cylindrical beads of conch (?) columnella, and one chipped "hoe" with side notches at Pecos, it is possible that these were gained from the east by way of Antelope Creek Focus, where they occur even though very uncommonly.[80]

Still other traits common to Pecos and Antelope Creek Focus include hammerstones of tough quartzose rocks, plain and centrally-perforated disks cut from potsherds, bone beads and tubes, small triangular arrow points—plain and side-notched[81]— and a wide variety of bone awls made from deer and antelope leg bone, bison rib, and occasionally bird bone. All were probably shared with Upper Republican as well. The quantities of bone artifacts found at Pecos and Hawikuh are much greater than is usual in Puebloan sites and probably reflect borrowing from Plains cultures. Bone objects closely resembling awls but of well-finished, four-sided construction, and corner-notched dart points in small numbers along with the usual triangular arrow points, are two less common features shared by Pecos and Antelope Creek Focus.[82]

Many artifacts of common occurrence at Pecos seem never to have been taken over by Indians of the Panhandle or the Plains in general. Among

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[79]Toulouse, Joseph H., Jr., *Arrow-shaft Tools (With Notes on Their Distribution)*, presents a valuable distribution study of these smoothers and remarks (p. 85) that "This [Plains] form may have been carried into New Mexico during Pueblo III times. At any rate it is not reported from there from sites assigned to earlier periods." Such smoothers were more abundant in the Forked Lightning Ruin (late Pueblo III) than at Pecos. (Kidder, A. V., *The Artifacts of Pecos.*)

[80]Very similar chipped "hoes" (or axes) are found in the Sanders and Spiro Foci farther east on the Red and Arkansas rivers. On the other hand, Roberts in *Early Pueblo Ruins in the Piedra District, Southwestern Colorado*, p. 149, pl. 46, describes crudely chipped "picks and hoes" with two broad side notches from the Piedra, southwest Colorado. These also resemble notched "hoes" mentioned above and we may have but a single, widespread trait in which the Panhandle and Pecos specimens merely occupy a middle position. No conclusion could be forthcoming without a special study and determination of whether all the crudely chipped and notched "hoes," "picks," "axes" or whatever they are belong to a single type of implement with a continuous distribution.

[81]Kidder, A. V., *The Artifacts of Pecos*, pp. 15–24, figs. 3, 4, 6–8. The following proportions may be abstracted from the table on p. 15: triangular arrow points, side-notched, 542, unnotched with convex base, 109, unnotched with straight base, 258, unnotched with concave base, 31; total plain, 398 against 542 side-notched; grand total, 940. Corner-notched dart points totalled 94, exactly 10 per cent as numerous as arrow points. Side-notched arrow points with notch in base numbered only four, suggesting that this was a rare, possibly intrusive, feature at Pecos. Seriation of the above projectiles in the different stratigraphic levels might, of course, have shown significant shifts.

[82]Hodge's work on Hawikuh, illustrating the extensive bone work of prehistoric Puebloans, shows many traits in common with Pecos, yet revealed only one of the "four-sided bone implements." (Kidder, A. V., *The Artifacts of Pecos*, p. 225, fig. 189; reference to Hodge, F. W., *Hawikuh Bonework.*)

these are the elaborated shaft polishers of green chloritic schist, talc schist, etc., elaborately modeled and carved tubular pipes, "lightning stones," stone idols, fetish stones, bone whistles and flageolets, polished axes with spiral groove, and others. As most of these seem to have served ritualistic purposes in Puebloan ceremonials, it is noteworthy that they were not borrowed by peoples to the east (see pp. 73–74). In Antelope Creek Focus are found preserved only meager indications of ceremonial paraphernalia: pipes, bone rasps, clay altars (?) in some houses, and a tortoise-shell rattle. Upper Republican seems still more barren in this respect.

Regarding possible affiliations between cordmarked pottery in the Panhandle ruins and Southwestern wares, I would point out only a remarkable similarity in the *shape,* if not paste and surface treatment, between the former and many cooking vessels recorded from Basket Maker III—Pueblo I in southwestern Colorado. These hold in common a small, globular, round-bottomed body and a high vertical to slightly everted neck, the height and diameter of the neck being in about the same relationship to the size and diameter of the body in both areas.[83] This does not necessarily mean that a direct connection existed between these utility wares; for one thing, Basket III—Pueblo I included several shapes[84] not occurring in the Canadian Valley sites. It seems more likely that these are but two manifestations of a much larger problem in vessel function and shape, the existence of which has only recently been brought out.[85]

AFFILIATIONS WITH THE SOUTHWEST: ARCHITECTURE

In seeking possible Puebloan origin for masonry found in the Texas Panhandle, it is natural to turn to the classic buildings of Chaco Canyon, the San Juan, Mesa Verde, etc. Pueblo II-III structures on valley floors and in

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[83]Compare restored Antelope Creek Focus vessels (Moorehead, W. K., *Archaeology of the Arkansas River Valley*, fig. 37; Studer, Floyd V., *Texas Panhandle Culture Ruin No. 55*, pl. 15; Smith, Victor J., *The Pottery Horizons of Texas*, pl. 15, no. 3) with Morris, Earl H., *Archaeological Studies in the La Plata District, Southwestern Colorado and Northwestern New Mexico*, pls. 181 a, e, f; 182 d, f–h; 211 a–f; 212 e–f; 213 b–g.

[84]Such as jars with relatively smaller necks than those mentioned, with and without handles, shapes approaching bottles, and neck-banded jars (see Morris, *op cit.*).

[85]Linton, Ralph, *North American Cooking Pots*, esp. pp. 377–379. In this exceedingly stimulating discussion the entire problem of cooking ware, its shapes, functional efficiency, relation to foods (such as beans) which require long cooking, and position in those cultures with highly developed decorative ware, is aired in the light of certain broad North American pottery distributions. The appearance of pointed-bottom cooking vessels, remindful of eastern Woodland pottery, in the northern Puebloan area, presents an intriguing archaeological problem, since many associated artifacts are also quite non-Anasazi. Hibben, Frank C., *The Gallina Phase*, and Mera, H. P., *Some Aspects of the Largo Cultural Phase, Northern New Mexico*, reported these new materials, the former stating that "The suggestion of Woodland contact offered by the pointed-bottom pottery of the Gallina is but one indication of this diversity within the Pueblo area; Navaho admixture is not particularly indicated but deserves careful consideration." Hall, Edward Twitchell, Jr., *Early Stockaded Settlements in the Governador New Mexico* (p. 61) has given evidence that the first appearance of "Woodland-like pottery" in the Largo-Gallina Phase took place at about 1000 A.D. What this has to do with the similarity in round-bottomed jars found in BM III–P I and the northern Texas Panhandle cannot even be guessed at present; however, one may note that the latter vessels are cordmarked while the former are not, while the Largo-Gallina "Woodland-like" vessels are likewise not cordmarked; perhaps all had a northern derivation but at times and places not yet known, differentiations took place.

immense rock shelters of the plateau were customarily built of horizontally coursed masonry, of which there were several variants.[86] Wall stones were carefully graded, often trimmed to suitable dimensions, and neatly laid in sturdy construction. We need not go into this subject for present purposes except to recall that crude but recognizable coursing was occasionally used to strengthen corners and walls in the Panhandle rooms. Much greater similarity in general construction may be seen in masonry of certain Pueblo IV villages in the northern Rio Grande area.

The rudeness of Pueblo IV masonry when compared with that of classic Pueblo III may be seen at the great Pecos Pueblo as well as anywhere. Here the walls were built of unshaped stones held with quantities of adobe, the corners poorly bound and so insecure that the excavators had great difficulty in clearing rooms before they collapsed.[87]

Other eastern or Rio Grande pueblos reveal the same crude masonry—i.e., a general lack of the neat, coursed work of classic Pueblo III buildings and kivas. Reiter has written of Unshagi, a pueblo on Jemez River whose first buildings were begun by the beginning of Glaze I (1375) or perhaps shortly before, and which was not abandoned until about 1628, when its inhabitants probably moved to nearby missions:

> There is little of the conformity predictable in ruins of comparatively uniform ground plan, as the classic examples of Chaco Canyon. Individual rooms, rather than architectural groups, were usually the units of construction. Around the quadrangle, at first, there were continuous walls and regular, patterned structures. All must have been rather similar until modified by later secondary walls, as those of bin and deflectors. But in the eastern and western wings wall-lines wabbled rather more than before, several through walls were broken and replaced and in several instances two rooms were divided into four, or united into one. Within the limitations of the original plan the building was distinctly rambling (Plate I).
>
> Broadly speaking, the masonry was no more than it needed to be: simple, uncoursed, wet masonry, unmatched in any way, and of heterogeneous materials. . . . The resulting walls contained nearly every sort of available stone (Plate II *a*).
>
> . . . Both primary (room) and secondary (bin) walls were sometimes started with no foundations whatever, with lower stones resting directly on earlier floor or plaza levels. This was more usual, however, for the partitions. . . . Wall widths (plaster surface to plaster surface), ranged from seven to fifteen inches with an average of eleven inches. Bin, deflector, and other secondary walls averaged five and three-fourths inches in width.
>
> The process of wall-building was simple in the extreme. No attention was paid to the position of the joints between the rocks. . . . *Near the tops of the walls longer pieces were used, resulting in a more efficient longitudinal tying.* A few sedimentary stones were built into the walls on their sides, with the natural strata, or planes of fracture, *running vertically*.
>
> . . . After removing wall plaster, it is apparent that, during wall-construction, mortar was used plentifully, and large chinks between the more or less

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[86]Hawley, Florence, *The Family Tree of Chaco Canyon Masonry.*

[87]Kidder, A. V., *An Introduction to the Study of Southwestern Archaeology*, pls. 13 *a, b,* 14; pp. 23, 24-27.

oval stones were filled as the walls were built. This constant "covering-up" undoubtedly had much to do with the masonry's poor character. . . .

The walls of the three kivas are quite different from those of the main building. In some respects kiva walls are even more roughly built. . . .

No dry masonry was found, and in view of the inherent need it is surprising that the practice of wedge-stoning and chinking were not more consistently applied. The masonry was mediocre in the extreme. . . .[88]

In seeking possible analogies to the masonry work of Antelope Creek Focus, it appears to me that Unshagi masonry (which is perhaps typical of early Pueblo IV in the northern Rio Grande area) provides a close comparison. This applies to the general construction of walls with unshaped stones held with liberal quantities of adobe mortar, use of smaller stones as chinks, occasional recourse to rough horizontal coursing for strengthening or tying at the corners, clay wall plaster, and a general carelessness when compared to Pueblo III masonry. It does not apply to the peculiar off-set construction of vertical slabs also used commonly in the Texas Panhandle buildings. We also note at Unshagi the use of roof entrances (besides inter-room doors), firepits often in the room center, sub-floor cache and burial pits, general lack of furniture, and perhaps other features shared with the Texas Panhandle buildings, although most of these traits are of widespread occurrence in the Puebloan Southwest. Reiter describes in detail one very large, stone-lined cist beneath an Unshagi house floor, which, because of its large body and small mouth, bears considerable interest in respect to "bell-shaped" cache pits in Upper Republican and Antelope Creek. He explains that this particular cist may have been a reservoir rather than corn bin, adding that

> The circumstances of distribution of known examples of these peculiar cysts is interesting; the Piedras, Gallina, and Jemez districts range almost directly from northwest to southeast, and if projected via former culture centers, the trend might link Mesa Verde and the Rio Grande. Whether of significance or circumstance, an accurate evaluation of this distribution must await further work in adjoining districts.[89]

Another feature of possible significance in the present study is the frequent appearance in Unshagi "Class C" rooms, as well as in Largo-Gallina rooms, of a peculiar pattern in which masonry-walled bins are found *in pairs,* in opposing corners along the same wall, and *flanking the ventilator-deflector-firepit axis.* Reiter has discussed the interesting distribution of this house pattern as follows:

> . . . C-class rooms are not unique Unshagi features, but may be typical of many Jemez sites of Pueblo IV. Similar or identical arrangements have been found by Mera and Stubbs, and by the Hibbens, in the nearby Gallina district to the northwest. They were not found, however, at Pecos or Pindi, to the east. No similar arrangement occurred among the numerous rooms of Kuaua and Puaray, near Bernalillo, nor at Paako (San Pedro Ruin) on the east slope of the Sandia Mountains. The Chama Valley to the north and the Pajarito

[88]Reiter, Paul, *The Jemez Pueblo of Unshagi, New Mexico,* pp. 43-47 (italics mine), figs. 5, 6, 9, and pls. I–IX, esp. pl. II-a. Note that pl. II-a, panel E shows the "rare change" to horizontal coursing.

[89]*Idem.*, p. 55 and fig. 7. The Piedras reference is to Roberts, Frank H. H., Jr., *Early Pueblo Ruins in the Piedra District, Southwestern Colorado.*

district, immediately east of Jemez, as well as the more distant neighboring sites mentioned, have produced bins of every description, but no regular proportion of symmetrically paired bins with deflector, vent, and firepit, duplicating the floor-plan of the Jemez Unshagi examples. The lack of this phenomenon to the north, east, and south, and its occurrence in the adjacent district to the northwest, surely holds significance of some sort. On the basis of the occurrence of two similar architectural circumstances, the "super-cysts" [large "bell-shaped" sub-floor cache pits] and C-class rooms, in both the Jemez and Gallina, and the current absence of these features in other nearby regions, we may tentatively postulate a relationship between the adjoining districts. . . .[90]

We may recall that a number of houses in Alibates, Antelope Creek, and probably other Panhandle ruins, were found to be equipped with twin storage (?) compartments (which I referred to as "anterooms") built on to the east side, flanking the long masonry tunnel. It was also mentioned that this tunnel could have been used as an entrance only by squirming and crawling through it for a distance of ten feet or more, and that it might more logically be considered a ventilator. Many more details on the Panhandle structures are needed before they will be understood, but at this point one might venture a suggestion. This is that some relation may exist between the twin-bin-flanking-ventilator principle in Jemez and Largo-Gallina houses, and the twin "anterooms" or storage compartments flanking the long ventilator (?) tunnel in Antelope Creek Focus houses. In the latter case, "anteroom" walls are quite noticeably thinner and lower than those of the rectangular room to which they are attached, as are the walls of interior bins in New Mexico pueblos. It is impossible at present to speculate upon where or when the storage compartments might have been moved to the outside of the house, but that such a step could have taken place is not, I think, unlikely.

In dating, there is evident a closer agreement between Pecos and Jemez buildings and Antelope Creek Focus than between these and the Largo-Gallina. Unshagi, we have seen, is believed to have been begun by the opening of Glaze I (circa 1375) or during a short preceding period when only black-on-white pottery was made. At any rate it was begun in early Pueblo IV times and has given tree-ring dates of 1402 to 1605.[91] On the other hand, Mera gives a date of 1106 for a Largo pithouse with twin bins, and 1253–54 for a stone-walled surface house with somewhat similar features. Another Largo house, undated, had stone walls, built upon the surface, twin bins, and two large sub-floor cists with small, square mouths. Still another, undated, had stone walls set upon the ground surface, but a floor sunk 18 inches and an ingenious ventilator passing under a wall and up to the floor so that no deflector was needed.[92] Largo and Gallina pottery included painted ware with Pueblo III San Juan characteristics, but the "Woodland-like" pointed-bottom utility ware is decidedly un-Southwestern, as are the pottery elbow pipes, crested shaft polishers, and triple-notched axes.[93] As Unshagi did

[90] *Idem.*, p. 69.
[91] *Idem.*, pp. 178-181 and appendix IV.
[92] *Idem.*; Hibben, Frank, *The Gallina Phase.*
[93] Mera, H. P., *Some Aspects of the Largo Cultural Phase, Northern New Mexico.*

not yield such pointed-bottom utility ware and other peculiar traits, and apparently dates somewhat later, it would seem that any possible connection in wall masonry, multiple-roomed pueblo construction, and the idea of twin bins flanking a ventilator, between the Texas Panhandle and Puebloan cultures, would have been somewhat closer to the Jemez buildings than to those farther northwest. As to large sub-floor cists or caches, "bell-shaped" with constricted mouths, an important problem is indicated which may eventually yield clues as to time and direction of borrowing. Only the one case has appeared at Unshagi, while others occur in the Largo, Gallina, and Piedra districts, and Morris has described further examples in the La Plata.[94] As all these cases appear to fall within Pueblo III, except for the Unshagi Pueblo IV pit, and as the Upper Republican culture far to the northeast also reveals similar cache pits at a time which may correspond with Pueblo III and early IV, some connection seems possible within a restricted time horizon. In this matter, the pits described to the writer by Mr. Studer at Alibates Ruin seem to fall within the same horizon, and furthermore tend to bridge the areal gap between the central Plains and north-central New Mexico.

We may now turn to another feature of Antelope Creek Focus which again suggests an important link in aboriginal architecture. This is the principle of roof support with four large posts, often accompanied by a centrally placed fire pit. I have no intention of proving or even suggesting that all houses with four central supports fall into a related series, for this principle is found with a great many different house types. Perhaps the earliest appearance in the United States is in the Vahki Phase, Pioneer period, of the Hohokam, southern Arizona. Here the pit houses were square with convex sides and a fire pit just inside the room from a short entrance passage near the middle of one side. This house pattern gave way to a different one in the Estrella Phase, but in the Sweetwater Phase, closing the Pioneer period, a square house was used, smaller than the Vahki but like it having four central supports and fire pit near the entrance passage.[95] Mogollon houses of the San Francisco and Three Circle Phases were built in rectangular pits with a long sloping side entrance passage, but only that of the Three Circle Phase employed four main roof supports; these were set near the corners.[96]

Colton has listed a quadrilateral house in a shallow pit, with side entrance and four central posts for the "Generalized Yuman" or Patayan Root of western Arizona, and a circular house in a deep pit, with roof entrance and four central posts in the Pueblo I Marsh Pass Focus and Pueblo II Black Mesa Focus of northern Arizona.[97] McGregor describes a square pit house with four corner posts, central firepit, sloping ventilator, and roof entrance as common in the Flagstaff area in Pueblo II times.[98] At Kiatuthlanna, eastern

[94]Morris, Earl H., *Archaeological Studies in the La Plata District, Southwestern Colorado and Northwestern New Mexico*, figs. 30-32. These pits were in site 41, Building VII, evidently occupied for some 170 to 190 years up to 1300 A. D. (p. 103).

[95]Sayles, E. B., *Houses* (in Excavations at Snaketown: Material Culture), pp. 78-84, figs. 36-37.

[96]Haury, Emil W., *The Mogollon Culture of Southwestern New Mexico.*

[97]Colton, H. S., *Prehistoric Culture Units and Their Relationships in Northern Arizona.*

[98]McGregor, John C., *Southwestern Archaeology*, pp. 257-258, figs. 112-113.

Arizona, Roberts found two types of pit houses, both of which had roofs supported on four main posts, generally, but not always, set at approximately the four cardinal points of the compass. The smaller of these pit-house types is said to have had "much in common with some of the structures belonging to the end of Basket Maker III period." Both types had roof openings serving as smoke hole and entrance, ventilators with horizontal shaft and vertical flue at the southeast side of the room, fire pit near the center, a depression in which the roof ladder rested next to the fireplace, a small hole "supposed to be analogous to the sipapu," and stone-slab deflector before the ventilator. Each pit house was a single room, but they were found in groups of four to six as though corresponding to some clan divisions, and in three cases the central structure in a group was somewhat larger, perhaps having served as a ceremonial chamber—i.e., a possible prototype to the later classic Puebloan kiva. What particularly concerns us here is that the Kiatuthlanna buildings show that such elements as ventilator, deflector, sipapu, and four central roof supports were used in single-room pit dwellings of pole and brush construction covered with earth in Basket Maker III to Pueblo I times, whereas in the great masonry villages of Pueblo III they survived only in ceremonial chambers—kivas—and not in ordinary dwellings. However, that this cannot be taken as a general trend in the Southwest is shown by the continued use of ventilators in the Jemez, Largo, and Gallina masonry surface houses, as well as four central posts in those of Gallina.

In the Governador of northwestern New Mexico, Hall has listed the "pit house with bins, bench, deflector, and four central supports" as common to the Rosa and La Plata Phases at a time corresponding to Basket Maker III-Pueblo I.[99]

Far to the south, on the Rio Grande in Presidio County, western Texas, Kelley has described a small circular pit house in which "four posts in quadrilateral arrangement [served] as basis for the superstructure." A flexed burial in a shallow grave under the floor had been covered with a "cairn of loose stone," and the house had been burned after the burial made. The house evidently belonged to the Concepcion Focus, dating into the 16th century.[100]

The four-post roof support thus appears in combination with side entrance-passage or with a ventilator in the Southwest, usually in pit houses of fairly early date (Hohokam Vahki, Mogollon Three Circle, Basket Maker III-Pueblo I, Rosa, etc.) but also with ventilator and flanking storage bins in masonry dwellings of the Gallina area in Pueblo III times.

In the central Plains, four center posts are found in connection with a covered entrance passage extended from one side of the house. In Upper Republican and Nebraska Aspects, houses were usually square to rectangular,

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[99]Hall, Edward Twitchell, Jr., *Early Stockaded Settlements in the Governador New Mexico*, pp. 64-67.

[100]Kelley, J. Charles, *Archaeological Notes on the Excavation of a Pithouse near Presidio, Texas.* Rectangular pit houses with four large posts near the corners have also been found in the Presidio area, belonging to an earlier horizon during which El Paso Polychrome and other wares were obtained from the north (publication in preparation by Kelley and Donald Lehmer).

corners slightly rounded, and built in a shallow pit, with firebasin in the center.[101] The houses of Spiro Focus in eastern Oklahoma are so nearly like those of Upper Republican and Nebraska that it would be difficult to point to any real difference, unless it is that Spiro Focus houses were generally oriented on the cardinal directions, and entranceway posts were sometimes set in trenches.[102] The same principle of a slightly depressed, square to rectangular house floor with four center posts and extended entranceway also occurs in the Mississippi horizon all the way to the Atlantic coast of Georgia.[103] In this enormous distribution, from Hohokam in southern Arizona to southern Georgia, it is evident that the four-post support principle occurs in considerably earlier horizons in the Southwest than in the Southeast.

As it was the purpose of this brief survey to attempt to orient the four-post roof support of Antelope Creek Focus houses in respect to the Southwest, Plains, and Southeast, it may be seen that the same principle was employed both to the west and east, as well as to the southwest in Presidio County, Texas, and to the northeast, in Upper Republican culture.[104] In view of the fact that the Panhandle houses contain stone walls, plastered walls and floors, roof entrances, ventilators (?), storage bins, sub-floor burials, and stone-lined shallow cists, it would appear that the four central posts were also due to some influence from the Puebloan villages of north-central New Mexico during late Pueblo III or very early Pueblo IV times. Whether this occurrence represents a link in the spread of this idea from the Southwest into the central Plains and beyond to the eastern seaboard cannot be settled here. Much depends on whether the Upper Republican houses with this feature were actually older than those in the Texas Panhandle; for the present it is only possible to say that the latter appear to partially bridge a large gap in this distribution. This matter, as well as many others, among them the spatial and temporal distribution of deep, "bell-shaped" cache pits, pointed-bottom "Woodland-like" utility pottery, and many artifact types in north-central New Mexico and south-central Colorado which are non-Southwestern, is part of a much larger problem involving the central Plains and Southwest which is just beginning to receive attention.[105] The chief value of the Texas remains lies in the provisional delimitation of this problem on the south, as only the Panhandle and extreme western Texas seem to be involved in it.

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[101]For examples see Wedel, Waldo R., *Reports on Field Work by the Archaeological Survey of the Nebraska State Historical Society*, pls. II, III, figs. 2, 3; Cooper, Paul and Earl H. Bell, *Archaeology of Certain Sites in Cedar County, Nebraska*, pl. III; Champe, John L. and Earl H. Bell, *The Sweetwater Culture Complex*, figs. 3-6.

[102]Orr, Kenneth G., *Field Report on Excavation of Indian Villages in the Vicinity of the Spiro Mound*, pl. 2; Howard, Lynn E., *Preliminary Report on Cherokee County, Oklahoma, Archaeology;* Finkelstein, J. Joe, *The Norman Site Excavations Near Wagoner, Oklahoma.*

[103]Examples in Mouse Creeks and Dallas Foci, eastern Tennessee (Lewis, T. M. N., and Madeline Kneberg); "ceremonial earth lodge with tunnel entrance" in the Macon period, Georgia (Waring, A. J. Jr., and Preston Holder, *A Prehistoric Ceremonial Complex in the Southeastern United States*); Irene Mound, Georgia (Caldwell, Joseph, Catherine McCann and Frederick S. Hulse, *Irene Mound Site, Chatham County, Georgia*, figs. 12, 14, 15.)

[104]Historic occurrences, such as the use of four posts in Mandan earth lodges, will not be considered here for the present.

[105]For a thorough discussion of the complexities of this problem in the Southwest alone, see Hall, Edward Twitchell, Jr., *Early Stockaded Settlements in the Governador New Mexico*, pp. 60-67 and trait comparisons, Appendix G.

Broad areal comparisons which ignore time elements will not be of much avail.[106]

SUMMARY OF ANTELOPE CREEK FOCUS AND PANHANDLE ASPECT

The Antelope Creek Focus has been described as a provisional complex of associated traits. Certain sherds of Pueblo painted pottery found at the type site and other ruins have provided a clue to the time of existence of the focus. This seems certainly to have been between 1300 and 1450 A.D., a span to which a few years may have to be added at either or both ends. It has been indicated that abandonment of these villages was due to warfare, or a long, killing drought, or both. Many ruins seem to have been filled with wind-blown material rather than that the buildings were originally made in deeply excavated pits. The general abandonment was possibly connected with such long periods of drought as those recorded for western Nebraska in 1439-1454 and 1459-1468.

The presence of multiple-roomed buildings of stone and adobe has suggested to most archaeologists some sort of influence from Pueblo Indian cultures to the west. A brief survey of masonry in the Southwest points to the closest comparisons being with such sites as Pecos and Unshagi in north-central New Mexico, established in early Pueblo IV times. This is to be taken as a clue, not an established relationship. Use of four large roof supports has been shown to have been of wide distribution in the Southwest, first in connection with pit houses, and later in a few cases with surface buildings of masonry, as in Gallina buildings of Pueblo III times. Ventilator shafts occur in connection with early Southwestern pit houses, and with surface masonry houses of the Largo-Gallina Phase and in Unshagi Ruin, in which cases entrance was through the roof. Both Jemez (*e.g.*, Unshagi) and Largo-Gallina houses reveal a peculiar arrangement of walled bins at the sides of the ventilator-deflector-firepit axis, and it has been suggested that Antelope Creek Focus houses with two small "anterooms" or bins flanking an extended masonry tunnel or ventilator might bear relationship to the former, with entrance also gained through the roof.

Other features of Antelope Creek Focus seem to point generally to the Southwest. Among these are circular, slab-lined storage cists, burial in such cists and under house floors, use of plaster on walls and floors, and building of odd-shaped rooms between and around the more regular rooms. The cists are strongly remindful of Basket Maker culture rather than Pueblo and may represent a survival of this trait rather out of keeping with the rest of these remains. However, the cist idea may have lasted well into Puebloan

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[106] *E.g.*, Nesbitt, Paul H., *Starkweather Ruin: A Mogollon-Pueblo Site in the Upper Gila Area of New Mexico, and Affiliative Aspects of the Mogollon Culture*, who presents a comparative trait list for Mogollon, BM-Pueblo, Hohokam, "Plains," "Texas," and "Arkansas" containing many inaccuracies in the last three columns, besides neglecting factors of time and association.

times in certain cases.[107] Burial under house floors was evidently a common Puebloan trait.

There have been hints of the presence of kivas in the Panhandle villages, but as no typical features have been identified this remains an open question. There is no evident arrangement of the buildings around a plaza or kiva. However, quasi-ceremonial use of the houses may be indicated by consistent orientation of the masonry tunnels to the east, and the occurrence in some of raised clay banks (altars?) in the rear, opposite the tunnel. It is said that houses of the northern Rio Grande area have been found to contain altars, and the same is true of the important material from Presidio in the Rio Grande Valley of western Texas; when these are published, there is no doubt that many clues to the use of altars in the northern Panhandle will be gained. In the opposite direction, Pawnee houses are known to have had a small altar in the rear, opposite the extended entrance passage,[108] which might possibly bear some relation to the bank found in Canadian valley rooms. No such features are reported from prehistoric Plains sites.

Thus several architectural features of the Canadian Valley villages point to a relationship with a restricted area in north-central New Mexico which reaches from the vicinity of Pecos Pueblo northwestward into the mountain masses across the Rio Grande. This area is almost due west of the Canadian Valley in Texas, and, as we have seen, there is a close temporal agreement in the comparable remains of these two areas: they extend from Pueblo III into Pueblo IV in New Mexico, and from the end of Pueblo III into Glaze I and II of the early Pueblo IV period in the Texas Panhandle. And, although we know of no transitional materials between the Panhandle border and the Las Vegas-Pecos area, there is certain evidence within the Panhandle itself of improvement in architecture from east to west along the Canadian, i.e., toward New Mexico.[109]

This still leaves unaccounted for a number of other features in buildings of Antelope Creek Focus. Among these are: off-set method of wall construction with vertical slabs; masonry ventilator (?) with level floor lying on or near ground level and without vertical flue; sinking of the central third of the floor across from east to west, and jutting of ventilator (?) opening into the room on a level with this sunken area; raised curbs along the inner edge of the two side banks of the floor and around the altars (?); and perhaps other features not yet clearly known. They were perhaps strongly modified Puebloan elements in some cases, in others perhaps purely local inventions. Many houses, ranging to as much as 25 by 30 feet, are distinctly larger than ordinary Puebloan dwelling rooms.

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[107]Kidder, A. V., *An Introduction to the Study of Southwestern Archaeology*, mentions isolated cases of burial under a floor (p. 29) and a stone-lined cist or bin (p. 30) at Pecos Pueblo.

[108]Wedel, Waldo R., *An Introduction to Pawnee Archaeology*, pp. 43-51 and figs. 1, 4.

[109]Studer (letter of June 6, 1945) writes as follows: "I might say that the differences in architecture between the western and eastern ruins are quite apparent to the careful observer. This difference, however, lies in the size, shape, and manner in which the wall stones are laid. Fundamental differences in the overall structures are not so great, or expressed a little differently, most of the general characteristics of all the structures are the same or similar."

Burials seem not to be found in rubbish heaps in the Panhandle sites, but rather in sub-floor graves, abandoned cists, and stone-lined pits near the buildings or nearby ridges. Every account mentions destruction of houses by fire, and it would be instructive to learn whether this may have been done purposely after an interment in the floor.

While the above points indicate relationship with contemporaneous Puebloan cultures, the Texas Panhandle villages cannot be thought of as merely a peripheral Puebloan development. The economic life, based jointly on agricultural and hunting, use of bone hoes, many artifacts of bone, antler, and chipped stone, carved elbow pipes of stone, and the making of a single pottery ware, utilitarian and cordmarked, all point to affiliation with central Plains cultures, especially Upper Republican. It should be noted, however, that Antelope Creek pottery is only generally similar to Upper Republican in consisting almost wholly of globular-bodied jars with cordage impressed over almost the entire surface; more specifically, the jars differ somewhat in shape, those of Antelope Creek being simpler, rounder and higher-rimmed than Upper Republican, lacking the typical flattened shoulder area and specialized collared rim with incised designs of the latter.

In the distribution of large underground cache pits with constricted mouths, and of houses with square or rectangular ground plan, four central support posts, and central fire basin, Antelope Creek Focus was seen to occupy an intermediate position. These features occurred more or less contemporaneously to the west in north-central New Mexico, and to the northeast in the central Plains cultures mentioned.

To attempt to classify Antelope Creek Focus as either a Plains or Puebloan culture is infeasible, for it was clearly a combination of both. A crucial point might be the identification of the physical stock. One can hardly escape the impression that the peoples of this focus were Plains agriculturalists who pushed southward from one valley to another as far as eastern New Mexico. Here contact was established with Puebloans who were expanding their territory at about the same time. In a southwestward direction, these Plains groups did not extend beyond the Canadian Valley of Texas and New Mexico, but along the well-watered eastern side of the Texas Panhandle they settled as far south as the Red River Valley near Vernon, a limit marked by the distribution of cordmarked pottery (Map 1).

"Contact" with Puebloans, however, explains little. If Puebloan architectural elements were established in the Canadian Valley of Texas, should there not be more Puebloan pottery in the ruins than the few dozen pieces found to date? We find that at Pecos Pueblo numerous artifacts having to do with hunting, skinning, sewing, etc. were adopted from Plains cultures by early Glaze times (although occurring in much greater numbers in late Glaze periods), while Antelope Creek Focus borrowed almost nothing from eastern Puebloans except architectural features. It has already been remarked that Pecos artifacts of ceremonial nature do not appear in the Panhandle. The situation rather clearly points to selective borrowing and acculturation between the two peoples.

The passage of certain Puebloans into the plains on bison hunts may account for some of the trade material, such as glaze-paint pottery, turquoise, and obsidian found in the Panhandle ruins, and the "Alibates flint" carried to Pecos. I am indebted to J. Charles Kelley for pointing out another explanation for the selective borrowing just mentioned. He suggests that a few intermarriages between the two peoples might well account for the differences in traits borrowed. For example, women were ordinarily in complete control and authority over the Puebloan house, and, had even a half-dozen of them gone to live in the Plains tribes along the Canadian, this might easily account for the initial construction of masonry buildings there. The same circumstance might also account for the lack of borrowing of Puebloan ceremonial artifacts, which would have been almost exclusively the property of men. On the other hand, the Plains elements adopted at Pecos were almost all connected with men's work—the pursuit of game, skinning, butchering, etc. I will not attempt to carry Mr. Kelley's suggestions further at this time, but am heartily in agreement with him that archaeology is occasionally able to point out some potent problems in social relations. The present instance provides an excellent example and deserves more attention. It appears to me to put meat on the bare bones of the usual "historical reconstructions" of archaeology which depend solely on the presence or absence of certain traits for their degrees of relationship.

Regarding the "Panhandle Aspect," this term is advanced to allow for expansion in future cultural terminology in the Texas and Oklahoma Panhandles and immediately surrounding areas. Thus far, only the Antelope Creek Focus has been outlined and discussed. Hints were given of stone-walled single-room houses in Wolf Creek Valley in the north-eastern Texas Panhandle and the North Canadian Valley in the Oklahoma Panhandle, which may work out into one or more separate foci in the same aspect. Another focus may develop in the southeastern Texas Panhandle, where artifacts are very similar to those of Antelope Creek Focus though masonry is lacking. Northeastern New Mexico may yield further material to be placed in the same aspect, and so on. At present the southern limits of such an aspect appear to be defined by the limits of cordmarked pottery in this region.

Puebloan Influence or Occupation in the Llano Estacado

IT HAS ALREADY been mentioned that the Texas Panhandle is divided from north to south by the "break of the plains." The eastern Panhandle, from 700 to 1200 feet lower than the western side, is grassy and brush covered, comparatively well watered. Its archaeological remains, as has been shown, parallel closely those of Antelope Creek Focus in the Canadian Valley, although masonry structures are unknown. The western Panhandle south of the Canadian, on the other hand, is part of a vast barren steppe known as Llano Estacado or Staked Plain. Its elevation increases from 3000 feet on the east to more than 4000 feet in New Mexico. The Texas-New Mexico border approximately bisects this plain, which stretches westward to the borders of the Pecos Valley. The monotony of this expanse is broken only by shallow draws and numerous lake beds, neither of which contain any water to speak of except after a rain. Yellow House Creek and Double Mountain Fork, which join at Lubbock to form the head of Brazos River, are the principal streams in the Llano Estacado within Texas, yet even these carry water but intermittently and are marked from the surrounding plain only by their shallow valleys and the deeper green of the grass along their bottoms.

Water may also be found in tiny seeps in the banks surrounding peculiar depressed areas known as "alkali lakes," their white caliche beds glistening in the sun except when they may hold water for a few days after a rain. Shallow sheet lakes also collect in depressions in the plain after heavy rains, and the water table is said to be close enough to the surface in the sand-dune areas for man to have obtained water in places.[110]

Despite a present annual preciptation of 20 to 25 inches in the Texas Llano, a general lack of permanent surface water poses the question of whether or not prehistoric man could have pursued agriculture in this region. As will be shown, the great majority of artifacts recovered indicate occupation by Puebloans, either seasonally or permanently. Collectors stress that pottery-bearing camp sites are found either in dune areas or near the small, widely scattered springs and seeps. In order to understand the possibilities of this

[110]Pearce, Wm. M., *Survey of Sand Dunes of Lamb and Bailey Counties.*

land for native agriculture, it is necessary to consider two distinct soil conditions, each of which supports a particular type of cover reflecting potential plant growth.

The greater part of the Llano Estacado is sod land, covered with what Shantz[111] terms the Grama-buffalo grass association of the Short Grass complex:

> Short grass characterizes the Great Plains lying east of the Rocky Mountains and for the most part west of the one hundredth meridian (fig. 2). The grasses are low-growing (figs. 35–39) and shallow-rooted, owing to a low precipitation, 12 inches in north central Montana to 22 inches in western Texas, which falls largely just preceding and during the growing season. In most cases it does not penetrate more than 2 feet before it is exhausted by the grass cover. A layer of carbonate accumulation in the soil at a depth of from 8 to 20 inches marks the depth of the periodically moist surface soil layer. There is no storage of available soil moisture from year to year and the subsoil is permanently dry. The growth of deep-rooted plants, therefore, is not possible. The frost-free period varies from about 100 to 200 days, but the growth season of the short grasses seldom exceeds 90 days. . . . During dry years this great expanse presents the appearance of an endless carpet, while in wet years taller plants develop on the short-grass sod and give it a more mixed appearance.
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> Dry farming has been undertaken in nearly all parts of the short-grass region, but it has proven profitable only in the less arid portions. . . .
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> *Grama-buffalo grass* (fig. 37). This type extends over western Nebraska, Kansas and Oklahoma, eastern Colorado and New Mexico, and the Panhandle of Texas (fig. 3), and is dominated by almost equal quantities of grama grass and buffalo grass. It occurs as a uniform open sod, and is the most typical short grass of the plains grassland. Although many other plants occur in this association, typical areas, except during wet years, appear as a pure open sod. . . . Within this area, especially in the north, the small grains do fairly well in medium or wet years, but fail in dry years. The sorghums and short-season corns also do fairly well. Fall wheat is grown in the northern and eastern portions.

Through dry farming, modern man has been able to produce crops of corn and cotton throughout most of the Panhandle, and obtained a year-around water supply for himself and his cattle with pumping equipment. However, it is clear that modern use of this land for crops has depended, as all through the Great Plains, on machinery to break the sod. It thus seems that prehistoric man was just as unable to farm the short-grass plains of the Texas Panhandle as he was the open sod of the Great Plains in general. It is safe to assume that, while he may have hunted bison, antelope, rabbits, and water-fowl all across the Llano, especially about the springs and playas, the Indian did not farm the short-grass country.

The sand-dune areas and other sandy spots of the Llano, however, present another story. Rain waters are able to sink deeply and are held by the sand, moisture slowly creeping back toward the surface to nourish plant life. The principal sand-dune area of the Panhandle is a broad north and south tract extending from the vicinity of Muleshoe, Texas, and Clovis, New Mexico, southward along both sides of the State line nearly to the Pecos River in

[111]Shantz, H. L., *Grassland and Desert Shrub*, pp. 16-19.

Texas.[112] The vegetation of this region is included by Shantz in the Tall Grass complex, of which two associations are found in this part of the Llano Estacado: sand sage—sand grass, and shinnery.

Sand sage—sand grass. At the western edge of the bluestem bunch-grass land and extending out into the short grass, mostly in South Dakota, Nebraska, Colorado, Kansas, and Texas, large sandhill areas occur. These are covered either with bunch-grass or with sand sage-sand grass. . . . The moisture supply here is even less than on the bluestem bunch-grass type, but the loose soil and open cover enable plants to continue growing during long periods of drought. The open vegetation cover contains in addition to grass a large number of other plants. The soil is far too light for safe cultivation, owing to the danger of blowing when denuded.

Shinnery. Similar sand areas in Texas, Oklahoma, and New Mexico are covered with bunch grass associated with shin oak *(Quercus havardii).* This oak seldom exceeds 3 feet in height and forms a dense low shrubby growth. This vegetation, locally called shinnery, represents a transition to the southern desert shrub, since on many of the sandhills it is interspersed with mesquite.

We have here the curious circumstance of a large, sandy tract in the middle of the Llano Estacado, which, despite a somewhat lower rainfall than to the east, provided a friable soil which retained moisture and could well have supported crops of Indian corn in most years under present conditions.[113] This is particularly interesting in view of the rather common occurrence of camp sites bearing Puebloan pottery types in the sandhills of this part of Texas. Such camps are not confined to the main dune areas, but are also found in some cases on rather small isolated sandhills, notably on the leeward side of the "alkali lake" depressions, among them Silver Lake, Tahoka Lake, and Rich Lake. That native agriculturalists almost wholly confined their farming to loose, sandy areas is, of course, well known to American archaeologists and ethnologists.

We will not attempt to develop this problem further at present. It will suffice to point out that it has interesting prospects for the archaeologist in this desolate treeless area, which at first glance would seem to have been useful to native man only as a seasonal hunting ground.

Moorehead long ago recognized that much more Puebloan pottery is to be found to the south and southwest of Amarillo than in the Canadian Valley ruins and quoted Holden as having found "several small buildings" near Hereford in Deaf Smith County on Tierra Blanca Creek in 1930; Holden also secured fragments of Glaze II, IV, and V pottery.[114] In a survey of Lamb and Bailey counties in the area west of Lubbock, Pearce records the following pottery types in a collection owned by C. H. Park of Lubbock: Chupadero

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[112]See map in Shantz, *op. cit.* fig. 2. Bryan, Frank, *A Review of the Geology of the Clovis Finds Reported by Howard and Cotter*, states that these dune areas follow buried Pleistocene water courses.

[113]Personal communication from Mr. Elmer H. Johnson, Head of Natural Resources and Industrial Geography, Bureau of Business Research, The University of Texas. His statement is that "Indian corn could without doubt be grown in the sand hills and sandy areas of western Texas under the present climatic conditions."

[114]Moorehead, W. K., *Archaeology of the Arkansas River Valley*, p. 125.

Black-on-White, Lincoln Black-on-Red, El Paso Polychrome, Corona Rubbed-Ribbed, Puaray Glaze-Polychrome, and Cicuye Glaze-Polychrome.[115] He adds that "It is thus safe to say that the sand hills were occupied for a time between 1300 A.D. and 1700 A.D." Moorehead had adduced the occurrence of such potteries to incursion of Puebloan bison hunters into the Llano Estacado, while Pearce offers two alternatives; (1) that the sand hills were visited by Puebloan bison hunters, or (2) that a resident population engaged in trade with Puebloans, offering flint, meat, and hides for pottery and perhaps other products. The inclusion of flint is not aptly chosen, since there is no flint native to this section. Red-banded "Alibates flint" was acquired from the north, while a brown flint was probably acquired from the east. There is, in fact, a general lack of natural stone on the Llano Estacado itself, and the campsites show that baked caliche provided a hard, artificial material used to line hearths. Cherts, quartzose rocks, ryholites, etc., seem to have been largely imported for artifacts.

Watts[116] has presented a sketch of conditions under which campsites and artifacts are found in the Llano Estacado, a map of the lake region, and a brief description of various artifacts to be found. Using Kidder's[117] criteria for distinguishing between arrow and dart points, he states that at the Rich Lake site these occur with about equal frequency. Of 69 dart points, four were channeled Folsom, 42 had shoulders with barbs, and 23 had no barbs; of these two were obsidian. Of 68 small points from the same site, 15 were stemless, 20 stemmed, and 33 triangular with straight sides. The latter group of 33 corresponds to the points we have cited as common to Antelope Creek Focus and Pecos, except that base-notches are more frequent: 20 of the 33 had side notches and 13 of these had an additional base notch. The "stemmed" points illustrated are much like those from southeast New Mexico reported by Mera.[118] Watts also lists numerous snub-nosed end scrapers, side scrapers, one "shaft scraper," "punches and drills," and knives, two of which were beveled and made of "Alibates flint." A polished stone pendant, a peculiar rounded piece of limestone with seven parallel lines incised on one face, metate fragments, and "three general types" of manos are listed: (1) unshaped quartzite river stones, most common, (2) round, thin, often slightly convex along one axis, and (3) more rectangular, flat on one face and "convex along one axis on the opposite face." Hammerstones, miscellaneous sandstone artifacts, spherical sandstone balls, paint rock, and occasional bone awls complete the list except for pottery.

Two rim sherds from Rich Lake, after Stallings' identification, are listed as "Brownware" and "exuberant black, Corrugated Puebloan, ware." Watts states that pottery is abundant in "the sand hills and in the surface lakes."

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[115]Pearce, *op. cit.*, p. 185.

[116]Watts, W. C., *Lake Sites of the South Plains of Texas.*

[117]Kidder, A. V., *Arrow-Heads or Dart Points*, p. 156.

[118]These points are distinguished by a very stubby blade and wide stem, the stem being almost as large as the blade. Compare Watts, W. C., *Lake Sites of the South Plains of Texas*, pl. 19-B, some specimens in rows 6 and 8, with Mera, H. P., *Reconnaissance and Excavation in Southeastern New Mexico*, pl. 3, esp. A-bottom row, B-bottom two rows.

Within ten miles of Lubbock, he has found the following sherds, identified by Stallings: Buffalo Springs, one Glaze I red "of aberrant paste"; Boles ranch site 1, Rio Grande Glaze F(?), Boles ranch site 2, an "areal phase" or mixture of Soccoro and Mesa Verde Black-on-White, Chupadero Black-on-White, and Three Rivers Red-on-Terracotta (there is some confusion in the text about which site these were found on); and from a surface lake five miles north of Lubbock, 13 sherds from four vessels included El Paso Brown, Rio Grande Glaze II, and Chupadero Black-on-White. From these and the types previously cited it is apparent that most pottery in this section belongs to the El Paso-Chupadero series and early Glazes, probably datable at about 1300 to 1500 A.D., though later Glazes are not lacking.

In the files of The University of Texas is a collection of 150 artifacts from a row of grass-covered dunes about one-fourth mile east of Silver Lake, a small temporary lake on the Cochran-Hockley County line. In July, 1945, the writer was able to examine this site through the courtesy of Glen L. Evans,[119] who had previously collected surface specimens here during the course of geological work. We found that artifacts and many thousands of pieces of baked caliche probably used as hearth stones were scattered over a distance of about one-half mile along the dune crests, but did not extend very far downhill toward the lakebed. It may be supposed that camps were made well away from the lakebed in order not to disturb what game and waterfowl were attracted to the water. Our combined surface collections include 10 small sherds of Chupadero Black-on-White, 30 pieces of very gritty plain brown to reddish-brown pottery ("plain brown ware"), and two sherds of El Paso Polychrome.[120] There are three or four small triangular arrow points of "Alibates flint" with side and base notches; several snub-nosed scrapers, side scrapers, awls or drills, and crude choppers of brownish flint; many crude, oval and highpeaked "turtleback" scrapers of chert and quartzose rocks; six of the arrow points with stubby blades and wide stems previously referred to; three or four other stemmed points; and fragments of grinding implements. The latter include manos of two forms: one flat and quite circular, the other rounded-rectangular with one face flat and the other with a shallow gable running its length. The six or seven metate fragments appear to represent very thin slabs with well rounded edges and slightly concave faces. Some, if not all, mano and metate fragments show use with back-and-forth motion in the Puebloan manner. Both manos and metates are of sandstones and conglomerates pecked to varying degrees of roughness; these materials are not found in the vicinity.

Farther north, at a camp site 15 miles west of Plainview, F. M. and Charlie Parks of Plainview have recovered some 30 potsherds, all of which belong

[119]Assistant Geologist, Bureau of Economic Geology, The University of Texas, and Assistant Curator, Texas Memorial Museum, Austin. Dr. Clarence H. Webb and Clarence Webb, Jr., Shreveport, La., were also present and assisted in collecting specimens.

[120]The whole group of sherds was sent to H. P. Mera, who generously identified them (letter of Oct. 1, 1945). Mera, H. P., *Reconnaissance and Excavation in Southeastern New Mexico*, p. 60, gives the occurrence of "plain brown ware," Chupadero, and El Paso Polychrome for four caves in the Guadalupe Mts. west of Carlsbad, New Mexico, as 15, 6, and 1, respectively. This may be compared with 30, 10, and 2, respectively, from the Silver Lake site.

to the type El Paso Polychrome. This is the farthest north that this type has been reported in Texas, but is still about 100 miles from the Canadian.

These notes will serve to show that further investigation of the Llano Estacado can be expected to result in a better understanding of the limits of Puebloan culture spread and its impacts. The few collections on record suggest that the Texas side of the Llano Estacado presents an archaeological problem but little different from that on the New Mexico side.[121]

All pottery so far on record from the Texas Llano is of Puebloan origin and was probably carried eastward rather than made there; the grinding implements with back-and-forth motion, projectile point styles, and perhaps other features also suggest that the country was actually inhabited by Puebloans, even if only seasonally. The involved ceramic problems of southeastern New Mexico, ably discussed by Mera, apply also to adjacent Texas.

> In the north [of the southeastern quarter of New Mexico] nearly all intrusives can be definitely associated with the gradual encroachment of the Pueblo-like pattern of culture noted above. It was rather surprising to find that sherds of true Pueblo Black-on-white pottery types, indicative of this extension to the south, were noticeably scarce in all but northern marginal areas. Evidently none of these were able to adversely affect the popularity of Chupadero Black-on-white. This situation seems to have prevailed prior to the introduction of the first member of the Rio Grande glaze-paint sequence, Aqua Fria Glaze-on-red, a type which appears to have become a highly desirable article of trade over much of the brown ware domain, both in the north and south. It was sometime during the life of this type (1350–1450), for reasons not yet clear, that eastern brown-ware territory was almost entirely abandoned by sedentary peoples except for a small area in the northwest corner, where the villages in that section had finally become hardly distinguishable from the typical Pueblo settlement.[122]

In another work Mera has shown that cultural development took two different courses in the brown-ware area.

> From about the beginning of the fifteenth century the course of events for the extreme northern portion of the brown-ware area must be considered as entirely distinct from anything that occurred in the southern part. It was at this time that the whole central section gives evidence of having been deserted by all sedentary village-dwellers, thus breaking any direct contact between the peoples of the two outlying sections. Such an abandonment appears to be proven by the entire absence of any of the later glaze-paint types or other trade wares of equal time found at any ruin in that part of the country. *Thereafter the two peripheral regions clearly follow different lines of development.* [Italics mine.]
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> . . . The reason for such a complete evacuation of a formerly well-populated area remains a mystery. Whether it was owing to a resentment against the growing imposition of an alien culture, to encroachments by nomadic invaders from the outside, or to some other cause, is a question which is left for later determination.

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[121]Mera, H. P., *An Outline of Ceramic Developments in Southern and Southeastern New Mexico*, map in fly leaf. The dotted border line running east from Tucumcari may as well be extended east of Plainview and Lubbock, Texas, thence southward and westward as on my present map (Map 1).

[122]*Idem.*, p. 15.

The third and last epoch is marked in the north by the almost complete acceptance of the Pueblo pattern of culture, the only visible remains of the former cultural complex being a corrugated utility ware having a typical brown-ware composition, together with a somewhat aberrant type of Pueblo ground plan.

No definite evidence can be presented concerning the conditions which may have existed in the southern section during this period. . . .[123]

Certain evidence on the Texas side indicates that effects of the dual development in the northern and southern sections of southeastern New Mexico were felt across the Llano Estacado, well into Texas. Nearly all the pottery from the dune areas, lake beds, and springs in the Llano itself belongs to types involved in the southern development: El Paso Brown and El Paso Polychrome, Chupadero Black-on-White, Lincoln Black-on-Red, etc. Glaze-paints are present, those of periods I and II being more common that later ones. However, it will be well not to speculate on the nature and degree of this participation until someone makes a thorough survey of the Llano Estacado as a whole, in New Mexico and Texas, to determine the frequency with which various datable types occur and whether any general abandonment took place at the same time as that in New Mexico. At present it seems possible that the wholesale evacuation traced by Mera might have resulted in a gradual retreat of the evacuees into the grassy vastnesses of the Llano Estacado, thus accounting for the Puebloan aspect of nearly all the materials found there (except for Folsom and related artifacts). An impression is that after Glaze II the Texas Llano was not inhabited to a degree comparable with that of the fourteenth and fifteenth centuries.

Regarding Mera's northern development, it may be recalled that the masonry villages of the northern Panhandle have yielded a number of Puebloan sherds including glaze-paints up to Glaze II, but not later, and that such southern types as El Paso and Chupadero never reached that far north. Some architectural features are also remindful of the northern Rio Grande area.

There appears to be a rather good agreement between the eastern limit of Puebloan occupation or strong influence and the geographical feature known as the "break of the plains" which marks the eastern boundary of the Llano Estacado (Map 1). Eastward, as one drops from the arid steppe into the eroded Permian and Cretaceous basins of north Texas, there appears to be an abrupt decrease in the amount of Puebloan pottery. At least, one no longer has the feeling of actual occupation by Puebloans, although trade pieces and certain attenuated influences continue to appear decreasingly for several hundred miles. As will be discussed in subsequent sections, a few Puebloan sherds have been found almost to the borders of Louisiana, and grinding implements used with back-and-forth motion are found as far east as Fort Worth. Rio Grande glaze-paint sherds and Chupadero Black-on-White have been recovered in the neighborhood of Abilene,[124] as have trade

[123]Mera, H. P., *An Approach to the Identity of the Jumano Pueblos in the Saline-Medano District Through Archaeological Evidence*, pp. 294, 296.

[124]Ray, Cyrus N., Editorial, Bulletin of Texas Archaeological and Paleontological Society, Vol. 8, pp. 190–191; Smith, V. J., *The Pottery Horizons of Texas*, pp. 102, 110.

sherds from the Frankston Focus, a "Mississippian" culture centered in the Neches Valley of northeast Texas.[125]

From that part of Texas lying east and southeast of the New Mexico corner, there are some 25 small surface collections in The University of Texas files. These come from camp sites about playa lakes and springs east of the Pecos River in Winkler, Ward, Crane, Ector, and Andrews counties. Such types as El Paso Brown and Polychrome, Chupadero Black-on-White, and occasionally Lincoln Black-on-Red and Three Rivers Red-on-Terracotta occur in nearly all these collections, suggesting an eastward spread of Puebloan culture or seasonal occupation synchronous with that in the Llano Estacado.

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[125]Donations to The University of Texas by Carl Chelf and A. T. Jackson; collections of Dr. C. N. Ray, Abilene; report by Jack H. Mims on sherds found near Sterling City in Sterling County.

Puebloan Materials in Trans-Pecos Texas

As TRANS-PECOS TEXAS is outside the problems of this paper, only a passing remark will be made on it.

A small collection donated to The University of Texas by the Gottholt brothers of Marfa, gathered by them near the Pecos in northern Pecos County, contains 15 sherds of El Paso Polychrome, one Chupadero, and two probably belonging to a northern Chihuahua polychrome.

Numerous cave and spring sites in Culberson, Hudspeth, and El Paso counties also yield Puebloan pottery. Jackson[126] has written a partial report on three cave excavations in northern Culberson County, listing the following potteries: Chupadero Black-on-White, (Three Rivers) Red-on-Terracotta, El Paso Polychrome, and El Paso Brown, totalling 44 sherds from Caldwell Cave 1 at depths ranging to 88 inches; 84 sherds (types not given) from Caldwell Cave 2, ranging in depth to 34 inches in a deposit 36 inches deep; 39 sherds from a "midden circle," including the aforenamed types and certain pieces said to resemble Gila River types in eastern Arizona; four sherds (types not given) from top four inches of deposit in Brooks Cave. In examining the sherds not identified in Jackson's report, I find that these are all Chupadero, El Paso, and Three Rivers Red-on-Terracotta. The total amount of pottery is rather large and indicates that the cave dwellers made considerable use of it; but whether they can be said to be peripheral Puebloan or not is problematical. Other Puebloan artifacts were not found, as they are in caves farther west, near El Paso.[127]

Pottery and ceremonial objects are of such common occurrence in caves and open sites within a radius of 50 miles from El Paso that this area has been considered a subdivision of the Puebloan Southwest. Mimbres and northern Chihuahua pottery types are commonly found together with the

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[126]Jackson, A. T., *Exploration of Certain Sites in Culberson County, Texas.*

[127]Roberts, F. H. H., Jr., *Recent Archaeological Developments in the Vicinity of El Paso, Texas.*

[128]E.g., Alves, Eileen E., *Shelter Caves of the El Paso District and Pottery of the El Paso Region;* Crimmins, M. L., *An Archaeological Survey of the El Paso District;* Roberts, F. H. H., Jr., *Recent Archaeological Developments in the Vicinity of El Paso, Texas;* Stallings, W. S., Jr., *Notes on the Pueblo Culture in South-central New Mexico and in the Vicinity of El Paso, Texas.*

usual Chupadero and El Paso types.[128] McGregor has called this the "El Paso district," its remains covering a time range of about 1100 to 1450 A.D.:

> The ceramics are definitely Pueblo derived, but there appears to have been a local cultural base. The culture is essentially of a Pueblo II to a Pueblo IV stage when it died out and the area was abandoned.[129]

Sayles[130] has outlined an El Paso Phase and Jumano Phase in the Rio Grande region of extreme western Texas. Strong Puebloan influences were felt as far to the south as the confluence of Conchos River with the Rio Grande in the vicinity of Presidio.[131] The dates appear to agree in general with those given by McGregor.

In summary, there is evidence that in the Rio Grande Valley and its margins, Puebloan elements, including architecture, were established in Pueblo III times, continuing into IV. In the parts of Texas flanking the southern border of New Mexico, the plains opposite the southeast corner of New Mexico, and the Llano Estacado, pottery types center around the Chupadero-El Paso series, at the same time lacking Mimbres and Chihuahua types. This indicates that the spread of Puebloan materials deep into Texas from southeastern New Mexico took place in early Pueblo IV times (after about 1300). On the other hand, there appears to have been little activity of this sort after approximately 1450 or 1500, by which time an eastern frontier had been reached which was never extended further. However, tenuous trade relations had also been established by this time with peoples far to the east, in northern and northeastern Texas, and were maintained into historic times despite lack of further spread of Puebloan culture or occupation. There are many indications that this halt was due to a large-scale influx of alien tribes, probably various bison-hunting Apache and Lipan, who may have finally destroyed the remnants of agriculturalists who occupied the barren wastes on both sides of the Texas-New Mexico border.

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[129]McGregor, John C., *Southwestern Archaeology*, pp. 358-359.

[130]Sayles, E. B., *An Archaeological Survey of Texas*, pp. 72-79, table 7.

[131]Kelley, J. Charles, T. N. Campbell, and Donald J. Lehmer, *The Association of Archaeological Materials with Geological Deposits in the Big Bend Region of Texas*, see esp. La Junta Focus, Bravo Valley Aspect.

PART II

NORTH-CENTRAL TEXAS

Henrietta Focus: Harrell Site

LEAVING THE BARREN Llano Estacado, certain archaeological remains in an area farther east, in north-central Texas, will now be considered. This area probably contains the central key for understanding precise chronological relations between Puebloan and Southeastern cultures. Most of its elements are clearly of Plains affiliation, but some reveal influences from both west and east. Henrietta Focus is here presented as one important association of traits in that part of Texas reaching from the middle Red River valley to the upper Brazos and Trinity basins. Doubtlessly the complex, or many of its features, will be found to extend well into Oklahoma north of the Red, but on this we have no data at present.* Following the discussion of Henrietta Focus, evidences of other complexes in the same general area will be mentioned.

The type site lies at the southern edge of the territory covered by the focus. It is located on the M. D. Harrell farm at the junction of Clear Fork with the Brazos River (or Salt Fork as it is locally termed), about one mile north of the village of South Bend, Young County (see map 1). This is a particularly strategic location, the two streams draining a great portion of northern and northwestern Texas. Clear Fork has its source in the plains west of Abilene, while the Salt Fork or Brazos proper, through its chief tributary, the Double Mountain Fork, may be said to rise as far west as the vicinity of Clovis, New Mexico, in the heart of the Llano Estacado. However, Double Mountain Fork forms only a very shallow, nearly dry valley, meandering across the Llano Estacado. Even where the Salt Fork is joined by Clear Fork, the former normally holds considerably less water than the latter despite its far greater length.

The Harrell site was one of several discovered in 1937 by A. T. Jackson, then Field Archaeologist for the Anthropology Department, The University of Texas, during a reconnaissance of the 'Possum Kingdom Dam basin. This survey was part of a nation-wide program of salvaging archaeological material

*At the annual meeting of the Society for American Archaeology, held in the Hotel Lincoln, Indianapolis, May 17, 1946, Mr. Lynn E. Howard presented an outline of the Grant Focus in south-central Oklahoma. This closely resembles Henrietta Focus in many ways, and also reveals certain connections with the central Kansas Paint Creek culture which have not yet appeared in Henrietta Focus. The Grant Focus thus provides an important link between the north Texas and Kansas cultures, and other such complexes may be expected to appear in the Oklahoma prairies.

in danger of being inundated by construction of dams. It was the first of several sites to be excavated in the 'Possum Kingdom Dam basin, the work being supervised by Mr. George R. Fox, assistant archaeologist on the WPA-University of Texas State-wide Archaeological Survey. The excavation continued on this site from October 12, 1938 to April 24, 1939.

Mr. Jack T. Hughes, graduate student in anthropology at The University of Texas, prepared a rather full report on the Harrell site excavations and material recovered as a dissertation for the Master's Degree in 1942. Copies of this work are on file in the Anthropology Department and the Library of The University of Texas. The writer has checked Mr. Hughes' analysis against the original notes of Mr. Fox and the collections. It was found necessary to reorganize the artifacts to some extent, in as much as Mr. Hughes' groupings were visual rather than coördinated with distributional data. The results of both analyses are given under Artifacts.

ENVIRONMENT

The Harrell site lies in the heart of the Osage Plains, a belt of Pennsylvanian and Permian outcrops bounded by Grand Prairie on the east, the Edwards Plateau on the south, High Plain (Llano Estacado) on the west, and extending across Red River into Oklahoma on the north. The strata near the site have a regional dip of about 50 feet per mile to the northwest. The Pennsylvanian formations here have been carved into low hills by entrenched meanders of the Brazos and tributaries. At the junction with Clear Fork the Brazos flows at an elevation of 1,005 feet, about 150 feet lower than the surrounding eroded plain. A limestone caprock gives the plain a broad, flat top sloping gently to the northwest, whereas the eroded southeast slopes are generally steep, with talus slopes of limestone, sandstone, and gravel below. Along the streams are fairly broad benches suitable for agriculture.

The country is open and semi-arid, with rainfall of 30 to 35 inches evenly distributed through the year. Late spring and summer rain falls in heavy thundershowers, which at times become torrential—a fact which must be borne in mind in any attempt to understand the possible age of buried artifacts in this area. Rains of three to six inches sometimes fall in as many hours, raising the normally small watercourses to the status of raging rivers which overflow their banks to deposit silt and gravel high above their channels. Vegetation consists primarily of mesquite, oak, and pecan trees, with great stretches of short grass and *Opuntia* cactus. Bison formerly inhabited these plains in considerable numbers, while deer, wild turkeys, geese, ducks, armadillos, and various small mammals are still present. Mussels, fish, and turtles are common in the streams.

Where they join, Clear Fork carries more water than the Brazos, which contains little water most of the year, the winds whipping up clouds of sand from its broad, dry bed. The maximum recorded flood along the Brazos at this point is 27 feet. Plate 1*a* shows the Brazos in a normal flood. The valley shows three distinct terraces, all of which may be seen opposite the mouth

of Clear Fork. The first is but five feet above normal water level, the second 25 feet above it, and the third about 40 feet above it. The second terrace is occasionally covered by high water but there is no record of the river having reached as high as the third terrace surface. The first terrace is absent on the east side of Clear Fork and south side of the Brazos—*i.e.,* along the two banks flanking the Harrell site—the two rivers being now engaged in cutting into these banks and thus rapidly destroying the site from both directions. It was this cutting, in fact, which revealed hearth rocks well down in the bank on the Brazos side.

EXCAVATIONS

Three separate excavations were made by the crew under Mr. Fox along the south side of the Brazos. No. 1 was made 200 feet east of the Clear Fork bank, where a large hearth area had been exposed by erosion some eight feet below the third terrace surface (pl. 1 *d-f*). No. 2 was made farther downstream in the same bank, where limestone slabs were exposed in the side of a short gully cut back into the third terrace (pl. 1 *g*). No. 3 was made over a considerable area lying mainly on the level top of the terrace, but extending over its edge and down the slope toward the Brazos as shown in Figure 2.

We are here concerned with Excavation 3. An area 135 by 85 feet was staked off into five-foot squares, the longer distance being north and south and at right angles to the Brazos at this point. With the crew working from west to east, most of this area (that outlined in fig. 3) was uniformly dug to a depth of five feet. In addition, the whole western half of the area, lines A to BB, incl., and squares 1 to 8, incl., were dug down an additional five feet, as were squares 9 to 11 from line A to Q. Thus, allowing for the slight offsets in places, a total of 443 squares or 11,075 square feet was excavated to five feet, and 272 squares or 6,800 square feet was taken to a depth of ten feet. In terms of volume, this means that the earth removed was divided as follows between the upper and lower excavations:

	Cubic feet	Percent
Excavated to depth of five feet	55,375	63.1
Excavated from five to ten feet	34,000	36.9
	89,375	100.0

As it is not clearly stated in the field report just which squares were taken to these depths, the above proportions may not be exact; the calculation was made from a catalog study of the squares in which depths greater than five feet were recorded for the artifacts. As a general guide to the amount of earth moved from the five-foot and ten-foot trenches, it may be assumed to be approximately correct. The point is of some importance, since artifacts were found all the way to the ten-foot depth, but below five feet they became much less frequent. This will be more evident after the discussion of stratigraphy and artifacts.

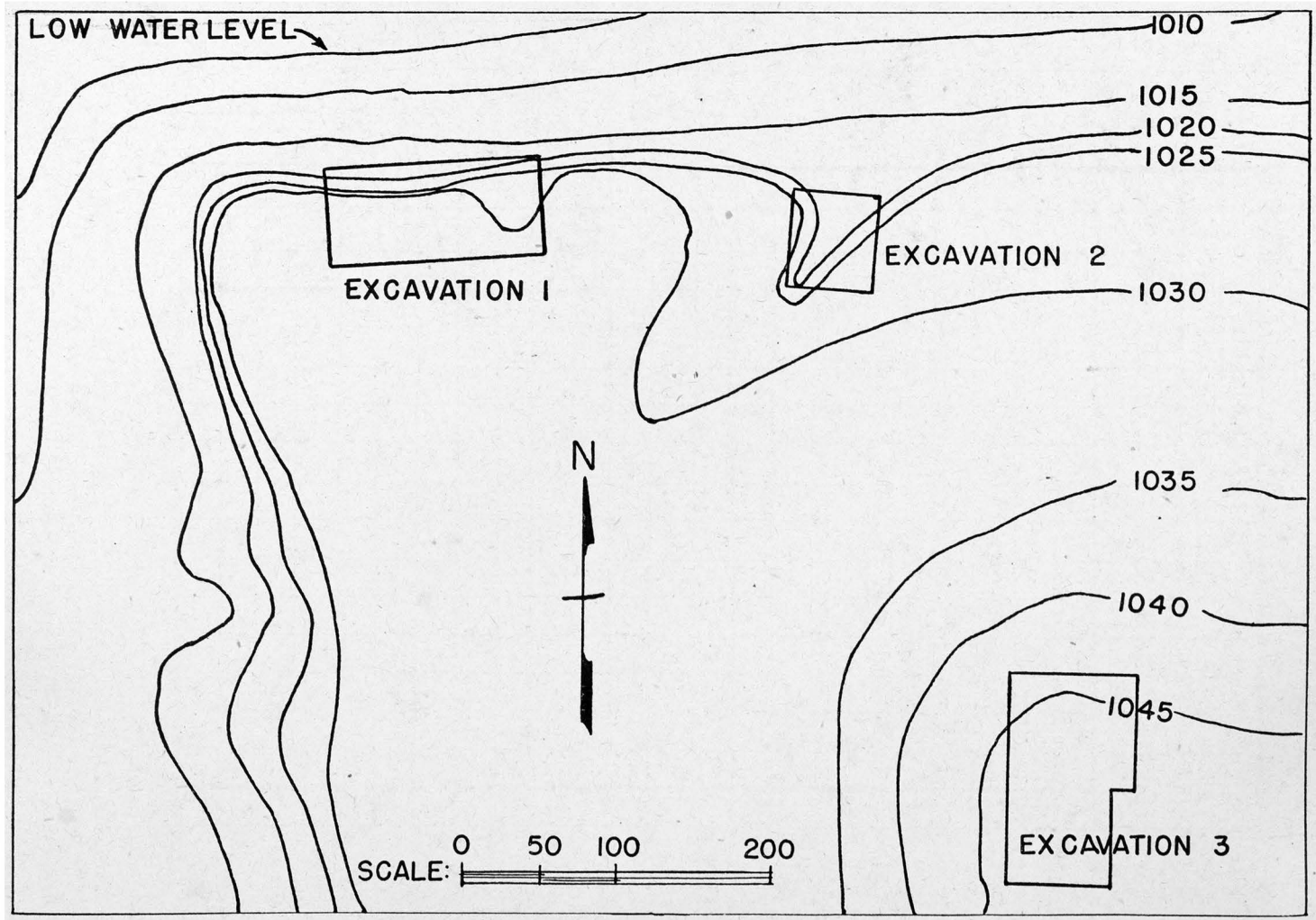


FIG. 2. Contour map of M. D. Harrell site, Young County, Texas. Interval 5 feet. Brazos River bank at top, Clear Fork bank at left. Excavations 1 and 2 were in edge of second terrace, Excavation 3 in top of third terrace 40 ft. above low water level. Excavation 3 forms the type site for Henrietta Focus and is treated in detail in this report. See also figs. 3, 4. Work conducted by W.P.A.-The University of Texas Archaeological Survey, 1938–39.

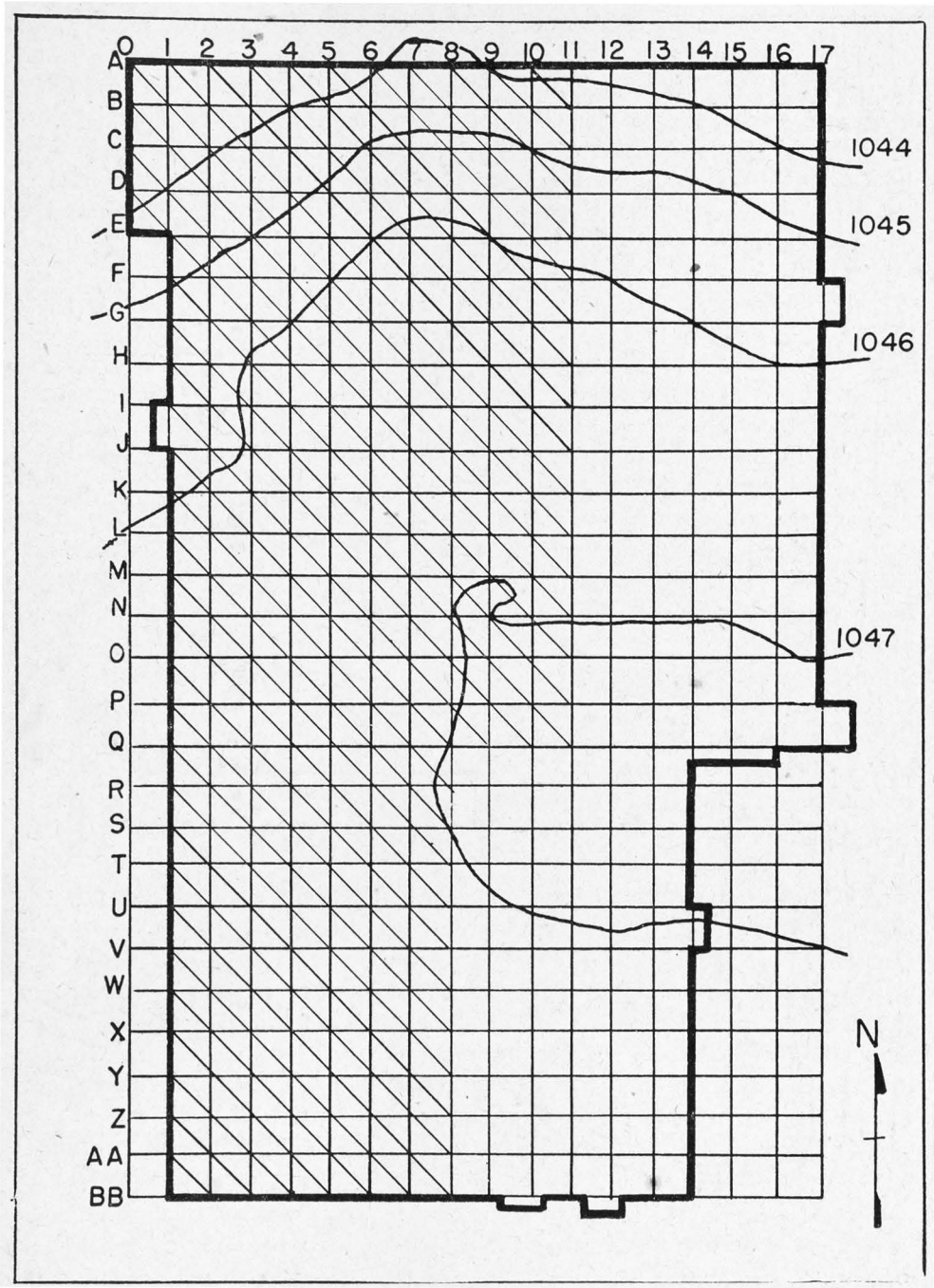


FIG. 3. Grid of Excavation 3, M. D. Harrell site, Young County, Texas. Squares 5 by 5 ft. Heavy line marks limits of area excavated. Diagonal lines indicate squares probably carried to depth of 5 ft. below surface, others to depth of 10 ft. (field record not clear). For stratigraphy in trench profiles see fig. 4.

The entire terrace top about the site has been cultivated for many years. The Harrell farm buildings are on the site itself, accounting for the irregularities in the area excavated, and the main excavation was in fact in an area used as a garden by the Harrell family. The crew noticed a general dearth of artifacts on the surface, whereas they became quite frequent below six inches under the surface. It is not clear whether this was due to modern inhabitants having collected extensively on the site, or whether a sterile layer of dust had collected on it after abandonment.

STRATIGRAPHY

Profiles were drawn along lines, 1, 4, 5, 6, 9, 11, 12, 13, 14, 15, 16, and 17. In all of these, the terrace proved to be divided into two definite strata throughout. The underlying material was a hard reddish sandy clay containing scattered lumps of calcium carbonate. The upper surface of this was fairly regular in places, very irregular and seemingly full of pits in others (see fig. 4). The upper stratum was a dark, loose soil full of midden refuse such as ashes, charcoal, broken bone and shell, etc. The midden layer varied in thickness from two and a half to nearly six feet, its surface being fairly level on the terrace top, its bottom conforming to the irregularities of the underlying red clay. Mr. Fox, in the field notes, states that "along certain profiles are seen rounding depressions extending into the [red] soil below. It is probable that most of these were refuse pits." However, none had any definite shape and there was no greater accumulation of refuse in these places than in the surrounding dark soil of the upper level. "It would appear that refuse was cast into [any] convenient depression." At any rate, the former surface, as represented by the top of the red clay zone, was far more irregular than the present terrace surface.

Due to the unevenness of the contact between the two strata it is very difficult to plot the artifacts accurately. Unfortunately, there is nowhere in the report a statement on whether depths were recorded from the surface or from the central datum. As some would not fall in the deposit on the sloping side toward the river, if recorded from datum, it is probable that depths were taken from surface, but even so one cannot determine whether these were measured from the highest corner or the average surface of each square. In any event, position in respect to one or the other stratum is only occasionally mentioned. The plottings by Hughes and myself, discussed under Artifacts, attempt to get around this situation as reasonably as possible.

From where the site began to slope downward to the river (in most cases along lines H and I), a deposit described as "light-red, blown sand" was found to overlie the midden stratum. This ranged from six to fifteen inches in thickness, was sterile, and evidently confined to the riverward slope except for one pocket between lines Y and BB in squares 11 and 12. Such reddish sand is blown up from the wide, sandy bed of the Brazos at the present day, and it would seem that no great time would be necessary for a mantle of this to collect on the slope.

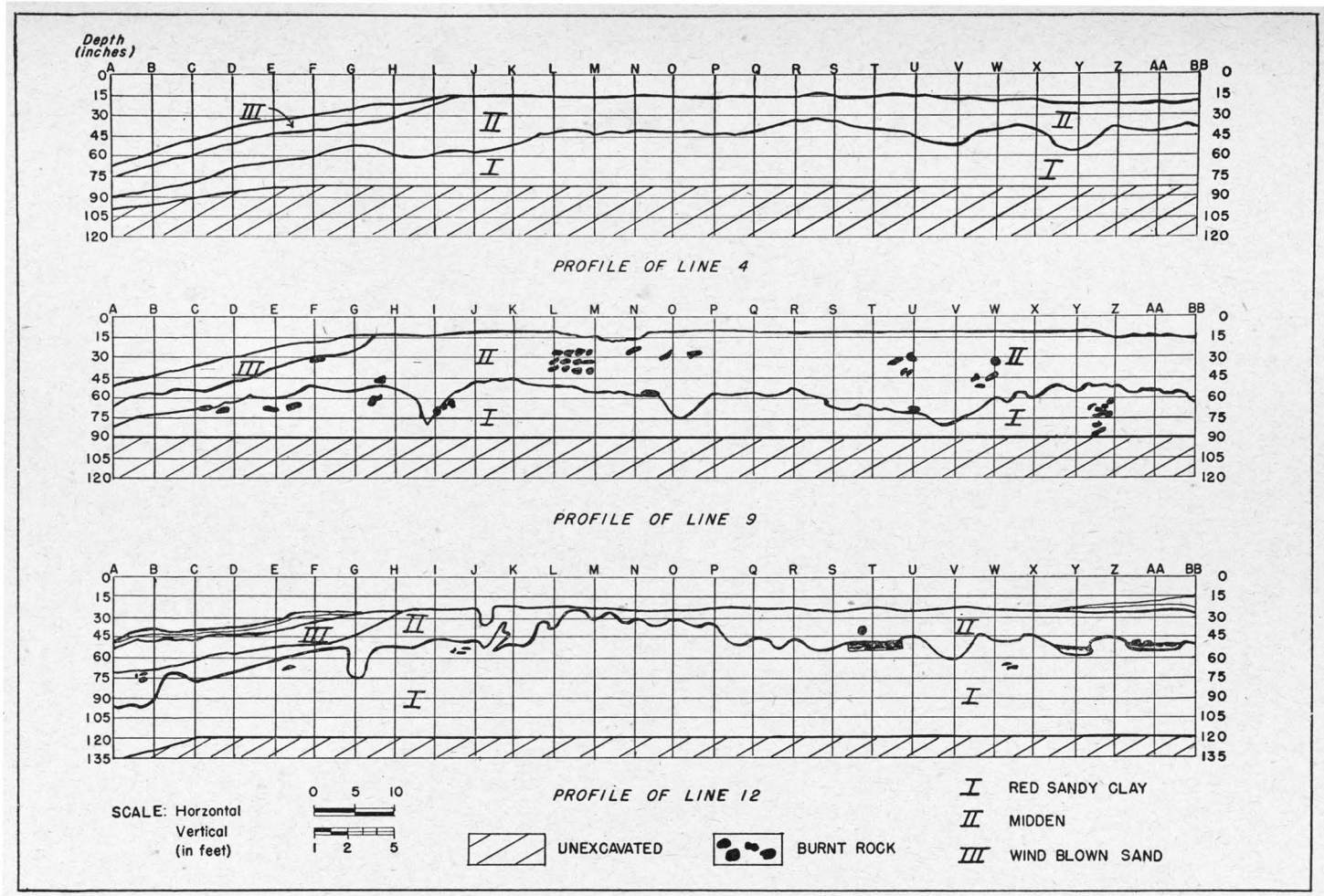


FIG. 4. Stratigraphic profiles, Excavation 3, M. D. Harrell site, Young County, Texas. See grid, fig. 3, for position of lines 4, 9, 12. Note uneven surface of stratum I, a compact, indurated, sandy reddish clay; unevenness probably due to digging of numerous pits for stone-lined hearths (profile of line 12, right, and pl. 2). Note scattered burnt-limestone hearth rocks. Artifacts were found in great numbers in midden, stratum II, but only sparingly in the red clay, stratum I. Stratum III, sterile wind-blown sand, overlay stratum II on slope to Brazos on north side. This stratification held throughout Excavation 3, with considerable differences in thickness of strata I and II from line to line.

HEARTHS

The material uncovered by the excavation is characterized, as much as anything, by the presence of a large number of rock masses or hearths. A total of 135 were found, scattered rather evenly throughout the upper stratum. In examining the field reports, Mr. Hughes concluded that all definite hearths discovered were connected with the upper stratum, in some cases placed in depressions in the red-clay layer. Loose fragments of burned rock were found in the red clay zone. There were three "rather distinct forms": (1) 12 were concave or dish-shaped rather than flat; (2) 14 consisted of slabs set at steep angles or nearly upright in circular pits, the bottom paved with flat stones; and (3) "Several others were irregular, steeply sloping piles of stones which may have lain in the sides of pits."

The different forms of rock hearths are shown in plate 2 *a-g*. Most consisted of a single layer of burned limestone fragments in an irregular area about three or four feet across. Thirty to forty was the usual number of pieces, usually not over six inches across. Some, however, contained several layers of rock; some ranged to as much as five by eleven feet in size; the number of stones ranged from three large slabs to as many as 1,000 small fragments. The material used in hearths was exclusively limestone, whereas the grinding implements from this site were almost wholly of sandstone. Both materials could be found in outcrops in the bluffs within a mile of the site.

There is ample evidence that the rock masses were used in connection with roasting or baking. Ash, charcoal, burned animal bones and shells, as well as artifacts, were found between the rocks, whether these lay in flat areas or in roughly circular, steep-walled pits. In plate 1 *d* may be seen three basin-shaped pits in front of the kneeling figure. These were found in Excavation 1 but the form well illustrates many of the lined pits found in Excavation 3 as well. One may notice that the ground around the three pits is literally covered with small, burned limestone pieces. A question frequently asked is how there come to be such numbers of rock fragments in connection with the hearths. The answer probably lies in the nature of the material used. Throughout vast areas of the Edwards Plateau and north-central Texas, the chief natural stone is Cretaceous limestone. When in contact with fire, it will stand but a limited amount of heat, whereupon the slabs crack into pieces of fairly uniform size. However, as there was plenty available within a short distance of nearly every camp site on a stream or near a spring, the cracked fragments were thrown out and new slabs used copiously. In time, great quantities of burned limestone accumulated on the favored sites that were free from overflow and burial under alluvial deposits. In other locations, periodical floods interrupted the accumulation of rock by burying it from time to time, so that hearths became interbedded with stream deposits.[1] Where fairly large slabs are found in place (pl. 2 *e-g*), we may presume that the

[1]The nature and conditions of growth of these "Burnt-Rock Mounds" are discussed in Kelley, J. C. and T. N. Campbell, *What are the Burnt Rock Mounds of Texas?* The writer believes that "mound" should not be used to designate these features, since there was no attempt whatever to build them up intentionally. They should be called "burnt-rock middens."

hearths had not been used long enough to crack the stones, while in others (pl. 2 *b-d*) we see thousands of fragments scattered around a basin in which new slabs had been placed repeatedly. The extensive use of limestone in this manner was a distinctive and extremely common trait throughout all known periods of prehistory in the Edwards Plateau country of central Texas.[2]

At the Harrell site, rock hearths were an integral part of the complex to be described as Henrietta Focus. This, with the presence of a number of flint dart points also distinctive of "Edwards Plateau Culture," *points to a continuum of older central Texas traits into what is otherwise a radically different and later culture in the upper Brazos Valley.* This linkage with an older horizon is of considerable importance in understanding the probable age of a great deal of north Texas archaeological material. As we shall see, the Henrietta Focus can hardly be dated at earlier than 1400 A.D. with present information, yet material believed in some circles to be tens of thousands of years old continues into this horizon.

BURIALS

The remains of 32 individuals were found in graves, all of which lay in the upper stratum of Excavation 3. The grave pits had been dug from various levels ranging from the present grass roots to about 30 inches below the surface. There is no doubt that they form a single series characterizing the method of disposal associated with remains of the upper levels.

The skeletal remains were in nearly all cases very poorly preserved. Hughes states that "It is difficult to say how much of this is due to ordinary decomposition and how much to burial in a fragmentary condition." Two graves contained nothing but skull fragments; one had several teeth and a few small bone fragments; three contained only the remains of femurs. Fox's notes state that in five cases there was no sign of the skull; and in four the skull was inverted. In five burials the jaw was quite absent even though the skull was well enough preserved for one to expect the jaw to be present; in five other cases the jaw was not in place but had been put in the grave separately. The small bones were nearly always absent, probably having disintegrated.

No extended burials were found. Four were flexed (pl. 3 *e*) and two probably so. Fourteen were loosely flexed (knees bent but not brought close to trunk) and one was probably so (pl. 3 *c*). One is said to have been in a sitting position with the trunk originally upright and the legs extended; subsequently the weight of earth pushed the trunk forward and downward on to the legs (pl. 3 *d*). One was definitely secondary, the bones and skull having been buried in a small tight bundle (pl. 3 *g*). The remaining nine were too incomplete for determination. Of the 21 flexed and probably flexed burials, 10 lay on the right side, three probably so, seven on the left and one probably

[2]This statement holds for all known human remains in the Edwards Plateau. No associations with extinct mammals have been recognized in this region, although a number of such discoveries are on record for other parts of Texas (see Sellards, E. H., *Early Man in America: Index to Localities, and Selected Bibliography*, pp. 402–404). Where associations of artifacts and extinct mammals do occur, the rock-hearth principle seems not to be found.

so. The hands were usually before the face; in one case they were under the skull. Eleven burials were oriented with head west, five southwest, three northwest, two east, one northeast, the others indeterminate. Preponderance to the west was due to some of the multiple burials having been placed in that direction.

There were three, possibly four, instances of multiple interment in a single grave. One contained three adults (one male, one female, one of unknown sex), two of which lacked the mandible. They had been placed close together, spoon-fashion, on the right side and there were four arrow points in such position that they appeared to have been the cause of death. This group was partly covered with three large limestone slabs. A second such burial included five individuals (two adult females, two adults possibly female, one infant). Three adults lay on left side, one on the right, and the infant possibly on left side; all were loosely flexed (pl. 3 *c*). There were five arrow points which may have caused their deaths. This grave was covered with 15 limestone slabs, two grinding slabs, and smaller rocks (pl. 3 *a*). The upper stones lay flat but the lower ones were tilted and may once have stood on edge around the grave pit. A third multiple burial contained remains of six persons: two incomplete semi-flexed skeletons, another of which only a skull piece and a few other bits remained, and three more represented only by pairs of femurs. The semi-flexed skeletons (an adult male and child) lay facing one another, fragments of the third lay near their skulls, and the paired femurs above them. Two mussel shells and some flint flakes were found in the fill. A fourth grave contained an incomplete semi-flexed skeleton and skull fragments of another person near its skull; however, in this case it is uncertain whether the two persons were buried simultaneously or one grave intruded into another. Aside from the last-mentioned case, it is certain that 14 persons were interred in the three definitely multiple burials.

A total of 16 graves contained one individual apiece. One of these, No. 25, was lightly flexed in a crude box-like cist of ten limestone slabs forming three sides, a floor and cover (pl. 3 *e-f*). Another flexed burial was partly covered by two large slabs lying 18 inches below the present surface; a flint core and abrading stone were in the fill. The "sitting" burial with legs outstretched and trunk bent forward had four large slabs set on edge at the sides and two very large covering slabs (pl. 3 *b-d*), but none on the bottom. Against the skull was a sharpened bone splinter possibly used as a hairpin. The other 13 single burials were without stone lining, though some may have had stones placed on top of the fill. Thus, of 20 graves containing the remains of 32 persons, four were stone-lined, and of these three were single, one multiple with parts of six persons. One of the three single burials was in a rather definitely box-like cist of slabs placed upright around three sides and across the bottom and top; a second had large slabs upright around it, and cover stones, but was only roughly box-like. The third single and the multiple burial had slabs about them that might have been placed around the walls of more or less circular pits.

Artifacts in graves were exceedingly few and, except for arrow points, probably nothing more than accidental inclusions in the grave fill (flint core, one end scraper, one abrading stone or hone, mussels) or objects simply left on the corpse as used in life (bone hairpin?, bone bead). Only two graves contained arrow points. These were both multiple interments and all nine arrow points found in them suggested the cause of death; moreover, these nine points belong to a distinctive type, *Scallorn Stemmed,*[3] of which but 24 examples were recovered from the site. Though such evidence is slim indeed, it would not be amiss to suggest that single interments were the usual method of disposal, while in case of several deaths perhaps resulting from a battle, multiple burials were made. It may further be suggested that the type *Scallorn Stemmed* belonged to these peoples' enemies. The usual position was flexed or semi-flexed, no particular direction of orientation was favored, and probably no durable offerings were placed with the dead. The lack of mandibles with five skeletons has been mentioned, as has the occurrence of five other mandibles at odd positions in the grave. In one case the body appears to have been fleshed or exposed before the bones were buried in a small bundle. Fox remarked that "Nearly all burials were found in two rather well defined groups." Both groups were in the brow of the terrace at about the center of the site. Eighteen were found in squares J-K-L in rows 1 to 4; nine were in squares M-N-O in rows 5 and 6; the remaining five were scattered over the site. It thus appears that there was some attempt to bury the dead in more or less definite spots, perhaps at two different times in the occupation of the midden level, yet there was no apparent difference in the two groups. There were no burials in the lower or red-clay stratum.

HOUSES

Nothing was found that suggested dwellings. One deep hole was at first thought to be a post hole, but it was later decided that this was a rodent burrow.

ARTIFACTS

First will be presented a tabulation made by Jack Hughes which, while not stratigraphic, will give a general idea of the gross vertical distribution of artifacts in that part of the site lying under the fairly level terrace top. While the original field report meticulously records the depth of each artifact, there is nowhere a statement on how these were taken—from immediate surface, from surface at center or highest corner of each square, or from the datum. For this reason, Hughes plotted only those found in trenches dug from the level terrace top, between lines H and BB. Those from line H northward, i.e., on the sloping side toward the river, he lumped together in column "X."

It can readily be seen in Hughes' tabulation (table 1) that a very abrupt change in the frequency of artifacts occurred below level five. Below level

[3]This type has been named by J. Charles Kelley in his forthcoming work on central Texas archaeology and will be discussed and described by him. See fig. 7 t-u.

TABLE I

VERTICAL DISTRIBUTION OF HEARTHS, BURIALS, AND ARTIFACTS
M. D. Harrell Site, Young County, Texas
(from compilation by Jack T. Hughes)

	One-foot Levels											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*X*	*Total*
Hearths	24	46	21	13	7	....	....	....	....	....	24	135
Burials(*)	....	....	5	13	13	1	....	....	....	....	....	32
Flint Artifacts:												
Arrow points	140	173	99	52	31	9	3	1	....	....	47	555
Dart points	9	14	11	18	9	4	1	....	....	....	12	81
Knives, leaf-shaped, symmetrical	20	23	26	33	9	5	2	....	....	....	22	140
Knives, leaf-shaped, curved	4	9	9	3	1	1	1	....	....	....	2	30
Knives, beveled	2	1	1	2	....	....	....	....	....	....	2	8
Knives, crude (rejects?)	22	16	19	15	11	5	3	1	....	....	23	115
Scrapers, end, snub-nosed	26	50	23	9	11	2	....	1	....	....	17	139
Scrapers, side, spall	[illegible]	236	133	81	42	21	12	7	....	1	103	822
Scrapers, oval	1	1	1	....	....	1	....	....	....	....	1	5
Cores (rejects?)	6	5	5	7	5	1	1	....	....	....	8	38
Awls or drills	6	13	7	3	3	....	1	....	....	....	10	43
Gravers	11	15	15	4	2	1	1	....	....	....	5	54
Gouges (concave bit)	1	1	1	1	....	1	....	....	....	....	....	5
Serrated flakes	....	....	....	....	....	....	1	....	....	....	1	2
	434	557	350	228	124	51	26	10	....	1	256	2,037

*The burials were tabulated at their actual depths. The burial pits were, of course, dug from higher levels.

TABLE I, cont.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*X*	*Total*
Other Stone Artifacts:												
Sandstone abraders	1	3	2	3	....	....	....	....	....	....	5	14
Manos	32	41	34	16	4	....	1	....	1	....	29	158
"Metates"	2	22	26	18	2	1	2	....	....	....	8	81
Elbow pipes and frags	1	1	1	3	1	....	....	....	1	....	....	8
Hematite and ochre	4	10	1	2	2	1	....	2	....	....	1	23
	40	77	64	42	9	2	3	2	2	0	43	284
Bone and Antler:												
Hoe blades	2	7	2	1	....	....	....	....	....	....	3	15
Flaking tools (ulnae, antler)	3	2	3	1	2	....	....	....	....	....	7	18
Awls	....	12	6	2	1	....	....	2	....	....	1	24
Spatulates, rib	2	....	....	....	....	....	....	....	....	....	....	2
Fish hook, of bird bone	....	1	....	....	....	....	....	....	....	....	....	1
Notched bone "rasps"	1	4	3	2	....	....	....	....	....	....	1	11
Tubes and beads	1	6	....	3	1	1	....	....	....	....	....	12
	9	32	14	9	4	1	0	2	0	0	12	83
Shell:												
Perforated mussels (all)	9	7	7	6	2	2	1	3	....	....	13	50
Various cut, battered, worn, ground mussels	7	12	6	2	6	1	....	....	....	....	8	42
Disk beads, crinoid beads	1	4	1	....	....	....	....	....	....	....	....	6
	17	23	14	8	8	3	1	3	0	0	21	98
Pottery: all sherds	159	180	60	39	20	2	2	1	....	....	106	569
Miscellaneous:	....	1	1	1	....	....	....	....	....	....	1	4
Total Artifacts:	659	870	503	327	165	59	32	18	2	1	439	3,075

six very few artifacts were found although some occurred all the way to the ten-foot depth. A word of explanation must be made, however. The stratigraphic line which divided the whole site was far from level. In only a few places did it dip below the five-foot level, and probably nowhere was it more than six feet down in that part of the site between lines H and BB. Therefore, it can be taken as certain that those artifacts recorded by Hughes in levels seven to ten lay within the red-clay stratum, while the majority of those in level six did also, but one cannot be sure just which ones.

Neither can it be assumed that all specimens from levels one to five lay in the upper stratum of dark midden soil. The stratigraphic line rose to within 30 inches of the surface in some places (to within 24 inches in one hump), but on the whole it lay between 40 and 60 inches below surface. Therefore, some of the artifacts in levels four and five were probably in red-clay stratum, and probably even a few of those in level three.

Hughes tabulated a total of 3,075 artifacts, of which 439 came from the riverward slope and were not plotted by depth. Of the remainder, 2,524 came from trenches five feet deep and 112 from trenches dug another five feet deep. Between lines H and BB there were approximately 310 five-by-five units taken five feet deep, and 187 of these were extended on to depth of ten feet. Thus, 2,524 artifacts came from the upper tier of 310 units, each five by five by five feet, an average of 8.14 artifacts per unit. The lower tier, consisting of 187 units dug an additional five feet, contained 112 artifacts or 0.60 per unit. The deeper trenches thus yielded only about one-fourteenth as many specimens as the upper ones. However, most of the artifact groups occurred in both major levels, indicating that *in spite of the abrupt change in frequency of occurrence, there was seemingly no marked change in the material traits represented.* Or, to put it differently: artifacts accumulated very scatteringly in the lower five feet, whereas in the upper zone they accumulated in great numbers. Whether this was due to larger population, more intense occupation, or to changes in the physical conditions controlling accumulation of refuse is problematical and will be considered again in a moment.

In Table 2, I have made another tabulation of the Harrell site artifacts in which the principal aim is to simplify the picture and relate the distribution of artifacts to the two stratigraphic layers. In this case, all specimens were considered, from the terrace and slope, and plotted against the original trench profiles. Those that would certainly have fallen in the midden or dark-soil zone, regardless of whether their depth was taken from surface *or* datum, are included in the column for "Level I." Those that would certainly have fallen below the stratigraphic line—into the compact red-clay zone—no matter from where their depth was taken, are included in the column for "Level II." The third column includes those specimens which it seemed would fall in "Level II" although this was not certain. The fourth column includes specimens for which stratigraphic position was not attempted; for example, some fell along lines 2, 3, 7, 8, or 10, for which there were no profiles and the recorded depth indicated the specimen might have been in either stratum.

TABLE 2

OCCURRENCE OF ARTIFACTS BY STRATUM
M. D. Harrell Site, Young County, Texas

	Level I	Level II	Possibly in Level II	Indeterminate	Total	Illustration No.
AGRICULTURAL IMPLEMENTS						
1. Hoe blades (fragments) of bison scapula	12	....	....	2	14	pl. 7 *b, c, e, g*
2. Hoe blade cut from bison skull	1	....	....	....	1	pl. 7 *d*
3. Hoe blade cut from deer antler	1	....	....	....	1	pl. 7 *a*
4. "Hand hoes," large mussel shells, battered	23	2	4	4	33	.....
	37	2	4	6	49	
FOOD PREPARATION						
A. Grinding						
1. Flat-slab metates used with back-and-forth motion (one complete, others fragments)	24	4	5	11	44	pl. 11 *c, d*
2. Slabs with shallow oval basin, rotary motion (five complete, others fragments)	20	....	2	5	27	pl. 11 *a, b*
3. Manos, subrectangular, shaped all over (whole)	45	1	3	2	51	pl. 12 *a-d*
4. Manos, as above (fragments)	41	1	5	11	58	.....
5. Manos, large, thick, oval (whole)	9	....	....	....	9	pl. 12 *e*
6. Manos, unshaped pebbles (whole)	15	1	4	3	23	pl. 12 *f*
7. Manos, as above (fragments)	14	....	3	2	19	.....
8. Manos, edged (small and probably unshaped)	2	....	....	....	2	.....
	170	7	22	34	233	
B. Crushing						
1. Hammerstones, flint (used for crushing bones, meat, roots, nuts, etc.?)	124	11	20	10	165	.....
2. "Bone crushers" or crude fist axes, flint	7	2	1	....	10	.....
	131	13	21	10	175	
C. Cooking						
1. Pottery, shell-tempered *Nocona Plain*, misc. body sherds	63	1	7	8	79	.....
2. *Nocona Plain*, rims, noded, striated, etc	24	1	2	16	43	pl. 4 *a-l*, 5 *e-i*
3. *Nocona Plain*, sherds of 14 individual vessels	376	16	24	41	457	.....
4. Potsherds, of thick, molded ware, scored and textile (?) impressed (not *Nocona Plain*)	11	1	1	3	16	pl. 6 *e-h*
	474	19	34	68	595	

TABLE 2, continued

CUTTING, SCRAPING, SKIN PREPARATION, ETC. (flint)						
1. Diamond-shaped knives with four beveled edges	10	....	1	1	12	fig. 7 *c, d*
2. Knives with two beveled edges at one end	5	....	....	....	5	fig. 7 *b*
3. Knives, leaf-shaped, base straight to convex	24	3	4	4	35	fig. 7 *a, e, i, k*
4. Knives, asymmetrical or curved	16	4	3	2	25	fig. 7 *h, j*
5. Snub-nosed scrapers, crude, not shaped except for bit (probably conform to Ray's scrapers A and B)	46	6	2	1	55	pl. 10 *g-j*
6. Snub-nosed scrapers, well-shaped, chipped all over upper side (probably conform to Ray's scraper C)	43	2	3	5	53	pl. 10 *a-c*
7. Snub-nosed scrapers, stemmed	3	....	....	....	3	pl. 10 *d-f*
8. Spokeshaves (some also have graver point)	30	5	3	2	40	.....
9. Gravers	24	3	2	....	29	pl. 10 *l-m*
10. Gouges, thick, with concave bit	3	1	3	....	7	pl. 10 *k*
11. Crude "picks," possibly used as gouges also	10	2	2	....	14	.....
	214	26	23	15	278	
12. Knives, unclassifiable fragments					289	.....
13. "Rejects" (unfinished knives, scrapers, gouges, etc.)					149	.....
14. Chips with finely retouched edges ("spall scrapers")					927	.....
SEWING, PUNCHING, ETC.						
1. "Awls" or "drills" of flint, base unshaped	27	1	1	7	36	fig. 5 *ee*
2. Same, base more or less squared	5	4	1	....	10	fig. 5 *ff*
3. Same, base T-shaped	4	....	....	....	4	fig. 5 *gg*
4. Same, shaft fragments, base unknown	5	....	....	1	6	.....
5. Bone awls, deer metapodial, head wholly to partly worked down	12	2	2	1	17	pl. 8 *h, j-l*
6. Awls, of bone splinters with sharpened tips	2	....	1	1	4	pl. 8 *i*
7. Awls, of fish vertebral spines	4	....	....	....	4	pl. 8 *g*
8. Hones (awl sharpeners) of sandstone	6	....	....	3	9	pl. 9 *f*
	65	7	5	13	90	
CHIPPING OR FLAKING IMPLEMENTS						
1. Flaking tools (?) of deer ulnae	4	1	....	2	7	pl. 8 *n*
2. Flaking tools (?) cut from thick edge of bison rib	2	....	1	....	3	.....
3. Flaking tools (?) of antler-tine tips, rounded	2	1	1	2	6	.....
4. Cylindrical antler-section "tapping tools"	2	....	....	....	2	pl. 7 *h*
	10	2	2	4	18	

TABLE 2, continued

WEAPONS						
A. Projectile points—arrow (?)						
1. Triangular, well shaped, chipped on both faces, with two side notches, base straight to concave	35	....	3	2	40	fig. 5 *a-d*
2. Like above, with two side notches, base notch	29	3	2	3	37	fig. 5 *e-h*
3. Like above, but unnotched	101	5	7	2	115	fig. 5 *i-l*
4. Triangular to leaf-shaped, poorly made, chipped mainly on one face (possibly small knives)	107	1	10	11	129	fig. 5 *x-aa*
5. Similar to above, but having small pointed stem (type *Cliffton Contracting Stem*) Kelley	51	4	6	5	66	fig. 5 *p-s*
6. Widely flaring barbs, concave blade edges, stem bulb-shaped to parallel (type *Alba Barbed*)	44	4	4	4	56	fig. 5 *m-o*
7. Long, narrow, barbed, serrated (type *Scallorn Stemmed*) Kelley	22	....	....	2	24	fig. 5 *t-u*
8. Long sweeping barbs, pointed stem (type *Perdiz Pointed Stem*) Kelley	5	....	....	....	5	fig. 5 *v*
9. Points combining side notches and stem (frags.)	3	....	....	....	3	.....
10. Small bi-pointed arrow points or drills	7	....	....	....	7	fig. 5 *bb-dd*
	404	17	32	29	482	
11. Unclassifiable fragments					152	
B. Projectile points—atlatl dart (?)						
1. *Sabana Stemmed* (Kelley)	11	2	4	4	21	fig. 6 *g, h*
2. *Nolan Beveled Stem* (Kelley)	6	1	3	3	13	fig. 6 *l*
3. *Bynum Beveled Blade* (Kelley)	6	4	1	....	11	fig. 6 *a*
4. Broad blade, corner-notched, stem straight to expanding	12	5	4	1	22	fig. 6 *b, c*
5. *Pedernales Indented Base* (Kelley)	2	2	1	1	6	fig. 6 *d*
6. Narrow, stemmed, with slight shoulders	3	2	4	1	10	fig. 6 *k, n*
7. Triangular dart points or knives	11	....	4	....	15	fig. 6 *e, f*
8. *Gary Contracting Stem*	....	....	3	....	3	fig. 6 *p*
9. Miscellaneous stemmed points, large	4	2	....	1	7	fig. 6 *i, j, o, q*
	55	18	24	11	108	
C. Shaft smoothers, sandstone, with longitudinal groove	2	....	....	....	2	pl. 9 *g*
	2	....	....	....	2	

TABLE 2, continued

ORNAMENTS						
1. Beads, bird-bone, lengths ¼ to 1½ inch	5	....	3	....	8	pl. 8 *m*
2. Bead, pottery, flattened-spherical shape	....	....	....	1	1	pl. 5 *k*
3. Bead, *Olivella* sp., with spire removed	1	....	....	....	1	pl. 9 *m*
4. Beads, disk, cut from thick mussel shell	2	....	....	....	2	pl. 9 *l*
5. Beads, disk, from small sections of fossil crinoid stems	3	....	....	....	3	pl. 9 *l* (right)
6. Beads, small round mussels, hole at hinge	12	10	6	7	35	pl. 9 *k*
7. Beads or pendants (?) of large mussels with large hole at hinge (so-called "hoes")	8	....	2	....	10	pl. 9 *p*
8. Inlays (?) cut from thickest part of mussel	3	1	....	....	4	pl. 9 *n*
	34	11	11	8	64	
CEREMONIAL OBJECTS						
1. Elbow pipes of sandstone, arms approx. equal, each bulging in middle, and flange at one or both ends (* from depth 108″)	4	1*	1	2	8	pl. 9 *a, b*
2. Bird-bone tubes or beads, undecorated	1	1	....	....	2	pl. 8 *m* (upper)
3. Bird-bone tubes with incised designs	2	....	....	....	2	pl. 8 *a, b*
4. "Rasps" of bison rib, notched along inner edge	7	....	1	2	10	pl. 8 *c, e*
5. "Rasps" of deer leg bone, notched along ridge	2	....	....	....	2	pl. 8 *d*
	16	2	2	4	24	
MISCELLANEOUS ARTIFACTS						
A. Stone						
1. Thin "tablets" of sandstone with beveled edges (fragments only)	6	1	1	....	8	pl. 12 *i*
2. Flint pebble with end chipped (gouge?)	....	....	1	....	1	.....
3. Small cylinder of siltstone, carefully shaped, ends slightly convex (gaming piece?)	1	....	....	....	1	pl. 12 *h*
4. Sandstone ball (concretion chipped into sphere)	1	....	....	....	1	pl. 9 *j*
5. Hematite celts, polished	2	....	....	....	2	pl. 9 *c, e*
6. Hematite block, scraped and polished	1	....	....	....	1	pl. 9 *d*
7. Hematite blade, chipped	1	....	....	....	1	pl. 12 *g*
8. Small chipped meteorite	1	....	....	....	1	.....
9. Small bi-pointed artifact of obsidian	1	....	....	....	1	pl. 9 *h*
10. Serrated flint flakes ("saws")	1	1	....	....	2	fig. 7 *f, g*
11. Large humped, plano-convex flint scraper	1	....	....	....	1	.....
12. Yuma-like point or knife, basal edges smoothed	1	....	....	....	1	fig. 6 *m*
13. Large oval scraper, red-banded "Alibates flint"	1	....	....	....	1	pl. 10 *n*

TABLE 2, continued

B. Shell						
1. Mussel shells with serrated edge	2	....	....	....	2	pl. 9 *o*
2. Mussel shell filled with asphaltum	....	....	....	1	1	.....
C. Bone and antler						
1. Fish-hook, cut from bird bone	....	....	....	1	1	pl. 8 *f*
2. Spatulate objects, cut from bison rib	2	....	....	....	2	pl. 8 *o, p*
3. Fragment of polished bone with rounded end	1	....	....	....	1	.....
4. Piece of antler whittled to a sharp point	1	....	....	....	1	pl. 7 *f*
D. Pottery						
1. Small disk, unperforated, cut from sherd	1	....	....	....	1	pl. 9 *i*
2. Figurine (?) fragments	1	....	....	1	2	pl. 5 *j*
3. Trade sherd, southeast New Mexico "brown ware"	....	1	....	....	1	pl. 6 *b*
4. Trade sherd, probably *Poynor Engraved* of the Frankston Focus, east Texas (surface of Level I)	1	....	....	....	1	.....
	27	3	2	3	35	
TOTAL, PLOTTED	1,639	127	182	205	2,153	
NOT PLOTTED (Misc. flint fragments, chips, etc.)					1,517	
GRAND TOTAL					3,670	

Following the column of totals will be found references to plate numbers in the present work. It has been necessary to reduce description to a minimum, but it is believed that examination of the plates will give a fair view of the artifacts and their variations in size and shape. In Table 2, the subject matter has been divided into categories representing probable uses for the objects in lieu of the usual division into stone, bone, etc. Anyone interested in the occurrences by class of material can easily extract the figures.

In Table 2 the number of specimens considered totals 3,670 against Hughes' 3,075, a difference no doubt due to the number of fragmentary flint specimens included in the two studies. In the stratigraphic plotting, however, I have used only 2,153, the remaining 1,517 consisting entirely of flint knife and projectile-point fragments, rejects, and a great number of flint spalls with retouched edges. Of 2,153 plotted specimens, 1,639 fell positively into Level I, and 127 into Level II, a ratio of 13:1. However, an additional 182 seemed very probably to belong to Level II, which, added to the 127 certain, would give 309 in Level II against 1,639 in Level I, a ratio of 5.31:1. If the 205 specimens of indeterminate position and the 1,517 not plotted were also incorporated, the ratio might change appreciably again. Artifacts above the stratigraphic line were surely many times more frequent than below it.

A study of the table will show at once that nearly every artifact group represented by more than five specimens in Level I also occurs in Level II. The only exceptions, with number found, are: hoe blades of bone and antler (16), large, thick oval manos (9), diamond-shaped four-bevel knives (12, of which one possibly came from Level II), sandstone hones (9), arrow points of type *Scallorn Stemmed* (24), small bi-pointed arrow points or awls (7), and notched-bone "rasps" (12, of which one possibly came from Level II). A larger number of groups, represented by five specimens or less, were absent in Level II, but considering the ratios mentioned above it could hardly be expected, on the basis of chance, that they would occur in the lower stratum. However, it may be well to mention these: edged manos (2), two-bevel knives (5), stemmed snub-nosed scrapers (3), small, finely made flint awls or drills with T-shaped base (4), fish-bone awls (4), arrow points of type *Perdiz Pointed Stem* (5), arrow points with stems and side notches (3), sandstone shaft smoothers with single longitudinal groove (2), pottery bead (1), *Olivella* bead (1), disk beads cut from mussels (2), beads made from sections of fossil crinoids (3), incised bone tubes (2), small siltstone cylinder (1), hematite celts (2), hematite blade (1), polished block of hematite (1), chipped meteorite (1), obsidian artifact (1), large humped end-scraper (1), Yuma-like dart point or knife with basal edges smoothed (1), serrated mussel shells (2), bone fish-hook (1), bison-rib spatulate objects (2), blunt-nosed awl? (1), "tapping tools" of antler sections (2), whittled antler (1), pottery disk (1), and clay figurine (?) fragments (2).

Among those groups which appear in both Levels I and II, there are some notable differences in their relative frequency in these levels. Combining the artifacts entered as "Possibly in Level II" with those definitely in Level II,

and omitting those of indeterminate position, the proportions work out as shown in Table 3.

TABLE 3

RELATIVE FREQUENCY WITH WHICH SOME ARTIFACT GROUPS OCCURRED IN LEVELS I AND II

M. D. Harrell Site, Young County, Texas

	Level I	(Percent)	Level II	(Percent)	Total
Shell "hoes"	23	79.3	6	20.7	29
Grinding Implements (manos and slabs)	161	84.7	29	15.3	190
Crushing Implements (flint crushers, etc.)	131	79.4	34	20.6	165
Cooking (pottery)	474	89.9	53	10.1	527
Cutting, scraping, gouging (all flint)	197	80.4	48	19.6	245
Sewing, punching (flint and bone)	51	80.9	12	19.1	63
Chipping, flaking (bone, antler)	8	66.7	4	33.3	12
Weapons: arrow (?) point groups 1-6	367	88.2	49	11.8	416
Weapons: dart (?) point groups 1-9	55	56.7	42	43.3	97
Ornaments: bird-bone beads (group 1)	5	62.5	3	37.5	8
Ornaments: perforated mussels (groups 5-6)	20	52.6	18	47.4	38
Ceremonial objects: stone pipes (group 1)	4	66.7	2	33.3	6

Dismissing the smallest groups in this list: chipping or flaking tools, bird-bone beads, and stone pipes as being numerically inadequate for valid proportions in the two strata, the remainder reveal two distinct tendencies. Most of the groups show that approximately 79 to 90 percent occurred in Level I, whereas two of them—perforated mussel-shell beads (?) and dart points (all styles)—approached an even division between the two levels. This is certainly significant as regards these two classes of artifacts. The above table of percentages would hold true for the site as a whole only if the upper and lower strata were represented by the same amount of earth removed from the whole excavated area taken to a depth of five feet, and from those squares extended from five to ten feet in depth. The deeper excavations were found to equal 36.9 percent of the total as the approximate percentage of the deposit included in Level II, if the stratification line conformed to the five-foot depth. However, if I read the record of the profiles correctly, Level II must have occupied considerably more than the total of 34,000 cubic feet removed from the five-foot to the ten-foot depth. In other words, of the 89,385 cubic feet removed, about half belonged to each of the two levels, or roughly 45,000 cubic feet to each. Assuming this to be true, the percentages given in the table above must be close to the true proportions of occurrence in the two levels and need not be adjusted to conform with the bulk of earth removed.

We may now consider the main features of the Harrell site artifacts.

Agricultural Implments. The only implements certainly used in connection with tilling are 15 bone hoe fragments and one antler hoe blade. One hoe blade was cut from bison skull near the horn base (pl. 7 *d*), while the other 14 were made from bison scapulae; however, many of these pieces are small and burned and may have broken from not more than three or four original

blades. The method of haftment is not known certainly, for only one scapula includes the proximal end; this is split and somewhat disintegrated, but there appears to have been a socket cut into it (pl. 7 *b*) in the same manner as the Sanders site hoe blades (see pl. 23 *a-a"*). Another implement evidently a hoe blade was made by slicing the base of a large deer antler longitudinally and beveling its edge (pl. 7 *a*). In addition, there are 33 extremely large, thick mussel shells which show various degrees of abrasion and battering along the outer edge or on other edges made by cutting across the shell in various directions. None of these are perforated, but since they might have served as "hand hoes" they are included here. Unlike the bone hoe blades, they were found in both levels.

Grinding Implements. Of extreme interest is the presence of two distinct techniques, both of which appear to have been in common use at the same time. The first consists of a back-and-forth motion on an almost perfectly flat slab of sandstone, the surface being used over-all, even to rounding over the edges. These slabs range from 3/4 inch to 2 1/2 inches in thickness. Some of the 43 fragments show that the slabs were chipped into a rectangular shape, while others may have been selected for their thinness and roughly rectangular shape but were not further trimmed. Surfaces had been pecked to various degrees of roughness. The specimens illustrated in plate 11 *c-d* were found in neighboring sites, but serve to show the form of most Harrell metates in this group. The field notes give no suggestion that any metates were in bins formed by slabs, or were proped up in any way.

The other grinding technique is represented by sandstone slabs in which shallow oval basins were worn through rotary motion of the mano. Many of these slabs had been chipped into rather neat rectangular shapes, just as had the flat metates on which back-and-forth motion was used. The shaping of milling slabs with oval basins is not of usual occurrence in Texas. In this group, grinding was confined to the oval basin, the sill being unaffected (pl. 11 *a, b*). Both sides of the slab were often used, the two faces pecked to different degrees of roughness. These slabs are generally thin, and the basins seldom deeper than 1/2 to 3/4 inch. In one case a block 2 1/2 inches thick has a basin 1 1/2 inches deep.

The majority of the manos (109 out of 162) show considerable care in shaping. They are more or less rectangular, the lateral edges slightly convex and the ends rounded, or straight with only the corners rounded (pl. 12 *a-d*). In crosssection the edges are rounded, the faces flat to slightly convex; in some cases one or both faces has a low ridge or gable down the middle, so that the face consists of two equal facets. Nine manos are very thick and oval in crosssection (pl. 12 *e*), but are otherwise as carefully shaped by pecking as the others. Perhaps they had not been used sufficiently to wear the faces down. The majority of shaped manos were used on both faces, always showing different degrees of roughness. All are of local sandstones. Still other manos, 42 in number, are unshaped pieces of sandstone and stream pebbles of about the right size to fit in the hand. They seem usually to have

been used on one face only (pl. 12 *f*). The unshaped manos are nearly all of local sandstone, but there are two of quartzite, one granite, and one flint nodule—materials to be found in the stream beds.

Although two-hand manos occur now and then in the middle Red River Valley (see below), the Harrell manos are all of one-hand size. Only two small manos have work faces meeting at one edge; in some of the Red River sites edged manos are more common. All shaped manos show by their striations a back-and-forth motion, while many of the unshaped ones do also.

Crushing Implements. Included under this head is a series of 165 flint cores of convenient hand size and of thick, discoidal shape, all of which show considerable battering around the edges. There are also 10 very crudely chipped "bone crushers" or pseudo-fist axes made from water-worn flint nodules. The original surface was left at one end to fit the palm, while a rude body or blade was formed by removing a few large flakes. It seems likely that all these objects could have been used to crush dried food, roots, etc., to pound meat, split bones for their marrow, and perhaps other uses as well.

Pottery. Of 597 potsherds recovered, all but 18 belong to a type not heretofore described, for which the name *Nocona Plain* is proposed. There were no whole or completely restorable vessels in the entire collection. The 579 sherds identified as *Nocona Plain* were carefully matched in order to determine as closely as possible the number of individual vessels represented. It was found that 457 sherds could be grouped into batches representing but 14 vessels; these are given below with the number of sherds from each level.

Vessel No.	Level I	Level II	Possibly in Level II	Postion Indeterminate	Total
A	32	1	....	2	35
B	41	1	4	3	49
C	42	1	1	2	46
D	24	....	....	....	24
E	51	2	4	5	62
F	40	2	4	7	53
G	19	1	....	3	23
H	19	....	....	2	21
I	10	....	4	3	17
J	31	1	3	1	36
K	6	....	....	....	6
L	39	2	3	5	49
M	4	1	....	3	8
N	18	4	1	5	28
	376	16	24	41	457

From the above table it can be seen that most of the 14 individual vessel batches include pieces from both Levels I and II, another indication that there was no real interruption in the occupation of the site. In addition to these batches, miscellaneous rim and decorated sherds, 43 in number, appear to represent some 20 to 25 vessels, and 79 plain body sherds a maximum of 52 vessels, though some of the latter probably duplicate the former. The

essential uniformity of all this pottery prevented accurate matching, but it may be said that not more than 90 vessels are represented by the collection of 579 sherds, while the true figure is perhaps not over 70.

Nocona Plain is a coiled pottery but does not regularly break along the coils. It is soft (hardness 2.0) and composed of fine-grained clay very abundantly tempered with crushed mussel shell in at least 95 percent of the sherds, the remainder having no visible temper. The inner surface is always poorly smoothed, being not so much rough as rather a series of humps and depressions, suggesting that it may have been finished with paddle and anvil (pl. 4 *b'*). The exterior is consistently more even and better smoothed than the interior, sometimes having a satiny feel. There was no attempt to apply a slip, and the shell flakes appear abundantly on both surfaces. One of the striking features is the range of colors: dark cream, yellowish brown, reddish brown, light brick red, tan, orange-brown, grey, brown-grey, chocolate brown, and dark grey to black. In the darker pieces the color is uniform from surface to surface, no distinct core being noticeable, but in the lighter browns, reddish and yellowish tinges, etc., the core usually appears an even slaty grey in contrast to the brighter cortex. Interior and exterior colors are usually the same, except where occasional fire-mottling has altered one or the other. While some sherds are discolored from smoke, the pottery is on the whole rather free from soot, grease, and smudge. This may place its status as cooking ware in question, but on the other hand, the shapes, so far as can be determined, run almost exclusively to jars. Bodies appear to have been quite rounded or globular, with bottoms rounded in even contour with the sides; there are no pieces suggesting flattened or pointed bottoms. Rims vary in height from ½ to 1½ inches, the shorter ones standing upright, the higher ones tending more to flare outward. The junction of rim and body is usually gentle (fig. 5 *a-k*), although in two or three cases quite sharp (fig. 5 *l-m*). Of 30 rims present, three or four definitely belong to deep bowls (fig. 5 *n-q*).

Nocona Plain is not entirely without decorative relief. Small nodes were stuck to the surface of four jars, arranged in a row encircling the vessel at the rim-body junction (pl. 4 *b, h, l*); in one case vertical rows of fingernail marks were made on the body (pl. 5 *e*); in another there are crudely incised diagonal lines on the rim (pl. 5 *g*); one has vertical striations on the body (pl. 5 *f*); and three are covered with peculiar shallow round pits, close together, perhaps pressed in with a blunt-nosed tool (pl. 5 *h*). Lips are simply rounded, and none show any notching.

Of the 18 sherds not of *Nocona Plain,* 16 belong to a very thick ware characterized by reddish and yellowish paste, very compact and harder than Nocona, and quite lumpy, as though it had been kneaded and shaped entirely with the fingers rather than coiled. Three of these sherds, from one vessel, are sparsely tempered with white clay lumps, and their outer surface heavily scored (pl. 6 *f*); their thickness varies from ½ to ¾ inch. Another piece, of similar hard, compact paste but without temper, grey-brown in color,

thickness ½ to ⅝ inch, bears a design which may have been impressed with woven textile, but as this is partly smoothed over it is difficult to determine how the marks were made (pl. 6 *e*). The other 12 sherds of this ware are likewise unusually thick and bear no decoration. Three or four have a thin red coating on the interior (pl. 6 *g, h*). I have seen a few other sherds of this kind in collections made by Mr. Powell Goodwin in this general area, but they are rare.

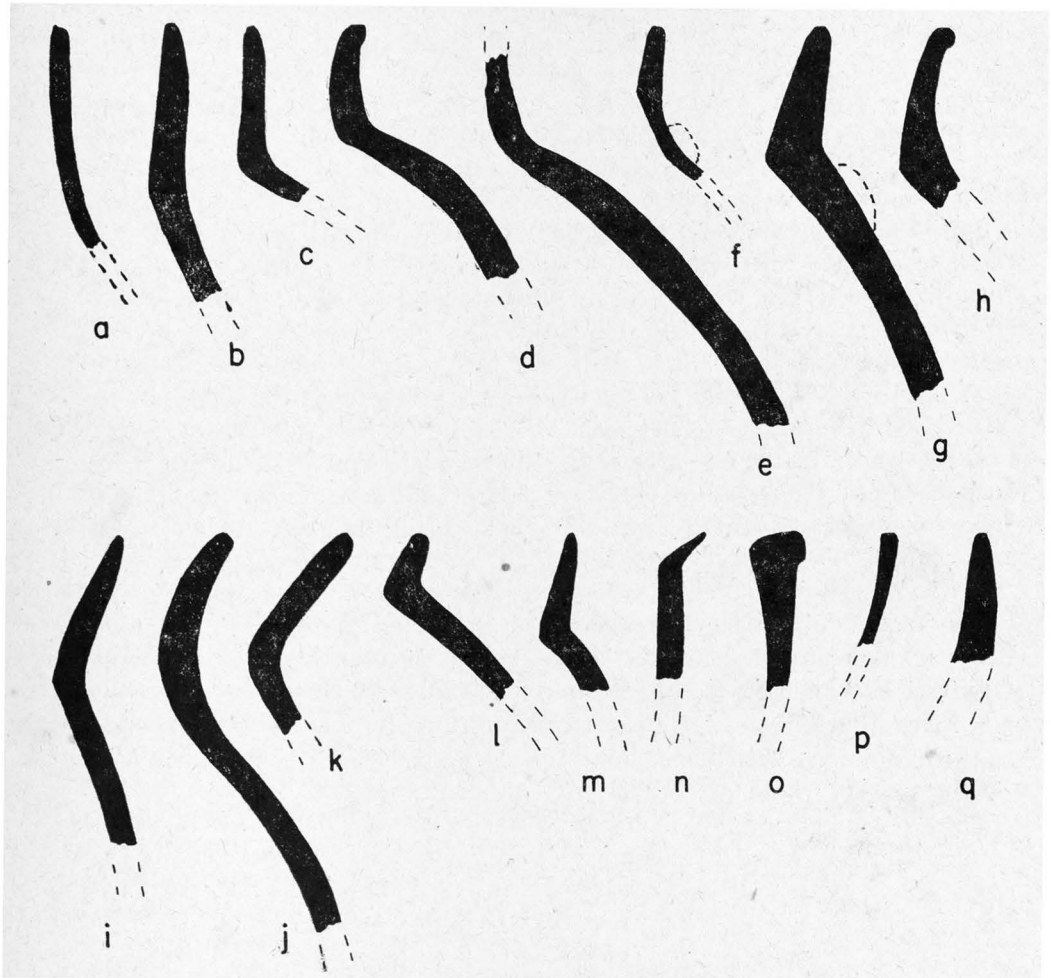


FIG. 5. Rim profiles of shell-tempered pottery type *Nocona Plain*, M. D. Harrell site. This is the only known resident type in Henrietta Focus. Exterior to right. Note most are jars but shapes grade into bowls *(n-q)*. Bodies globular. No flat bases appeared in type site, but are known from Red River components of Focus. Sherds *f, g* bear applied nodes around shoulder (see also pl. 4). Size ½.

The remaining two sherds are trade pieces. One (pl. 6 *b*) is nearly black on its rough exterior surface, of gritty paste with tiny quartz sand particles showing abundantly in the paste and on the surface. It bears a strap handle ½ inch wide and one inch long attached just below the lip. This is the only handle from the site. It appeared to the writer to be much like the roughened

black utility pottery so common at Pecos Pueblo, but Mera has identified it as "Brown ware, unclassified,"[4] widely found in southeastern New Mexico.[5] It was found in square AA-10 at a depth of 53 inches, which, if measured from the surface would place it well within Level II, the basic stratum of red clay; if measured from the datum it would still have lain at about the stratigraphic line between the two levels. The second trade piece is an orange-colored, polished sherd with a branching, engraved line across one end. It cannot be positively identified, but appears to agree closely with pottery of the type *Poynor Engraved,* a diagnostic of Frankston Focus, a late prehistoric culture complex centered in the Neches River Valley, eastern Texas. This sherd was found in square C-3 at depth 10 inches, placing it on the surface of Level I but under the wind-blown sand lying on the riverward slope.

Cutting, scraping, gouging, skin preparation, etc. All implements in this class are of flint. We may first note that 12 diamond-shaped knives or fragments thereof were found, each complete enough to determine that all four edges were beveled. Two of these are very narrow and one end is formed into a drill or awl shaft (fig. 6 *c*). Of the 12 knives, seven were within a few inches of the surface, the others at depths ranging to the top of Level II. Perhaps such knives became more frequent toward the end of occupation. Five knives are somewhat like the diamond-shaped, except that only one end is brought to a sharp point with edges beveled, the other being short and rounded (fig. 6 *b*). Other knives are of "leaf" shape, i.e., broadest in the middle or with sides nearly parallel, the base varying from straight to convex. Of 60 such knives, 35 are symmetrically formed (fig. 6 *a, e, i, k*), the others curved to a noticeable degree (fig. 6 *h, j*).

The numerous snub-nosed scrapers have been subdivided according to distinctions pointed out by Ray in connection with pottery-bearing cultures in the Abilene region.[6] However, in sorting the Harrell scrapers I was unable to draw a clear distinction between what Ray calls "P Scraper A" and "P scraper B"; both are crudely made, but one is said to be chipped to a rounded keel-back on top, the other to be similar except "it is usually broader, more rounded, and either chipped down on the back to make it nearly flat or it usually has been made so by taking two longitudinal flakes out of the center of the back. . . ." Fifty-five Harrell scrapers agree with the general features of Ray's scrapers A and B, and if one divided these according to whether or not large flakes were removed from the back, A and B would be about equally represented (pl. 10 *g-j*). Ray's "P scraper C" is much more distinctive, "very small, finely flaked, narrow, keel backed. . . ." It is chipped over the whole upper surface, and the steep, bitted end often has

[4]Letter of October 1, 1945. Another, very similar sherd with a small strap handle, labeled "Young County" was also identified by Mera as "Brown ware, unclassified." It may have come from the Harrell site.

[5]Mera, H. P., *An Outline of Ceramic Developments in Southern and Southeastern New Mexico*, esp. pp. 10-12.

[6]Ray, Cyrus N., *The Pottery Complex Artifacts of the Abilene Region*, p. 71, pl. 9, nos. 96-99, 107, 128.

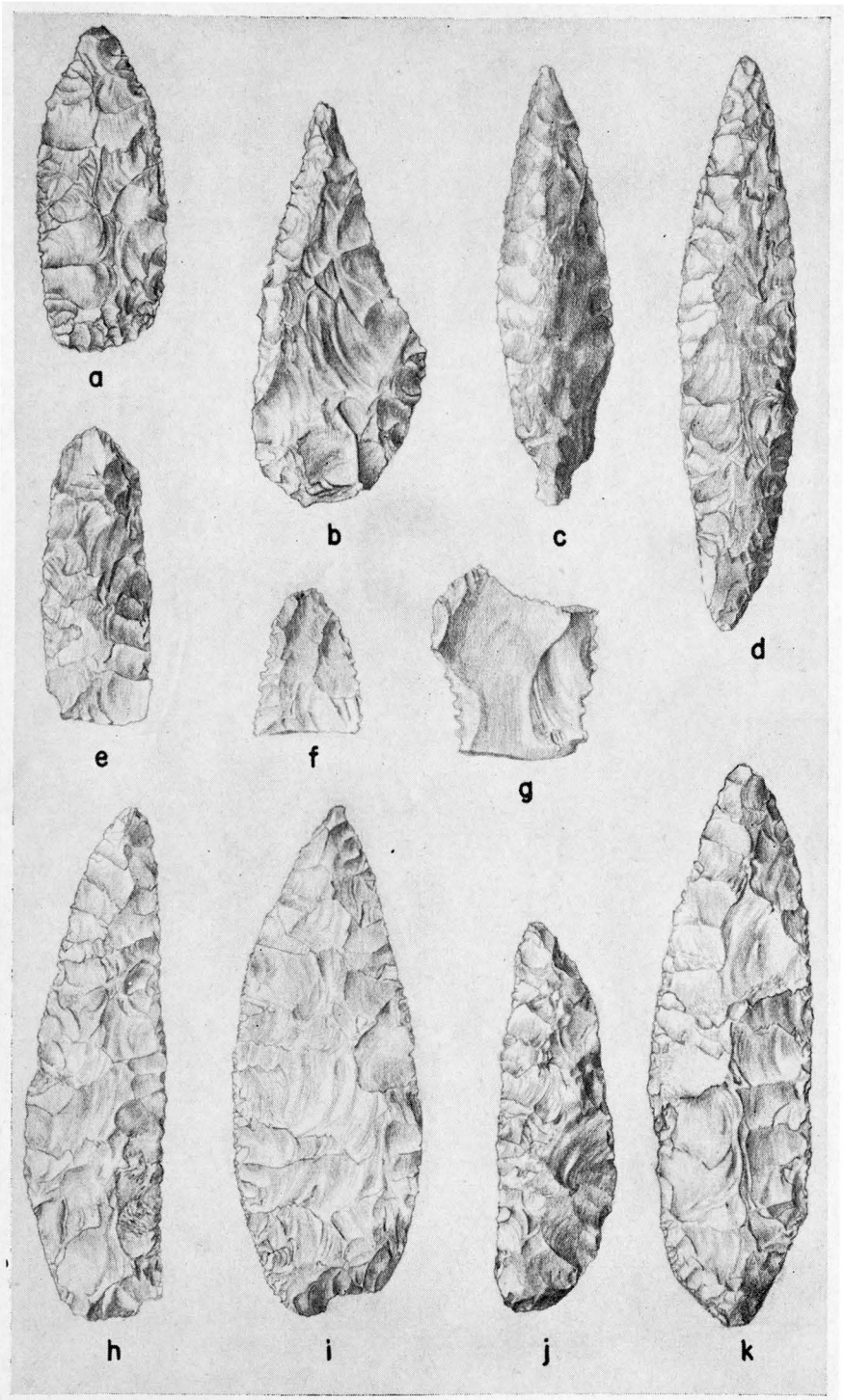


FIG. 6. Flint knives, M. D. Harrell site. *a*, *e*, *h-k* show various forms of plain knives, *h*, *j* of the "asymmetrical" from with one edge straight, the other convex; *b* the two-bevel form; *c-d* four-bevel diamond-shaped form (*c* with drill shaft chipped at lower end); *f-g* "saws" or chips with deeply serrate edges. Probably all typical of Henrietta Focus. See Table 2 for frequency of occurrence. Size ½.

sharp corners, or one sharp and one rounded corner. Ray found C to be highly distinctive of only one of his sites, No. 17, indicating cultural separateness from A and B scrapers. Fifty-three of the Harrell specimens (pl. 10 *a-c*) agree with this form, showing it to have been about as common as A and B combined. Three snub-nosed scrapers are formed so that the body is narrower than the bit, its edges parallel as though a stem for haftment had been intended (pl. 10 *d-f*).

Out of thousands of flint flakes recovered from all parts of the excavation, examination shows that about 927 had been intentionally modified by taking a few tiny flakes off one or more edges. Many others could have been used for side scrapers, spokeshaves, etc., without any workmanship. Those that show some edge "retouch" have not been plotted, but examination of the catalog shows occurrence in both strata in much the same proportion as all the flint work. About 70 specimens, also merely flint chips with modified edges, have short concave segments along the edges which would serve as "spokeshaves," or very tiny chipped prongs useful as "gravers." Many of the chips have both "spokeshaves" and "gravers" (pl. 10 *l-m*).

Of particular interest is a series of seven gouges with sides parallel or gently tapered; one end is considerably thicker than the other and has a hollowing or concave-shaped bit presumably used as an end-scraper or gouge (pl. 10 *k*). There are also 14 specimens, very crudely chipped, thick, and roughly rounded at one end and tapering to a point at the other. These would seem to have served as hand-sized picks, but in what capacity is difficult to determine.

"Rejects" or unfinished flint objects to the number of 149, and various broken parts of knives, gouges, scrapers (289) were also found but have not been plotted. Clearly, there was great emphasis on many forms of flint artifacts in a manner reminiscent of "Edwards Plateau Culture," except for the addition of snub-nosed scrapers.

Sewing, punching, etc. Three forms of flint "awls" or "drills" were found. The greatest number (36) are simply chips completely upshaped except for the shaft, which ranges from one to two inches in length (fig. 7 *ee*). Ten others have a rudely chipped square or rectangular base (fig. 7 *ff*), and four have a small, narrow base crossing the end of the shaft like a "T" (fig. 7 *gg*). The T-shaped specimens did not occur in Level II but the representation is too small for conclusiveness. Bone awls consist mainly of deer metapodials split lengthwise, the articular head being smoothed in some cases, and entirely removed in others (pl. 8 *h, j-l*). Four awls are made from the vertebral spines of fish, sharpened at the tip (pl. 8 *g*). Awls were also made by sharpening bone splinters (pl. 8 *i*), but none made from rib were found. Under this head may also be included implements used for sharpening awls. Nine unshaped blocks of brown sandstone bear one or more grooves, deeper at one end than the other, and often curving (pl. 9 *f*), so that there need be no confusion between these "hones" and the grooved blocks called "shaft smoothers" or "shaft abraders."

Chipping or Flaking Implements. Implements probably used for pressure flaking include seven deer ulnae with a chisel-like point (pl. 8 *n*); three long, narrow objects cut from the thicker edge of bison ribs and having blunt, rounded tips; and two cylindrical antler "tapping tools" (pl. 7 *h*).

Weapons: (A) Arrow (?) Points. Because of their thinness, lightness, and ready distinction from the larger points classified as for atlatl darts, the following groups are believed to have served a different purpose, namely, as arrow points. The most numerous are small, neatly made triangles finely flaked on both faces. The edges are usually quite straight, and the bases range from concave to straight. Of 192 such points, 115 or 60 percent are unnotched (fig. 7 *i-l*), 40 bear one pair of side notches (fig. 7 *a-d*), and 37 have side notches plus a notch in the base (fig. 7 *e-h*). Another series of triangular points contrasts with these in that they are not carefully shaped, edges are straight to convex and not always symmetrical, bases straight to convex and poorly made, and chipping on one face, or mainly on one face while the other has slightly retouched edges. Of 129 such points, none bear notches (fig. 7 *w-aa*). Another series of 66 points is quite like that just mentioned except that a short, pointed stem is present. The stem is formed by two concave arcs begun at the blade corners and meeting in the stubby stem, somewhat remindful of Gypsum Cave dart points. These are very small in comparison, however, and have been given the name *Cliffton Contracting Stem* by Kelley in his Texas researches (fig. 7 *p-s*). A type which I have called *Alba Barbed* in east Texas research is represented by 56 specimens. These have widely flaring barbs, blade edges usually concave, and the stem usually widest in the middle, giving it a bulb shape (fig. 7 *m-o*). The type *Scallorn Stemmed,* already mentioned in connection with burials, has a long, narrow blade, often serrated, and a stem which expands strongly or divides into two flaring tips (fig. 7 *t-u*). Nine of the 24 *Scallorn Stemmed* came from two multiple burials, where the field notes state that they were in such positions as to suggest the cause of death; hence it may be that this form actually belonged to enemies rather than the residents. It may be noted that none came from below Level I. This is also true of the three minor groups that follow: seven tiny specimens which appear to have separate blades and stems, but as these are both pointed it is difficult to tell which is which (fig. 7 *bb-dd*); three specimens of a type named *Perdiz Pointed Stem* by Kelley (fig. 7 *v*) and having an extremely wide distribution over Texas in protohistoric times; and three odd points which combine stems and side notches but belong to no known types. Arrow points too fragmentary to type number 152.

Weapons: (B) Dart (?) Points. Discussion of the Harrell dart points would involve a critical review of all central Texas archaeology, including the discoveries of Ray in the Abilene region, ranging into the "Clear Fork" types, "Abilene Points," etc. This cannot be attempted here, except to state that many of those styles commonly supposed to connote enormous antiquity in this area, or styles strikingly similar to them, were found in some numbers

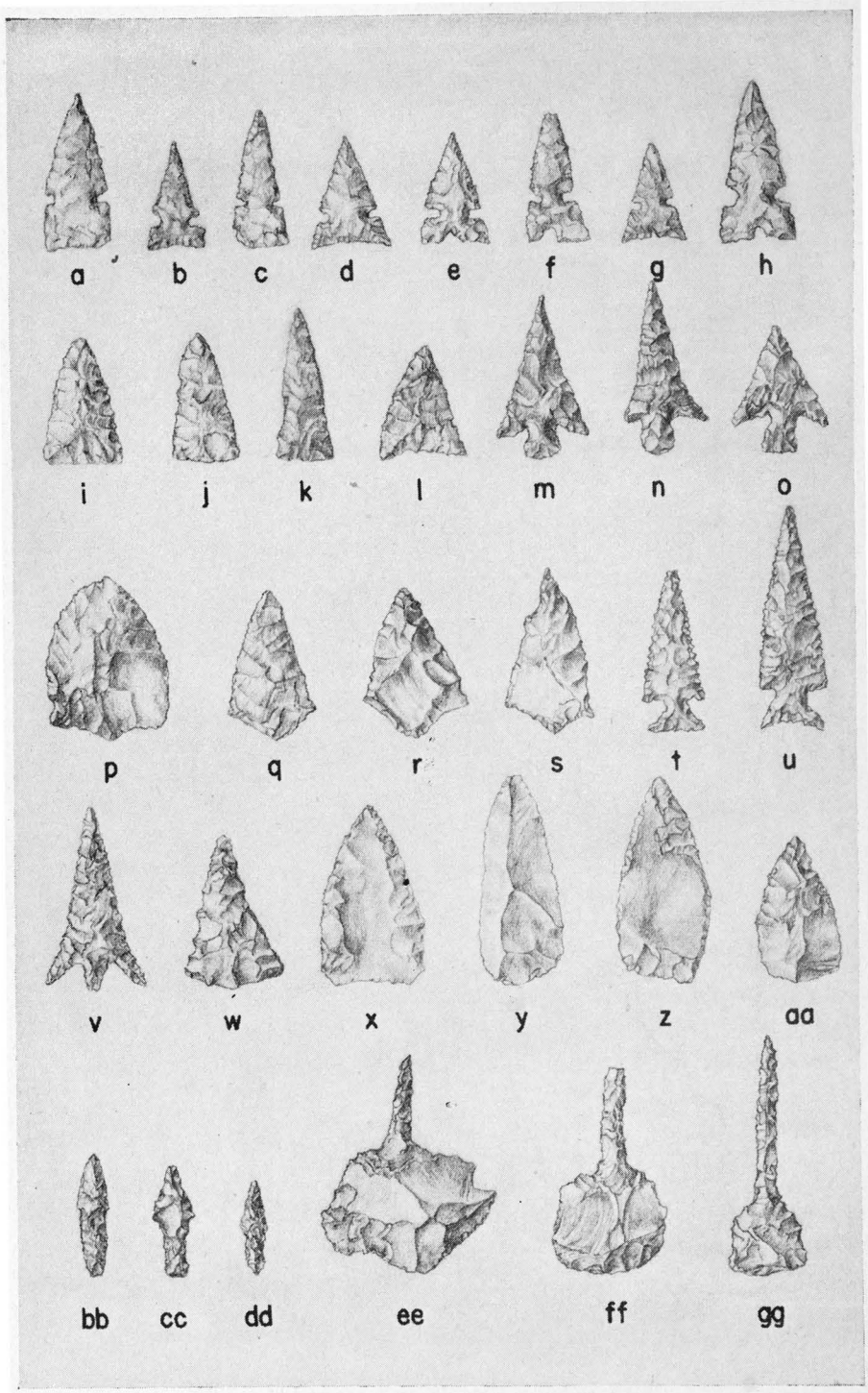


FIG. 7. Flint arrow points and awls from M. D. Harrell site. *a-h* side-notched triangular points, well made and chipped on both faces (*e-h* have base notch); *i-l* similar to *a-h* but unnotched; *m-o* type *Alba Barbed; p-s* type *Cliffton Contracting Stem; t-u* type *Scallorn Stemmed; v* type *Perdiz Pointed Stem; w-aa* crudely shaped triangular points or knives chipped on one side; *bb-dd* small bi-pointed arrow or drill points; *ee-gg* flint awls with unshaped, squared, and T-shaped base respectively. See Table 2 for frequency of occurrence. Size ½.

in the two Harrell site levels. It may, of course, be argued that the resemblance in coincidental. However, if one views Texas archaeology broadly, continuity of many ancient artifact forms into pottery association is not unexpected. Certainly, no conclusion has yet been reached on the age of Texas remains which is not open to argument and perhaps drastic revision.[7] The first seven groups listed in Table 2 belong to types to be described by Kelley in a forthcoming publication on central Texas archaeology. The eighth, Gary Contracting Stem, is very common in pottery sites in northeast Texas and may have been used in earlier, non-pottery cultures as well, though little is known of this. As previously remarked, dart points were decidedly more frequent, proportionally, in the lower stratum than any other artifacts except small, round mussel shells perforated as for beads. A total of 42 occurred in Level II or could have occurred there according to the plotting against profiles; 55 were in Level I, and 11 could not be determined. There are too few specimens on which to decide whether the number in each group recovered from each level was a fortuitous scattering or an actual trend. Representative "dart" points are shown in Figure 8.

Weapons: (C) Shaft Smoothers. Implements probably used for smoothing or bending arrow and/or dart shafts include two poorly shaped sandstone blocks, each of which bears a straight groove the length of one face (pl. 9 *g*). In view of the common occurrence of these objects in Red River components of the focus, their rarity here is notable. This is the southernmost known point to which this trait reached in Texas.

Ornaments. Eight short pieces of bird bone, polished but unfinished at the ends, were probably beads (pl. 8 *m*). A peculiar object of baked clay or pottery with central perforation (pl. 5 *k*) may have been a bead. A single *Olivella* shell was made into a bead by removing the spire (pl. 9 *m*), and others were made by cutting thick disks from mussel shells near the hinge, perforating them centrally, and smoothing their edges (pl. 9 *l*). This leads one to suspect that the so-called "mussel-shell hoes" were not actually hoes, since they show no battering at the edge, only a chopped-out hole (pl. 9 *p*) of about the same size as the disk beads. On the other hand, there would be no need to preserve the whole shell unless to use it as a pendant, and one might wonder that all such shells show only one large hole. Other mussel shells, smaller and thinner, bear a tiny hole at the hinge and were undoubtedly used for pendants (pl. 9 *k*). Still other objects were cut from the thick part of heavy mussel shells, but are of odd shapes and unperforated; they may have been inlays (pl. 9 *n*). Last, three disk beads were made from fossil crinoid stems (pl. 9 *l*-right).

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[7] It appears to the writer that uncritical acceptance of claimed dates in the Abilene region in such volumes as *Excavations at Snaketown, II*, and McGregor's recent *Southwestern Archaeology*, have tended too much to give the impression that these matters have been successfully demonstrated. See the excellent discussion in Kelley, J. Charles, T. N. Campbell, and Donald J. Lehmer, *The Association of Archaeological Materials with Geological Deposits in the Big Bend Region of Texas*, pp. 133-152.

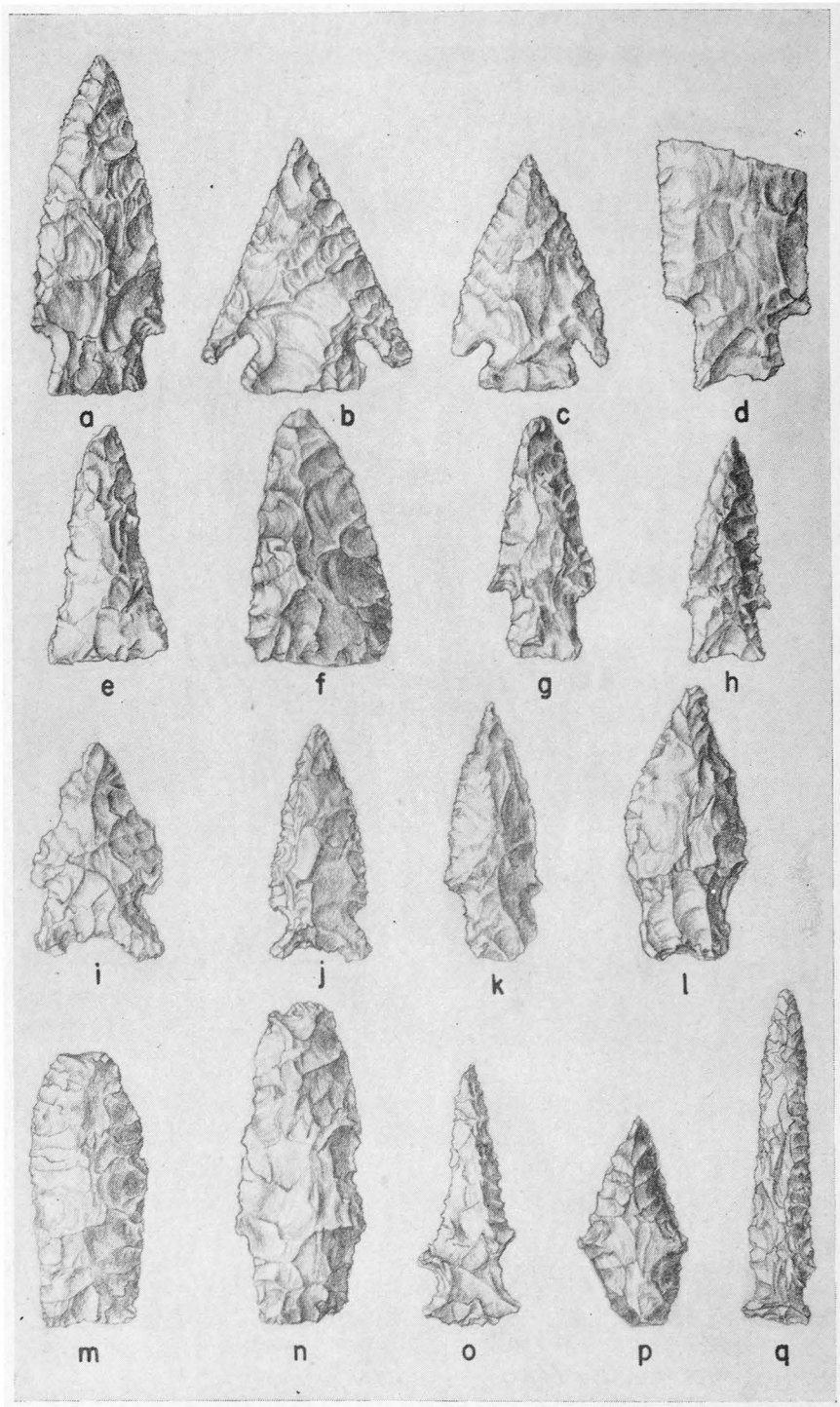


FIG. 8. Dart points from M. D. Harrell site. *a-l* represent common types in Edwards Plateau non-ceramic cultures which appear to have survived into Henrietta Focus complex. *d Pedernales Indented Base* (Kelley); *k-l Nolan Beveled Stem* (Kelley). *m-q* miscellaneous forms (note beveled blade of *o* and *q*). Size ½.

Ceremonial Objects. Artifacts conceivably put to ceremonial purposes include equal-armed elbow pipes of pale greenish-brown and brown sandstone (pl. 9 *a, b*). Except for the type of stone used, these are quite like those mentioned in Antelope Creek Focus; each arm bulges in the middle, the arms meet in somewhat less than a right angle, and at one or both ends there is a very low flange which may bear simple incised lines. One of these pipes came from a depth of 108 inches, one of the deepest objects from the site. There are also two undecorated bird-bone tubes (pl. 8 *m*-upper) and two with complex incised and cross-hatched designs (pl. 8 *a, b*). These may have been beads, but use as sucking tubes is not to be overlooked. Bone "rasps" include 10 fragments of bison rib notched along the inner edge (pl. 8 *c, e*), and two slim fragments of deer (*?*) leg bone (pl. 8 *d*).

Miscellaneous Artifacts. The nature of most of these should be clear from the entries and plate references in Table 2. Of most, there were but one or two occurrences in the Harrell site and it would be impossible to ascertain their cultural connection without data from other collections. However, we may here note that some of these objects are unique. Among these are thin "tablets" of sandstone. Only fragments are present, from which it can be said that they are about one-half inch thick, show a slight amount of smoothing on both faces, and the edges are slightly rounded or ground to an even bevel (pl. 12 *i*). Special mention should be made of two tiny polished celts of hard, nearly black hematite (pl. 9 *c, e*); a rather well chipped blade and a block scraped and polished on one face, also of hematite (pl. 9 *d*); flint flakes (fig. 6 *f, g*) and mussel shells (pl. 9 *o*) with serrated edges; what seems to be a bone fish-hook (pl. 8 *f*); a single small pottery disk, unperforated (pl. 9 *i*). Two trade sherds have already been described under *Pottery* (pp. 152-3).

Of the thousands of flint specimens, only four are of the banded dolomite called "Alibates flint." One is a projectile point or knife with "Yuma" characteristics—edges parallel from base nearly to the point, and smoothed from the base forward about one inch (fig. 8 *m*). The chipping is very rough, however, and a "Yuma" identification uncertain. Two diamond-shaped, four-beveled knives, one of which is very narrow and has a "drill" shaft at one end (fig. 6 *c*), and a large, oval side scraper (pl. 10 *n*) are the only other objects of this material. The remaining flint is almost all of a pale tan to very light grey color and is found locally.

Looking at the Harrell site as a whole, no marked division is seen in artifacts from the upper and lower strata. Even the shell-tempered pottery, *Nocona Plain,* was present in the lower level. The greatest difference is not one of change in the artifact types, but in their suddenly much greater frequency in the upper, dark ashy midden, when contrasted with the thin scattering of artifacts in the underlying red clay. Occupation and hearth-making must have been continued during the time that what is now the third terrace was still being built up. This building must have come to an abrupt end, due to floods of the Brazos and Clear Fork no longer reaching it, to the

deepening of the stream channels, to a decrease in rainfall, to one or the other river changing its course, or to some other reason—or some combination of such factors. Mr. Fox's field notes contain the observation that "Probably the course of [the Brazos] in the not-too-distant past was much further north." No details or reasons are given. After the reddish clay terrace material had ceased to accumulate higher, human occupation continued on the site without interruption by alluvial deposits. Considering the importance of the Harrell site, a thorough study of physiography and stream terraces in this vicinity is greatly to be desired. The archaeologist and geologist should be able to contribute much to one another's calculations.

FOOD REMAINS

Animal bones recovered from the site show that modern bison were hunted extensively, their skulls and limb bones being found in the hearths and midden. Deer, antelope, and various small animals and birds are also represented. Tens of thousands of mussel shells indicate the importance of this food. That fish were caught seems proved by a few bones in the midden, a bone hook, and awls made of vertebral spines of fish. The raising of maize is proved by charred cobs, but evidence of other domestic plants is wanting.

Henrietta Focus: General

AN ACCURATE DEFINITION of this focus is made doubly difficult by a general lack of controlled excavations other than that at the Harrell site, and by the fact that other late, pottery-bearing and agricultural complexes existed in north-central Texas, overlapping areally and in content. Artifacts which appear to be characteristic of Henrietta Focus and anomalous in other complexes are found together much more consistently in the middle reaches of the Red River valley than elsewhere. The greatest difficulties arise in respect to the various relatively late remains to the west of the Harrell site in the Abilene region, to the south in the upper Colorado drainage, and to the east in the Dallas area or upper Trinity drainage. It must be emphasized that the situation is complex, has been approached by every investigator from a different point of view, and that this attempt to define a Henrietta Focus is more or less a matter of taking hold at one point as a start toward unraveling the remainder.

It will appear to be putting the cart before the horse to attempt a tracing of focal elements before the focus is itself defined. In the present case this is, I think, unavoidable. The tentative complex which will result does, however, give promise of reality.

Speaking broadly, one general feature stands out which provides an important diagnostic trait of Henrietta Focus. So far as the writer has been able to ascertain, no other complex in Texas includes a plain shell-tempered pottery. Other complexes undoubtedly share certain traits with Henrietta Focus, but their potteries are distinct in other ways besides the lack of shell; where this shell-tempered ware is absent, the trait-aggregates show other important dissimilarities.

LAKE BUCHANAN BASIN

We may first turn to the south. In the extensive basin behind Buchanan Dam on the Colorado River, WPA-University of Texas crews under A. T. Jackson and Arthur M. Woolsey excavated a number of camp middens and "burnt-rock mounds" in 1936-1937. This basin is about 150 miles due south of the Harrell site on the upper Brazos. Jackson's report[8] describes over 12,000 specimens, most of which are highly typical of the non-ceramic, non-agricultural "Edwards Plateau Culture" with its multitudes of heavy flint

[8]Jackson, A. T., *The Fall Creek Sites.*

artifacts, grinding slabs and manos used with rotary motion, and heaps of discarded limestone hearth rocks. However, a number of objects appeared which are always of late occurrence throughout central Texas and belong to a protohistoric horizon which differs strongly from the long-lived "Edwards Plateau Culture" which preceded it. These objects consistently appear on the surface or in the top 12 to 15 inches of sites all through central Texas, and will be discussed in the section on Austin Focus. Several traits, such as flint "awls" made from flakes, unshaped except for the delicate shaft, snub-nosed scrapers of Ray's "A" and "B" forms, edged manos, obsidian flakes, notched-bone "rasps," a variety of well-shaped bone awls, and perhaps others, appear to be held in common with Henrietta Focus. However, significant differences are seen in the arrow point styles, those of Henrietta Focus being absent, as is the shell-tempered pottery *Nocona Plain.* Trade pottery from the northeast Texas Frankston Focus occurs on these central Texas sites, and the resident pottery is a plain, sometimes polished ware usually tempered with bone. The flexed burials covered with stones mentioned by Jackson may belong to this late horizon, but may also be considerably older, for in some cases they include heavy dart points.

It will suffice here to state that no shell-tempered pottery of any kind,[9] no plain, side-notched, or base-notched triangular arrow points, no well-shaped, small, snub-nosed scrapers of Ray's "P scraper C" type, stone elbow pipes, brown sandstone hones, grooved sandstone shaft smoothers or abraders, hematite celts and blades, stone-box-like graves, or Puebloan trade pottery appear as far south as the Buchanan Basin.[10] While our collections from the rolling brush country in the watershed between the Colorado and upper Brazos are very scanty, these elements have not appeared in the intervening territory either. It can be said with fair assurance that what the writer considers to be diagnostic traits of Henrietta Focus do not extend more than a few miles south of the Brazos in Stephens, Palo Pinto, and Parker counties —that is, beyond a line approximately due west of Fort Worth. A further interesting difference is that bison bone was used for artifacts in the Harrell site and is a common trait of Henrietta Focus (and other Plains cultures) in general, whereas to the south of the line mentioned bison remains are plentiful but their bones were never used as material for artifacts.

ABILENE REGION

"Abilene region" is an ill-defined term which has come into use through the activities of Dr. Cyrus N. Ray of Abilene. In general, it is an area of

[9]Jackson's inclusion of shell as one of the tempers in Buchanan Basin pottery (*op. cit.*, pp. 108-115) is surely an error. Many sherds contain, as he says, carbon and sand, but as in many other parts of Texas, white, calcined bone particles have been mistaken for shell flakes. In the larger particles one may often see the cancellous bone structure with the bare eye, and in the tiny pieces with a magnifying glass; moreover, the particles are angular rather than flaky, and often turned blue under firing. Jackson also mentions "Caddo influence" in Buchanan sherds, but the pieces referred to are completely distinct from the resident plain pottery, and are actually trade pottery from northeast Texas.

[10]Occasional exceptions may be noted, such as the recovery of a single side-notched triangular arrow point in a Buchanan site. Other isolated instances might be cited, but the statement is believed to hold true for the presence of these objects as established culture traits.

open plains, low dissected mesas, and sand "hills" more or less centered at Abilene and extending some 60 to 75 miles around. Most of this area is drained in a generally northeastward direction by the Clear Fork of Brazos River and its branch, Elm Creek. The southern part drains southward to the Colorado. Extensive areas of low anchored sand dunes are found for a considerable distance to the northwest and southwest of Abilene. As the same tall grasses and shin oak are found growing in the sand as we have noted above for the Llano Estacado, it is also to be expected that native agriculture was possible on these sandy tracts, as well as in the sandy bottoms of many streams in this area.

Recently, Ray and Sayles came to an agreement on culture terminology regarding remains discovered and described by them over many years.[11] They now recognize a Valley Creek Culture as the latest in the Abilene region, and the only pottery-bearing complex. This represents a combination of Ray's previous "Large Scraper Culture" and "Small Scraper Culture," and Sayles' "Wichita Phase."[12] The diagnostic traits listed are: (1) pottery; (2) four-edged beveled knife; (3) double-pointed plain knife; (4) beveled dart; (5) oval, keel-backed scraper; (6) "pine tree" shaped arrow; (7) side-notched triangular arrow; and (8) flake drills. A second complex agreed on is the Brazos Culture, combined from Ray's "Sand Dune Culture" and Sayles' "Brazos River Phase." The diagnostic traits listed are: (1) serrated arrow heads; (2) long slender "pine tree" shaped arrow; (3) long slender side-notched arrow; (4) double pointed arrow; (5) square based knife; (6) recessed base knife; and (7) side scraper. Preceding the Brazos Culture in time are the Clear Fork Culture and the Durst-Abilene Types (not yet a recognized cultural complex.) "The mano and metate are found in the whole series." The non-pottery Brazos Culture and the pottery-bearing Valley Creek Culture are shown on their chart as together equivalent to Edwards Plateau Culture or the Burnt Rock Mound Culture of central Texas as recognized by Pearce.[13] This, however, does not agree with the conception of Edwards Plateau Culture of Kelley and writer; we view this as entirely non-ceramic and including many of the features of Ray and Sayles' Clear Fork Culture.

The new terminology by Ray and Sayles is an important step toward better understanding of the relatively late remains of north-central Texas, but is not satisfying in several particulars. That is to say, the traits listed for Valley Creek Culture and Brazos Culture, while they may appear together in some sites, in others they fall in different combinations and in both cases mixtures occur with traits that belong to neither. The principal diagnostic of Valley Creek Culture would seem to be occurrence of pottery, but this is again unsatisfactory except as a general indicator of a late horizon. "Pottery" includes a few Puebloan trade sherds, many more from east Texas cultures, and rare shell-tempered sherds which probably belong to *Nocona Plain* of Henrietta Focus. This focus appears only peripherally in the Abilene region

[11]Ray, Cyrus N., and E. B. Sayles, *An Agreement on Abilene Region Terminology.*
[12]The "phase" terms are from Sayles, E. B., *A Survey of Texas Archaeology.*
[13]Pearce, J. E., *The Present Status of Texas Archaeology.*

material, and its recognition may account for certain inconsistencies in the Valley Creek and Brazos Cultures.

We may take as an example three of the twenty pottery-bearing sites described by Ray.[14] Only surface collections were made. Sites 1, 5, and 17 yielded the largest number of specimens and hence are most reliable for proportions; however, they have been subjected to plowing and selective collecting (especially site 1) and Ray warns that some classes of artifacts were probably once much more frequent than when he collected. In Table 4 I have listed all but a few odds and ends reported by Ray from the three sites. Manos, "metates," flint hammerstones, and occasional spokeshaves and gravers appear to be common to all Abilene pottery sites. Aside from these, Ray's Site 17 differs from Sites 1 and 5 in the following ways: prevalence of "P. arrow" B, D, E, F, over A, C (the reverse of Sites 1, 5); presence of "small expanded stem barbed arrow heads" (*Alba Barbed?*); greater number of dart points ("large barbed and expanded base," "shouldered and stemmed," "large triangular"); channeled Folsom points; greater number of four-edged, beveled knives; very great predominance of snub-nosed "P scraper C"; fewer "flake drills" than the other sites, and presence of "paddle shaped based drills" (those with more or less square base); presence of 109 potsherds divisible into two "plain types" plus two shell-tempered sherds;[15] and other differences as may be seen in the remaining odd items.

Many of the above traits which predominate in Site 17 were also common at the Harrell site, where they were associated with the shell-tempered pottery *Nocona Plain.* The two shell-tempered sherds from Site 17 are the only examples of this pottery reported from the Abilene region and support the prospect of a close relation between this site and Harrell. However, there are disagreements as well. Ray's "P. arrow B" with long, pointed barbs and pointed stem, chipped on both faces and well shaped, agrees with the type *Perdiz Pointed Stem* (Kelley) and was the most common projectile point at Site 17 (37 specimens). At the Harrell site there were but three examples, near the surface. There is considerable evidence that *Perdiz Pointed Stem* was a common arrow-point style in several late prehistoric and protohistoric cultures in west, central and coastal Texas. It is also the dominant arrow point style in the northeast Texas Frankston Focus, where it dates into the 16th and 17th centuries. This is surely significant, since the bulk of Abilene region pottery, including that from Site 17, clearly belongs to Frankston Focus types to be described in a separate work.[16] How this pottery comes to be relatively common in the Abilene area, far more so than nearby Henrietta Focus shell-tempered pottery, is a problem which awaits further re-

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[14]Ray, Cyrus N., *The Pottery Complex Artifacts of the Abilene Region.*

[15]Griffin, James B., *Report on Pottery Sherds from Near Abilene, Texas* (see Site 17).

[16]*Archaeological Horizons in the "Caddo" Area.* (Ms.). The Frankston Focus types recognizable from Griffin's descriptions and Ray's illustration (*op. cit.*, pl. 8, panel 65) are: *Maydelle Incised, Bullard Brushed,* and possibly *Poynor Engraved.* For sketches of typical vessels and designs in these types see the present paper, fig. 18.

TABLE 4

Principle Artifacts Found in Three Sites in the Abilene Region
(from C. N. Ray. *Pottery Complex Artifacts of the Abilene Region*)

Artifacts	*Site 1*	*Site 5*	*Site 17*	*Illustration (Ray)* *Plate*	*Fig. No.*	*Remarks*
P. arrow A	29	16	7	8	64 (row 2)	Long, pointed stem, serrated blade, chipping on one side.
P. arrow B	2	10	37	8	64 (row 3, last 4)	Like A but thicker, not serrated, chipping on both sides, well made.
P. arrow C	14	10	1	8	64 (row 3, middle 8)	Like A but has medial ridge.
P. arrow D	15	2	26	8	64 (row 4, first 14)	Triangular, base straight to concave, side and base notches.
P. arrow E	9	2	19	8	64 (row 3, first 4)	Triangular, base straight to concave, base notch, no side notches.
P. arrow F	....	....	28	9	79, 80, 82	Large arrow or dart with steeply beveled blade.
"small expanded stem barbed arrow heads"	....	....	9	8	64 (row 5, 4 to 7)	
"large barbed and expanded base dart points"	8	....	33	....		
"shouldered and stemmed" (darts?)	7	....	17	....		
"large triangular points"	....	....	8	....		
Folsom points, channeled	....	....	4	9	83-85, 104-106	Two others "near" site 17.
P. knife A	86	49	97	9	67-69, 89-90, 113-117	Bi-pointed "Solutrean" form (97 from site 17 incl. 86 frags).
P. knife B	2	2	1	9	124-125	"Mousterian" form.
P. knife C	21	15	45	9	70-74, 122-123, 126	Four-edged, beveled knives.
P. knife D	....	1	2	9	86-87	Corner-tanged knives.
"flake knives"	14	40	29	9	108-110	Long flint flake used as knife.
"flake saws"	2	1	1	8	64 (row 4, last 2)	Flint flake, deeply serrated edge.
"curved bladed knives"	....	....	3	....		
P. scraper A	367	150	?	9, 10	107, 119-121, 128-129	Snub-nosed bit at end of large flake.
P. scraper B	48	18	?	9, 10	96-99, 129	Like A, but ridge removed.
P. scraper C	....	5	256	8, 9	64, 66, 75-78, 81, 92, 93, 111, 112	Snub-nosed, small, shaped all over top, bit often has sharp corners.
potsherds	191	17	109	8	65 whole panel	Those of site 17 include two plain types plus two shell-tempered sherds.
P. flake drills	15	12	9	8	64 (row 1)	Shaft chipped, base unworked.
"paddle shaped based drills"	....	....	9	8	64 (row 1, third)	Shaft chipped, base shaped into a square.
obsidian flakes	7	2	....	8	64 (row 5, middle)	
pecked and polished celts	....	....	2	10	130-131	
manos	x	x	x	10	139-141	
"metates"	x	x	x	....		
hammerstones, flint	x	x	x	10	134-138	
spokeshaves and gravers	x	x	x	9	94-95, 127	(rare?)

search. These matters indicate that Ray's Site 17 yields materials belonging to two distinct associations.

Ray's Site 13, on the Brazos Salt Fork 60 miles northwest of Abilene, provides further interesting data. Fourteen plain sherds have been found. "Both the flat Abilene type of metate and the deeply troughed out typical Panhandle Culture metate pictured by Studer occur here." "P. arrow D," a small, well-made, triangular point with two side notches, is "the typical arrow head of the site." Bone "sounding rasps," an obsidian flake, and one "grooved sandstone arrow shaft polisher" also provide close comparisons with Harrell artifacts. The "flat Abilene type of metate" suggests analogy with the thin, flat slabs of Harrell on which a back-and-forth motion was used. Thus occurrence of this form near Abilene appears to provide a link in distribution between those at the Harrell site and the Llano Estacado of Texas and New Mexico. The "deeply troughed out typical Panhandle Culture metate" probably refers to slabs with deep oval basin, not to troughed metates of Puebloan form which, we have seen, are represented in Texas by a single specimen from Antelope Creek Ruin. Elsewhere, Ray has described two types of manos found in "Sand Dune Culture" sites. One is an unshaped river pebble, the other (far more numerous) is flat on both sides and rounded at the ends.[17]

Site 15 yielded, among other things, a grooved arrowshaft smoother and two sherds identified by Mera as Puebloan. One is from a utility ware, the other from a glaze-paint olla which Mera judged to belong to a time not earlier than the beginning of the fifteenth century; this determination was based on the quality of the glaze paint.

It is unlikely that strictly defined associations can be recognized in the Abilene area without controlled excavations. However, this is not possible in many cases, for the pottery-bearing camp sites seem to have little depth. One good stratigraphic excavation, if such can be made, would be of extreme value. Especially needed is some information on the relationships between non-pottery hearth sites and those bearing pottery. At any rate, it does not appear to the writer that pottery, as such, is an indicator of a single archaeological complex (Valley Creek Culture). Sherds from at least four separate associations are present here: Henrietta Focus, Austin Focus, Frankston Focus, and Pueblo. There appears to have been no distinct local pottery.

Regarding two other Harrell site features, stone-slab hearths and flexed (or semiflexed) burial in stone cists, these are by no means unusual in the vicinity of Abilene. Sayles[18] has described and illustrated what seems to be the usual size and shape of the hearths and Ray[19] has recently presented three charts showing the position of buried hearths in relation to alluvial

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[17]Ray, Cyrus N., *A Differentiation of the Prehistoric Cultures of the Abilene Section*, p. 14. From the descriptions it would seem that back-and-forth motion of a shaped mano on a flat slab was more frequently used than rotary motion in an oval basin.

[18]Sayles, E. B., *Some Types of Archaeological Sites Near Abilene, Texas.*

[19]Ray, Cyrus N., *Stream Bank Silts of the Abilene Region.*

formations that he now calls Upper Clear Fork Silt, and Nugent Silt. It should be noted that these hearths are largely separate units, which is what one would expect to find where alluvial silts accumulate rapidly. That is to say, the hearth stones could not accumulate into masses (such as the "burnt-rock" heaps of central Texas) where the ground on which they were made was subject to repeated overflow; each overflow with its consequent alluviation would bury a hearth only used for a short time, whereupon another would be made on the new surface, and so on as the silts increased in height. This is shown graphically by Kelley and Campbell for Colorado River terraces.[20] As yet, the Abilene hearths have not been shown to be associated with a pottery horizon as was described for the Harrell site.

Ray has reported and illustrated many flexed and semi-flexed burials in stone-lined and stone-covered graves, often referring to them as "burial mounds."[21] However, the "mounds" are but slight heaps of earth and stone over the graves. In at least one case, the skeleton was quite tightly flexed and slabs were set on edge around the small, oval grave.[22] Ray has also discovered multiple burials and cremations in stone "cists."[23] One burial "cist" lay under several feet of alluvium in a high bank of the Clear Fork near Albany, Texas.[24] Again, association of this form of interment with a pottery horizon, as at the Harrell site, has not been reported.

Polished celts and chipped blades of hematite, quite like those from the Harrell site, have been found in Taylor County (Abilene) and Jones and Shackelford counties to the north and northeast.[25] These are the most westerly known occurrences of hematite implements in Texas.

ARCHER COUNTY

We may now turn to an area directly north of the Brazos and Clear Fork junction. This lies in northern Young County and Archer County and is drained by the Little Wichita River. The headwaters of this river rise near the Brazos but flow in a northeasterly direction to join Red River near the town of Henrietta. Mr. Powell Goodwin, a keen observer, has explored Archer and Young counties for many years and has been very liberal in offering information. Of the many sites he has discovered, two will show the contrasts which exist. The first is on the banks of Onion Creek six miles east of Archer City.

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[20]Kelley, J. Charles, and T. N. Campbell, *What are the Burnt-Rock Mounds of Central Texas?*, fig. 38.

[21]Ray, Cyrus N., *More Evidence Concerning Abilene Man*, p. 194. On p. 197 he describes an interesting extended burial, unusual for this area.

[22]Ray, Cyrus N., *Recent Archaeological Researches in the Abilene Section*, pl. 12. This grave was found 12 miles south of Merkel, Taylor County.

[23]Ray, Cyrus N., *Multiple Burials in Stone Cist Mounds of the Abilene Region.*

[24]Ray, Cyrus N., *New Evidence of Ancient Man in America.*

[25]See plate 17-2 in Bulletin of the Texas Archaeological and Paleontogical Society, vol. 3, 1931. No article accompanies this plate.

The classifiable specimens from this site are as follows:

1.	Small, well-made triangular arrow points, unnotched	10
2.	Similar, with *one* side notch	5
3.	Similar, with two side notches	32
4.	Similar, with two side notches and base notch	3
5.	Similar, with two pairs of side notches, no base notch	1
6.	Small, bi-pointed arrow points or awls	5
7.	Arrow points with bulbous stem and flaring barbs *(Alba Barbed)*	3
8.	Crudely made, stemmed dart points, quartzite and petrified wood	4
9.	Stemless dart point, Folsom shape but unchanneled; basal edges smooth	1
10.	Chipped piece of clear quartz crystal	1
11.	Chipped flint awls or drills, base unshaped	2
12.	Chipped flint awls or drills, base T-shaped	2
13.	Gravers, of flint chips unshaped except for tiny prong	10
14.	Snub-nosed scrapers with medial ridge (Ray's "P. scraper A"?)	3
15.	Snub-nosed scrapers, well-shaped on upper side ("P. scraper C"?)	2
16.	Snub-nosed scrapers, body shaped into shaft as though for hafting	4
17.	Side scrapers, long, with medial ridge	2
18.	Stone elbow pipe, fragment, probably broken before finishing	1
19.	Hematite celt fragment	1
20.	Hematite blocks, shaved and polished	2
21.	Scraped piece of steatite, central hole unfinished	1
22.	Pottery bead (?) barrel-shaped, length 1½ inches, unperforated	1
23.	Thick yellowish potsherds, impressed with woven textile (?)	4
24.	Shell-tempered potsherd, *Nocona Plain* (?)	1
		101

With the exception of items 2, 5, 8 (material), 9, 10, and 21, this collection bears close similarities with Harrell site artifacts. The greatest discrepancy lies in the general rarity of *Nocona Plain* pottery. Mr. Goodwin informs me that pottery of any kind is extremely rare in the Archer County country, which is puzzling, since it is very common in the Red River Valley to the north and in the 'Possum Kingdom Dam Basin to the south in the Brazos Valley. We may also note the lack of diamond-shaped, beveled knives in this collection, while they are present in the next to be mentioned.

The second site is on the South Fork of Little Wichita River, eight miles southwest of Archer City. The classifiable artifacts found by Mr. Goodwin here include the following:

1.	Small, well-made triangular arrow points, unnotched	3
2.	Similar, with *one* side notch	1
3.	Similar, with two side notches	3
4.	Similar, with two side notches and base notch	1
5.	Similar, with two pairs of side notches, no base notch	1
6.	Triangular arrow point, concave base, two side notches, and four pairs of small notches—one pair near base, three pairs in blade	1
7.	Arrow points with bulbous stem and flaring barbs (*Alba Barbed*)	2
8.	Arrow points with long pointed stem, barbs (*Perdiz Pointed Stem*)	4
9.	Arrow points with broad stem divided into two sharp tips	7
10.	Dart points, stemmed, rechipped	3
11.	Curved knife, double-pointed, with notches at one end	1
12.	Chipped awls or drills, base unworked	2
13.	Piece of quartz, chipped into blade (?), then worn down	1
14.	Hematite celt, polished	1
15.	Potsherd, rim, clay-grit temper, probably *Bullard Brushed*, trade piece from Frankston Focus, east Texas	1
16.	Diamond-shaped knives, beveled on four edges	6
17.	Small rim sherd, Rio Grande Glaze-polychrome, type indeterminate	1
		39

While this collection is too small for definite conclusions, Goodwin's experiences are of value. He recognizes, for example, that four-edged beveled knives are "common" in such sites as that on the Little Wichita, while he has not found them on sites like that on Onion Creek. The Little Wichita site also differs from Onion Creek in the presence of such arrow points as in items 6, 8, and 9; lack of dart points except for a few rechipped specimens; a rim sherd of Frankston Focus pottery and a tiny rim sherd of Rio Grande Glaze-polychrome, type indeterminate (pl. 6*i*). It will be recalled that at the Harrell site, seven of the 12 four-edged knives came from near the surface, as did the three examples of *Perdiz Pointed Stem* arrow points and the small sherd provisionally identified as *Poynor Engraved,* also a Frankston Focus diagnostic. Earl Morris has said "There is always danger of interpreting a local tendency as a time difference." With this warning in mind, it nevertheless appears to me that a time element is indicated by these aggregate representations from the different sites. If so, the Little Wichita collections would represent a slightly later complex than the Onion Creek; Onion Creek agrees on the whole much better with Harrell and with Ray's Site 17. If there are two complexes, they have much in common, but some turnover in arrow-point styles, knives, and perhaps in snub-nosed scrapers took place, with Frankston Focus trade pottery entering the later complex only. Without excavations this is little more than an impression.

UPPER RED RIVER

Farther down the Little Wichita, in the vicinity of its junction with the Red, Mr. Adolph Henry Witte of Henrietta, Clay County, has systematically explored the archaeological possibilities and published several short papers. As his work has been done with a combination of geological, paleontological, and archaeological knowledge, it represents about as much as one can hope to be accomplished by one man with limited free time. Writing of this area in 1935, Witte states that

> The surface geological formation is typical Permian, with red clays, blue shales, gray sandstone outcrops and sparse beds of water-worn pebbles and boulders. There are many sand dunes. No deposits of flint are known locally, but silicified wood, quartzite, and fine granular conglomerate are plentiful.
>
> The larger streams are rarely completely dry, and a few springs with permanent water are found back in the hills. . . . A dense stand of pecan, oak, elm, cottonwood, several varieties of wild plums, red haws and other tree species cover the stream banks. Water and wood with edible fruits and nuts made an enticing combination to the aborigines. . . .
>
> Hundreds of camp sites and workshops are known. Nearly all types of artifacts have been found within the bed of Little Wichita River, during seasons when the bed was dry. . . . Climatic changes have taken place since many sites were occupied . . . waterless sites are found near the margins of depressions that once were lakes, and along dry branches.
>
> A majority of all known camp sites are in the valleys on elevations above the high water mark. These elevations occasionally are sand dunes which are relatively retentive of moisture, and no better soils could have been found

for agricultural use. Successive tribes, coming into this locality always occupied the same sites. The artifacts found on one of these spots often range from thick paleolithic axes and leaf-shaped points to tiny pressure flaked arrowheads of the finest technique.

A few of Dr. Pearce's types from the three levels of Central Texas middens are found. Considered as a whole the predominant patterns are different. Excavations carried through certain of these local sites should expose the stratigraphy and tell the sequence of various types.[26]

There follow brief descriptions of the many artifacts of this area in general, with good illustrations. The following year Witte reported on excavations near the Red and Little Wichita confluence.

Several stratified sites, somewhat deeply buried, have been found. The overburden of sterile soil is quite thick and the expense of properly excavating the areas will be large. . . .

During 1935 several similar kitchen midden sites were discovered. Measurements indicated a thickness of 48″ or more in certain spots, and each midden was found to extend over a number of acres. Numerous flint rejects, bones, potsherds, perfect and broken tools, etc., were visible in the eroded slopes. Apparently each deposit contains thousands of bones and artifacts. . . .

Judging by the artifacts found, the middens tested by the excavations, were occupied by people of similar culture traits. Almost identical bone tools, chipped and polished artifacts, potsherds, etc., were found in each midden.

The sites described are situated near the largest streams within this area where a supply of water was always available. In addition, a large permanent spring is closely adjacent to the Ht. site. No evidence was found that the areas were ever submerged during the period of occupancy.

Our excavations showed that the camp-elevations were capped by a sandy soil stratum, human and aeolian in origin. The second stratum which is barren of bones or human evidences, is a compact red clay which probably has lain undisturbed since originally deposited during Permian ages. . . . During the geological history of these old river valleys, a period of time was reached in which erosion ceased on the clay elevations, and a period of upbuilding was begun by wind action. It appears that the Indians arrived and occupied the sites soon after this original upbuilding process started, because many bones and artifacts are found in situ, in close proximity to the second, or sterile clay stratum.[27]

The variety of food remains in these excavations is worth noting: fish scales came from one ash-pit; large numbers of mussel shells, turtle bones and tortoise carapaces came from all levels. Witte identified bones of several species of fish, also dog, bison, deer, rabbit, rat, duck, turkey, flicker, beaver, coyote, antelope, etc. Broken and scattered human bones are possibly indicative of cannibalism. Lack of either whole or fragmentary bison skulls suggests that the heads of these animals were not carried to camp. Corn kernels were found at the bottom of the middens. We will here list the artifacts mentioned. Those with an asterisk are illustrated by Witte.

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[26]Witte, Adolph Henry, *Archaeology of a Section of Upper Red River Drainage.* Reference is to Pearce, James E., *The Present Status of Texas Archaeology.*

[27]Witte, Adolph Henry, *Kitchen Middens of the Upper Red River Drainage.*

1. Bone awls, entire head intact.
*2. Bone awls, head of bone unaltered except by splitting.
*3. Bone awls, head partly worked down.
*4. Bone awls, splinters.
*5. Bone awls, fashioned from mammal ribs.
6. Flaking tools, antler tines.
7. Flaking tools, thick mammal leg bones.
*8. Flaking tools (?), deer ulnae with chisel point (listed as "weaving tools").
*9. Bone fish hook, fashioned from thick, flat bone, possibly bison scapula.
10. Bone game piece (?), pierced deer phalange (ring-and-pin game?).
11. Scapula hoe blades (2), distal and beveled; no notches or sockets for hafting.
*12. Bison-skull hoe blades, several found in midden, "a rather common tool in this locality"; cut from top of skull and base of horn core.
*13. End-scrapers or fleshers of bison metatarsus, cancellous interior entirely removed (therefore may be digging-stick points ?).
14. Arrow points, triangular, without notches (10%).
15. Arrow points, triangular, with two side notches.
16. Arrow points, triangular, two side notches and base notch (probably rare).
17. Arrow points with tangs and barbs (type Alba Barbed ?).
18. Longitudinally grooved sandstone arrow-shaft smoothers.
19. Sandstone hones (V-shaped grooves, several in each stone).
20. Manos, "usual oval-shaped type," from all depths.
21. "Metates," fragments only, "those with rather deep basin preferred."
*22. One four-edged beveled knife, of "Alibates flint."
23. Flake knives, leaf-shaped knives, and triangular knives (surface finds).
24. Few stemmed dart points (6 out of 200 projectile points from St. site).
*25. Unfinished elbow pipe of local sandstone.
26. Fragment of small, plain tubular pipe, local sandstone.
27. Fragment of small, plain tubular pipe, red sandstone.
28. Fragment of carved sandstone pipe.
29. Fragment of plain elbow pipe, sandstone.
30. Fragments of two large pottery pipes.
31. Hematite object, polished on both faces, crudely incised parallel lines.
32. Various paint nodules.
33. Small snub-nosed scrapers.
34. Two notched snub-nosed scrapers (i.e., with stems for haftment ?).
35. Flint awls.
36. Tubular bone beads.
37. Polished celts.
38. Misc. polished bone and stone objects, not classified.
39. Potsherds, tempered with shell (most common), occasionally with sand, gravel, bone, etc. "A small number might be classified as 'cord marked.' " Remainder undecorated, except one with row of nodes below rim. Two handles and one lug. Bodies globular and bottoms both round and flat. Vessels "fairly large mouthed with funnel-shaped, or straight cylindrical necks."

The great majority of these artifacts undoubtedly form a single association within the midden zones in general. Witte has carefully noted a few exceptions. Thus, he makes the important observation that "It would appear that the flat bottomed type of vessel was in somewhat late use only. Sherds that could be identified as belonging to this type were all found in the upper levels of the excavations." The significance of this will appear when

we compare Henrietta Focus with the Paint Creek culture of central Kansas. He also mentions that flake knives, four-edged beveled knives, leaf-shaped knives, and triangular knives are surface finds and in many cases the flint is not local but was apparently imported from central Texas. One four-edged knife was found in the top six inches and was of "Texas Panhandle flint," i.e., red-banded "Alibates flint." He notes, too, that the Little Wichita River county approximately marks the eastward limit to which this material was carried, and that it occurs in non-pottery sites as well. Three polished celts were found by Witte in non-pottery sites.

Regarding houses, on which there is such a vacuum of information in most of Texas, Witte indicates that there are possibilities in this area. Burned clay with impressions of grass and twigs "is unquestionable proof of earth covered dwellings of some sort."

Later, in several of the test pits we uncovered what appeared to be definite floor levels. Several fire-pits, and small storage cists were found below the floor levels. The mouth of one cist was covered by a stone slab. The contents of the cists were screened out, but nothing was found except the average camp rubbish.

In August, 1942, I was able to examine Mr. Witte's collections from pottery sites, obtaining a few notes of additional interest. From a midden site on a terrace on the right side of the Little Wichita, precisely at its confluence with the Red, Witte's collections conform to the general run of material described above; in fact, many of the illustrated specimens came from this site. Many rims of shell-tempered, plain jars have a clay strip fastened to the exterior. This strip forms a convex bulge at the top of the rim, squeezed down at the lip to form a rather sharp edge. It is not decorated. The flat jar bases are particularly interesting in that they are very thick and the vessel wall is attached to the upper side of the disk base rather than to its edge; this caused the base to protrude downward instead of blending with the side contours, forming a sort of "heel."[28] Two of these bases bear impressions of a coiled basketry plaque on the bottom, as though the disk base had been set on such a plaque in preparation for constructing the jar. Above the face of the base, no coiled impressions appear. Other odd sherds from this site include one clay-tempered body piece with brushed exterior, intrusive from Frankston, Titus, or Texarkana Focus in the "Caddo area"; two thick, yellowish bowl-rim sherds, finger-molded rather than coiled and quite like those from the Harrell site (pl. 6 *g, h*); one cordmarked body sherd with crushed rock temper; and two bone-tempered sherds with exterior marked with low, parallel zig-zagging ridges possibly impressed in the manner typical of certain Central Plains pottery.[29] Of considerable importance is the finding of six sherds of Chupadero Black-on-White in this site; Mr. Witte has found three or four others in the vicinity.

[28]Wedel, Waldo R., *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira*, pl. 3 *a*, shows a vessel with such a base from the Paint Creek culture, Kansas.

[29]E.g., Cooper, Paul, and Earl H. Bell, *Archaeology of Certain Sites in Cedar County, Nebraska*, pl. 4, no. 1.

Possible use of copper is shown by many small lumps of green mineral rubbed smooth on one side. Mr. Witte regards these as low grade native copper. Three polished celts were mentioned above. These, and three others from Witte's pottery sites, are of petaloid form, being broad and thick in the middle, with slightly flattened sides, tapered pole, and sharp bit. Such celts are undoubtedly trade pieces from farther east and continue to appear occasionally in the Red River Valley as far as the eastern corner of the Texas Panhandle, which seems to have been the most westerly point reached. They are sometimes found in sites yielding shell-tempered plain pottery in the Red basin.[30]

Bennett has published a short report on a test made in a campsite on a low dune on the north bank of Little Wichita River, Clay County.[31] The deposit, 48 inches in depth and underlain by sterile, compact red clay, is in agreement with those described by Witte. In a pocket 22 inches below the surface, a number of well-preserved bone implements were found. Certain implements were fashioned from bison horn and skull, the horn being split and ground to a flat surface on the split side to form a handle, and both the inner and outer sides of the skull attached to the horn were ground and polished. Because of distinctions in shape and sharpening of edges, Mr. Bennett judges that these served several purposes: ladles, knives, and fleshing and digging tools. Bison scapulae were also fashioned into implements, some evidently hoe blades, others having an oblique beveled cutting edge while the proximal end was cut down to form a handle or shaft for haftment. The test pit yielded other artifacts closely similar to those from Witte's site at the mouth of Little Wichita River: variety of bone awls including rib, sliver, split and unsplit deer cannon; deer antler punches and flakers; highly polished beads cut from leg bones of birds or small animals; polished disk cut from turtle shell; spatulate shaped tool of ulna bone; mano fragments; "one, broken, flat type metate"; notched and unnotched triangular arrow points; beveled knife; chipped awls or drills; snub-nosed scrapers; plain potsherds tempered with shell, bone, sand, and fine gravel; a small, fragmentary, incised object of hard pottery, and a poorly fired object of red clay which appears to be a human figurine.[32]

In The University of Texas files is a small collection from Buffalo Springs in southern Clay County. This includes several shell-tempered potsherds, a sherd identified by Mera as from a Rio Grande Glaze-polychrome olla (pl. 6 *c*) which "could date anywhere from *circa* 1450 to a century later," and many pieces of a smoothed, gritty, brown olla which Mera called "Brown ware"[33] (pl. 6 *d*).

Westward up the Red, nothing is on record from the vicinity of Wichita Falls. A short distance farther west, however, we have mentioned the activi-

[30]Mr. and Mrs. John Henry Ray, Vernon, Texas, have prepared a report on celts from their area for *American Antiquity*.

[31]Bennett, Leonard D., *Interesting Artifacts of Clay County, Texas*.

[32]The figurine, two horn-skull, and one scapula implement are illustrated by Bennett in his pl. 14. The collection, or a large part of it, is on display in the Historical Museum, North Texas State Teachers College, Denton.

[33]Mera, H. P., letter of October 1, 1945.

ties of Mr. and Mrs. John Henry Ray of Vernon. They have explored northern Wilbarger County, including the banks of Pease River, China Creek, Wanderers Creek, and the Red on both its Oklahoma and Texas sides. On page 52 it was mentioned that the Rays have found but one locality yielding cordmarked pottery in quantity; this is the Lowery site three miles below the mouth of Pease River. In examining their collections for possible trade pottery from east or west, I noticed none whatever that might have come from the Southwest. However, five sherds probably from the Lowery site are almost surely Sanders Focus pottery although lack of decorated pieces prevents positive identification.

On several other sites in this vicinity the Rays have found some 30 shell-tempered plain sherds, altogether a small amount considering the extensive surface collections they have made. They recognize the fact that cordmarked and shell-tempered sherds are found on different sites. The beautifully shaped and polished, dark green—almost black—celts found by the Rays on shell-tempered pottery sites have been mentioned. A striking feature of these sites is the great number of manos, more numerous than any other artifacts. Of at least 600 of these, only a few are unshaped river pebbles used with rotary motion; the remainder are well shaped, rectangular with rounded ends, oval, and circular, with flat grinding surfaces, used with back-and-forth motion (pl. 15). Some have one flat face, the other gabled into two flat facets meeting in a shallow ridge; some are circular; and still others have two flat faces converging in a sharp edge (pl. 14). Of particular interest are five or six long, *two-band* manos (pl. 13 *a, b, c, d*). The slabs are generally thin and quite flat, only a few bearing oval basins. Clearly the back-and-forth motion on a flat metate greatly predominated over rotary motion in an oval basin throughout this vicinity. Projectile points center around the ubiquitous triangular, side-notched arrow points, with a few stemmed and barbed, as well as stemmed and stemless, triangular dart points. Four-edged, beveled knives are very rare. They have found almost no bone or antler implements, perhaps because they have never attempted to excavate and these objects are seldom preserved on the surface.

As Wilbarger County appears to mark the western limits of shell-tempered pottery and associated artifacts, we may now proceed eastward down the Red River Valley. The Clay County sites of Witte and Bennett have been discussed. The same proliference of this pottery, plain and side-notched triangular arrow points, four-edged beveled knives, elbow pipes of sandstone, bone awls and punches, small snub-nosed scrapers of Cyrus N. Ray's "C" form, delicate, chipped awls or drills with unworked bases, occasional bone tools, hematite artifacts, etc., continues to appear in sandy, arable spots through Montague, Cooke, Grayson, and Fannin counties, and into the northwest corner of Lamar County. Here they appear superimposed on the Sanders Focus component at the T. M. Sanders site near the town of Direct (see Sanders Focus). Probably several hundred sites consistently yielding these artifacts are known to private collectors, some of whom have amassed incredible numbers. Thus the same run of material occurs through at least

200 miles of the Red valley, on the Texas side from the Panhandle corner to within 80 miles of the Oklahoma-Arkansas line, and in all probability in like amount on the Oklahoma side as well.

On the banks of Red River north of Nocona, Montague County, a site known as Spanish Fort is of particular interest because it is undoubtedly the scene of a Caucasian establishment among Wichita Indians in the middle eighteenth century. To avoid confusion, this will be discussed in a separate section (see pp. 161–164).

The Denison Dam on Red River, recently completed, has created an enormous lake in Grayson and Cooke counties, Texas, and the lower valley of Washita River in Oklahoma. This lake has destroyed forever an untold number of archaeological sites which, had they been thoroughly excavated, would have produced much valuable data. Despite the efforts of Dr. Arthur Kelly of the National Park Service in 1942, salvaging was not conducted on the Texas side. Mr. N. C. Dorchester of Sherman and Denison is an enthusiastic collector and provided Dr. Kelly and the writer with information on many sites in and around this basin. Mr. Dorchester has kindly lent the material from two sites for study and photography. The objects from one of these, Site 50, may be listed briefly.

1.	Well-shaped, small, triangular arrow points, unnotched	23
2.	Similar, with two side notches, no base notch	7
3.	Stemmed arrow points, type *Alba Barbed*	8
4.	Stemmed arrow points, type *Perdiz Pointed Stem*	2
5.	Stemmed arrow point, type *Scallorn Stemmed* (?)	1
6.	Dart points, *Gary Contracting Stem*	2
7.	Dart points, corner notched, slightly expanding stem	2
8.	Flake awls or drills, base unworked	5
9.	Awls or drills, base T-shaped	1
10.	Small, well-shaped snub-nosed scrapers, Ray's "P. scraper C"	20
11.	Snub-nosed scrapers, Ray's "P. scraper A" or "B"	8
12.	Quartz pebble chipped into small fist axe or side scraper	1
13.	Flake gravers	5
14.	Side scrapers of flint spalls with one retouched edge	8
15.	Crude leaf-shaped knives	6
16.	Yuma-like blade, broad stem, slight shoulders, rechipped blade	1
17.	Knives with asymmetrical, curved blade	2
		102

UPPER TRINITY RIVER BASIN

Similar materials occur southward, out of the Red drainage and into that of the upper Trinity River in Collin and northern Dallas counties. In the upper Trinity basin there are clearly at least two pottery-bearing culture complexes, one affiliated with material to the west and northwest which we have been reviewing, the other with northeast Texas "Caddo." Mr. R. K. Harris of Dallas has published an important survey[34] of this area in which this distinction is made in the valleys of the Elm and East Forks of Trinity River.

> . . . the sites on East Fork, and also those located on the east side of Elm Fork, show remains of a people which was closely related to the Caddo Nation. The camps situated on the west side of Elm Fork all seem to have been made

[34]Harris, R. K., *Indian Campsites of the Upper Trinity River Drainage.*

by people culturally related to those which were located on the west of them, along the Brazos River. The writer judges this from the almost complete change of flint and also the change in the type of artifacts found in camps on the west side of Elm Fork.

Mr. Harris' survey covers parts of Rockwall, Collin, Kaufman, Dallas, and Denton counties, to the northwest , north, and east of the city of Dallas. He clearly recognizes that predominating pottery tempers are shell and bone, with some untempered sherds. As he lists and illustrates his collections from each site, with notes on their "western" and "eastern" connections, there is no need to repeat this information. A general dearth of triangular arrow points, plain and side-notched, except in sites to the northwest of Dallas, is significant. We may also recognize in his plates a number of the projectile-point styles we have repeatedly mentioned in north Texas pottery sites.[35] Some of the illustrated potsherds probably belong to Frankston Focus types.[36] It should also be noted that Harris has not found any pottery on several sites which yielded numbers of small, well-made arrow points. This circumstance, like that found by Mr. Powell Goodwin in Archer County, deserves careful attention. Since all the other artifacts found on these sites agree closely with those from pottery sites, the lack of pottery probably does not connote any great difference in time. Both kinds of sites are found in sandy locations and along stream terraces where native agriculture could have been—and almost certainly was—practiced.

Harris has recently published an account of a most interesting burial in which eight bison-scapula hoe blades were placed.[37] The skeleton was tightly flexed, on the left side, head to east and hands covering the face. Charcoal and mussel shells were found throughout the grave. The eight bone hoes lay on a carefully prepared bed of mussel shells and ashes just in front of the flexed knees. Six of the blades lay superimposed, while the other two were set on edge, parallel to and on either side of the pile of six. Those on edge revealed no modification for hafting, but the other six scapulae each had a round socket cut straight into the proximal end for reception of a stick. Harris states that the socket was burned out, then its sides smoothed.[38]

The village site in which this burial was found is located on the west side of Pilot Creek eight miles above its junction with the East Fork of

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[35]*Idem.* Triangular arrow points, plain and side-notched: pl. 17, nos. 23, 27, 34, 35; pl. 19, nos. 25, 26. *Perdiz Pointed Stem:* pl. 17, nos. 28, 29, 31, 38; pl. 18, nos. 10, 23, 27, 30, 36; pl. 20, nos. 8, 9. *Alba Barbed:* pl. 17, nos. 22, 24, 25, 36, 37, 39, 40; pl. 18, nos. 18, 21, 22, 24, 25, 28, 29, 30-34, 37-39; pl. 19, nos. 6-10, 13, 17, 21-24, 27, 31-34, 37, 38; pl. 20, nos. 2-4, 7, 10. *Gary Contracting Stem* dart points: pl. 17, nos. 41-45; pl. 18, nos. 2, 14-16, 40, 41, 43, 44; pl. 19, nos. 30, 35; pl. 20, no. 5. Dart points, corner-notched with straight to expanding stem: pl. 18, nos. 1, 9, 42; pl. 19, nos. 19, 20, 36, 40. Flint awls or drills with T-shaped base: pl. 17, no. 32; pl. 18, no. 5. Flint awls or drills with unshaped base: pl. 17, no. 33; pl. 18, nos. 2, 4, 6-8.

[36]*Idem.*, pl. 21, panel 2. With one or two exceptions those in panel 1 do not seem to belong to these types. The profile at the top of panel 1 shows the thick disk base mentioned in connection with Mr. Witte's excavations at the mouth of Little Wichita River, where it was found with shell-tempered jars (pp. 183).

[37]Harris, R. K., *Bone Implement Burial, Collin County, Texas.*

[38]The same method of hafting scapula hoe blades was found at the T. M. Sanders site in Lamar County (pl. 23 *a*), and one Harrell site fragment was possibly socketed (pl. 7 *b*). The trait is also reported by Orr for the Fort Coffee Focus in east-central Oklahoma, and by Wedel for the Paint Creek sites in central Kansas (see Henrietta Focus Traits).

Trinity River, in southern Collin County. Harris states that most of the artifacts from the site "are of the same types as found in all East Fork pottery sites" (see above), but that two peculiar facts distinguish this and the Ragland site (20 miles down the East Fork) from others. First, pottery is scarce at these two sites, and about 95 percent of it is plain and heavily shell-tempered. (In most East Fork sites clay-tempered pottery is plentiful and about 40 to 50 per cent of it decorated.) Second, "Bone work at each of these two sites is very plentiful, while at other East Fork pottery sites it is found, but is scarce." The heavily shell-tempered pottery is very likely identical to *Nocona Plain* and this, together with the scapula hoe blades and general prevalence of bone artifacts, definitely points to a connection between these two sites and the Plains-like material all through north-central Texas which we have been reviewing.

In 1942, Mr. Harold M. Kautz, then of Sterling City, Texas, kindly allowed me to examine a collection made by him from a site in northeastern Collin County, about four miles northwest of Farmersville. Undecorated, coarse, shell-tempered sherds are plentiful here, while a few incised, one engraved, and two brushed sherds probably represent trade pieces from the upper Sabine River Valley to the east. There are many *Gary Contracting Stem* dart points and *Alba Barbed* arrow points, a few *Perdiz Pointed Stem* and triangular arrow points, one corner-notched dart point, a number of flake awls or drills with unshaped base, and several bone awl fragments.

HENRIETTA FOCUS TRAITS

This survey has by no means exhausted the archaeological materials of north-central Texas. However, it will be seen that if one takes the occurrence of shell-tempered pottery as a guide, many other artifacts tend to be consistently associated with it. This circumstance holds over a very large territory, and it is probable that hundreds of sites reveal the same run of material. The following general characteristics of a proposed Henrietta Focus are offered as a preliminary list of traits which occur together consistently. Indications that they are not all of equal age or distribution even in north Texas, are discussed at the end of this section.

Type Site: On M. D. Harrell place at junction of Brazos River and Clear Fork in southern Young County, one mile north of South Bend. Excavated by WPA-University of Texas State-wide Archaeological Survey in 1938–1939.

Other Components: Site 17 (Ray, 1935) and probably others, such as Ray's Sites 13, 15, in the Abilene region. Onion Creek site, Archer County (Goodwin). Various midden sites near mouth of Little Wichita River, Clay County (Witte, 1936; Bennett, 1936). Various sites in northern Wilbarger County in vicinity of lower Pease River and Red River (Mr. and Mrs. J. H. Ray). Site 50 near Denison, Grayson County (Dorchester). Pilot Creek site, Collin County, and Ragland site, Dallas County (Harris, 1945). Various sites on Elm Fork of Trinity River, Denton and Dallas counties (Harris, 1936). Farmersville site, Collin County (Kautz).

Economy: Joint dependence on maize agriculture and hunting; bison the chief animal hunted, also deer, antelope, various small animals, turtles, tortoises, and turkey, ducks, etc. Fish caught, as shown by numerous bones in middens and occasional bone fish-hooks. Wild plants, seeds, nuts, berries, mesquite beans, etc., probably utilized as they abound in the region. No direct evidence of cultivated plants other than maize has been found.

Villages: Little known of their size, but sites commonly cover from one to five acres, with midden depths ranging to five or six feet. Numerous rock hearths indicate prolonged occupation in favored spots. Located on grassy, anchored sand hills and dunes on plains, and on sandy knolls and terraces overlooking numerous large and small streams such as upper Brazos, upper Trinity, Pease, Red, Big Wichita, and Little Wichita rivers with their tributaries. All reports stress sandy locations rather than open sod plains.

Architecture: Nothing known. Only report mentioning possible house floors is by Witte (Witte, 1936) at mouth of Little Wichita River.

Agricultural Implements: Hoe blades of bison scapula, with and without hafting socket in proximal end. Hoe blades cut from top of bison skull, using horn base as handle or hafted end. Possible digging-stick points made of hollowed-out bison metapodial or cannon bone, the shaft beveled to a chisel-like edge; these appear in sites near Red River but not to south. Large, perforated mussel shells possibly served as hoes, unperforated ones as "hand hoes."

Food Storage: Simple, unlined pits common in the few excavated sites. These may have been convenient depressions, or scooped out pits, or both, about two or three feet deep, and of indefinite shape. No deep, undercut or "bell-shaped" pits known.

Food Preparation: Hearths, either flat or basin-shaped, lined with limestone slabs, very common in type site (as well as in Clear Fork, Abilene, Edwards Plateau areas in general) but so far have not been recognized to the north of the upper Brazos Valley.

The characteristic grinding implements are flat sandstone metates used over the entire surface (usually, only one surface used) with well-shaped rounded-rectangular manos in back-and-forth motion. No metates with rectangular trough known. Manos of convenient one-hand size, sometimes thick and heavy, usually worn down to two flat faces, or one flat face and the other convex or slightly gabled; the two faces usually pecked to different degrees of roughness. These implements appear consistently over the entire area. Manos with two flat faces converging in a sharp edge are fairly common in immediate Red River Valley, rare in sites farther south. Long, *two-hand* manos appear rarely in Red River Valley (vicinity of Vernon, Wilbarger County, and Montague County).

Less commonly used for grinding were sandstone and limestone slabs in which oval basins were pecked and worn with unshaped, thick stream pebbles. These were used with rotary motion and the slabs often have basins in both faces, pecked to different roughnesses. The sill around the basin was not used. Collections from nearly every site indicate that rotary grinding continued in use, although in minor capacity, after the back-and-forth principle was established.

Large flint hammerstones, thick, discoidal shape, may have been used for crushing vegetal food, dried meat, etc., among other uses. Especially common in type site. Flint "bone crushers" or nodules crudely chipped into blade with original surface at one end to fit the palm; especially common in type site.

Resident pottery was apparently all utilitarian. It was coiled, heavily tempered with crushed mussel shell, coarse in texture. Shapes almost exclusively jars, the remainder deep bowls of simple contour. Jars at the type site have globular bodies, round bottoms, rims short and vertical to outward-curving; handles probably absent. Occasional decoration in form of a row of small nodes stuck to exterior around base of rim; striations or brushed lines on body; small, round pits pressed into surface with blunt implement. Lips simple and rounded, not notched. Surfaces poorly smoothed, temper showing abundantly. Colors light brown, yellowish brown, pinkish brown, reddish brown, and grey to black; core usually grey. (See type *Nocona Plain*, Harrell site.) Along Red River Valley, this type is also common; in addition, jars appear with straight, vertical rim, gently sloping shoulders, tapered body, and thick, flat base protruding downward. (See Wedel, 1942, pl. 3 *a* for illustration of form.) Witte (1936) presents evidence that such jars entered the Little Wichita River sites somewhat later than round-bottomed form. Marks of a coiled basketry plaque seen on some flat bases. In sherd collections these jars cannot be distinguished except by the base; texture, temper, color, etc., are identical.

In several sites, occasional sherds of a different ware have appeared. These are very thick (up to ¾ inch), crudely molded with fingers rather than coiled, untempered or tempered with hard clay lumps, of reddish or yellow color throughout. Exteriors sometimes bear impressions of woven textile (?), partly smoothed over. Interiors sometimes bear a light red film, evidently applied before firing. Cordmarked sherds occasionally appear in Red River sites but association uncertain.

Cutting, Scraping, Skin Preparation, etc.: Small, well-shaped snub-nosed scrapers, chipped all over upper side, body tapered toward heel, corners at bit end often sharp, or one corner sharp and other rounded (Ray's "P. scraper C" form—Ray, 1935), common and predominating type. Other snub-nosed scrapers, made by chipping bit at end of thick flint spall, body unshaped, ridged, or thinned by removing long flakes from the top (Ray's "P. scraper A" and "P. scraper B") also found but in lesser numbers (except at type site). Snub-nosed scrapers with body constricted to form a stem (for hafting ?) occasionally occur.

Side scrapers in the form of crude flint spalls, unmodified except for slight retouching on one or more edges, are very common. Some bear concave and semicircular segments usable as "spokeshaves"; some bear both "spokeshaves" and tiny graver points. Well-shaped oval scrapers appear occasionally. Crudely shaped hand-size "picks" of flint appeared in the type site, as did a number of flint gouges with thick, concave bits; association with the focal complex is uncertain.

Knives include leaf-shaped forms with straight and convex to nearly pointed bases; narrow leaf-shaped form which curves slightly or one edge straight and other convex; diamond-shaped with four straight, beveled edges; and others with one end rounded, the other end pointed with two straight, beveled edges. Some evidence that the beveled forms are late accretions to the focal complex.

Mussel shells and flint spalls with serrated edges ("saws") appear occasionally.

Knives and/or draw-shave scrapers of bison scapula and skull-horn sections appear in Red River components, especially about mouth of Little Wichita River, Clay County.

Sewing, Punching Implements: Flint awls or drills common, with "flake" form predominating, i.e., made from flint spall unshaped except for delicate shaft about one inch long; also with base chipped into narrow T-shape and into more or less of a square.

Bone awls plentiful. Usually made from deer cannon or metapodial, including head unworked, head split, head partly worked down, and head wholly worked down. Also splinters of deer and bison leg bone, unworked except for sharpening of tip, and fish bones sharpened at tip. Awls of bison rib from Red River sites.

Sandstone hones, probably used for sharpening bone implements.

Gravers common; made on unshaped flint spalls and side-scrapers, often combined with spokeshaves.

Chipping or Flaking Tools: Deer ulnae, with tip cut straight across like chisel point, possibly used for flaking. Antler tines with blunt tips. Also, implements cut from thick, rounded edge of bison rib, with rounded tips, from type site, may be flaking tools.

Weapons: (A) Arrow Points: Small, well-shaped triangular points, chipped on both faces. Unnotched form probably predominates, but two side notches with and without base notch, also common. A form with widely flaring barbs, concave blade edges, and stem which expands in the middle and contracts at the base (type *Alba Barbed*) fairly common. Other forms found at type site not known to be constantly associated.

Weapons: (B) Dart Points: Small numbers appear consistently, but no study of forms and frequency has been made. The type site reveals several distinct forms in association with focal complex, most of which are characteristic of "Edwards Plateau Culture" throughout central Texas and appear to survive into pottery association here. However, whether such a trend applies to other components is uncertain. Most common dart point in all components except type site has broad blade, corner notches, barbs, and stem with parallel to expanding edges.

Weapons: (C): Supplementary Tools: Shaft smoothers or abraders, of sandstone, poorly shaped blocks with longitudinal groove; possibly used in pairs. More common in Red River components than to south.

Woven Artifacts: Coiled basketry plaque (or basket bottom) impressed on flat base sherds in Witte collections from site at mouth of Little Wichita.

Ornaments: Beads or pendants made from mussel shells by piercing thickest part near hinge. Beads made of short sections of bird bone, polished butt ends usually not trimmed. *Olivella* beads, spire removed, found occasionally. Beads (?) of pottery, more or less cylindrical with swelling midsection, or shaped like flattened sphere, centrally perforated, occasionally found. Inlays (?) of thick, polished mussel shell, unperforated, small disk beads, and beads of fossil crinoid sections found at type site.

Ceremonial Objects: Equal-arm elbow pipes of light greenish-brown sandstone. Each arm bulges in middle, and better-made specimens have very low flange at one or both ends; flange may be incised.

Long tubes of bird-leg bone, either plain or incised with straight-line, geometric designs (hatched, cross-hatched, zig-zagged, etc.); possibly used as sucking tubes.

"Rasps" of bison rib, notched along inner edge, not on sides. Other bones, such as deer or antelope leg, notched along one edge or face, occasionally found.

Burials: Little data other than that from type site. Here bodies tightly to loosely flexed, buried in shallow graves, singly or in groups, without durable offerings. Objects may be found in place as worn in life. In some group burials, bodies laid parallel on same side, heads in same direction, flexed legs

interlocking, "spoon fashion." Hands usually over face. Head not oriented in any particular direction. Preservation usually poor, but either skull or mandible definitely absent in some cases, placed in odd positions in others. One "sitting" burial, trunk pushed forward on to outstretched legs. One secondary, bundle burial. Stone slabs sometimes placed over body or on grave fill. One tightly flexed burial in small "box" with slabs on floor, three vertical slab sides, cover stones; another in very crude box-like arrangement of slabs. One single and one group burial (six persons) had slabs around them as though lining circular pit. Most burials found were in small cemeteries. Flexed burials in circular and oval, slab-lined pits found by Ray and others in Abilene area, may belong to this focus.

Miscellaneous Artifacts:

Small, polished hematite celts.
Small blocks of hematite, scraped and polished.
Small sandstone balls (concretions).
Clay figurine (?) fragments.
Bone fish-hooks.
Obsidian chips and (rarely) artifacts.

Trade pottery from Southwest: "brown ware," southeast New Mexico; Chupadero Black-on-White; Glaze-paint polychromes (late 15th century ?).

Trade pottery from Southeast: *Bullard Brushed*, *Maydelle Incised*, and possibly *Poyner Engraved*, all Frankston Focus types centered in Neches River Valley, central east Texas. *Association with focus not certain;* some evidence that they occur late in focus or only in Austin Focus.

Polished greenstone celts, thick, oval in crosssection, with tapered pole, found in Red River sites. Probably trade pieces from farther east.

Illustrations of many of the above artifact forms from the Harrell site will be found in Plates 4-15 in the present work.

Certain discrepancies between sites in the Red River basin and those farther south in the upper Brazos and Trinity drainages suggest that the material listed above may belong to two complexes rather than one. Thus, knives and draw-shave scrapers made from bison scapulae and skull sections, chisel-like "digging-stick points" of hollowed-out bison metapodial, awls fashioned from bison rib, two-hand manos, greenstone (trade?) celts, and jars with flat, extended bases, have not yet appeared farther south than the middle Red River Valley.[39] Other items seem to occur more commonly in the Red valley than in other valleys just to the south. Edged manos, sandstone shaft abraders, four-edged beveled knives, similar knives with two beveled edges at one end and the other end rounded, and the use of "Alibates flint," are among those traits which not only fade away south of the Red, but may also be of later date in this direction. The occurrence

[39]An exception may be seen in a complete shell-tempered jar from a burial in the William Farrar site, Titus County (pl. 5 *d*). This burial, and most of the Farrar site material, clearly belongs to what the writer has called Titus Focus, and the jar is obviously a trade piece.

of beveled knives south of Red River is certainly confined to a very late horizon.[40]

Grooved mauls of common Plains form, and grooved axes also appear in rare instances in the upper and middle Red River Valley, but these have not as yet been associated with any particular culture complex. Some at least, may have been left by such historic tribes as Wichita and Comanche.[41]

On the other hand, many artifact groups at the Harrell site, such as flint gouges and picks, sandstone "tablet" fragments with beveled edges, socketed antler "tool handles," several arrow and dart point styles, many of the "miscellaneous" Harrell items, and the occasional placement of burials in rude box-like cists, are features not yet recorded for Red River components of the projected Henrietta Focus.

The problem will not be solved by a culture classification, as such. Further excavations are, of course, a prime necessity, but at the same time it is well to view a "focus" as a flexible entity. Accretions of new traits, or progressive development of certain traits within a general assemblage, are factors which must be considered. I do not believe that a "Henrietta Focus" is merely a catch-all for a great deal of material in north-central Texas. It is, rather, a starting-point toward organization in this region. There is no reason why it cannot be divided into two or more distinct aggregates when the material is better understood, especially in the relative time at which various elements appear. With this in mind, certain comparisons with other archaeological cultures may be initiated.

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[40]Poteet, Sybil, *The Occurrence and Distribution of Beveled Knives*, has made an excellent study of these artifacts in Texas, stating (p. 246) that none are found at a depth greater than 12 inches anywhere south of a line from Lubbock to Texarkana. Some Harrell site beveled knives were deeper, but the statement is acceptable as a general indicator of the late position of this trait south of Red River. Throughout central Texas, beveled knives belong to the protohistoric Austin Focus and always occupy a surface or near-surface position, often on top of older "burnt-rock middens." In northeast Texas four-edged knives are plainly intrusive and of historic provenience in all cases where the data is specific.

[41]Mr. Joe Benton of Nocona, Montague County, has an enormous collection from various sites in that county. In August, 1945, I made a superficial study of this collection, noting five heavy mauls with encircling groove lacking about one inch of being complete; these compare favorably with five found by Kidder (*The Artifacts of Pecos*, fig. 31 *a-b*, pp. 54-55) at Pecos. Two Pecos specimens came from deposits not later than Glaze II, and at Forked Lightning they were "relatively much more common." Mr. Benton also had at least six mauls with blunt, squared ends and full groove, similar to the two from Pecos described by Kidder as "pemmican pounders" used by Plains tribes. The collection contains about 30 maul fragments too incomplete to determine whether the groove had the gap mentioned. He states that with one exception these all came from a 15-mile stretch of Red River north of Nocona; the exception is a full-grooved maul from a campsite in Clay County 20 miles south of the Red.

Witte, Adolph Henry, *Archaeology of a Section of Upper Red River Drainage*, p. 49, mentions a three-quarter grooved maul from the Dry Fork of Little Wichita River, and two other mauls reported to him. Mr. and Mrs. John Henry Ray of Vernon, Wilbarger County, have described two such mauls to me from their vicinity but the nature of the groove is unknown. Mr. Powell Goodwin has described one from a site near the upper Brazos River in Young County, outside the Red River Valley. It is highly desirable that the association of these implements be determined. Since incompletely grooved specimens belonged to Forked Lightning and early Pecos levels, it is suggested that those found by Witte and Benton are from earlier sites than those included in Henrietta Focus. The completely grooved mauls, on the other hand, may have been left by Plains tribes entering the Red valley in historic or near-historic times.

Henrietta Focus: Age and Affiliations

WE HAVE JUST considered that the material included under Henrietta Focus shows certain distinctions in the Red River Valley and in the upper Brazos and Trinity river basins, and that two separate foci may develop when associations are better known. So far as one may suggest dates for this material at present, there is little difference between the northern and southern components.

DATINGS FROM PUEBLOAN SHERDS

It will be recalled that Witte's excavations at the mouth of Little Wichita River revealed a "pure" assemblage of what I consider to be common Henrietta Focus traits, and that six sherds of Chupadero Black-on-White were found here, together with three or four others of the same type from neighboring sites of similar content. These are the only Puebloan trade sherds in Red River components of the focus of which I have record. Chupadero is a difficult type to date, for according to Mera:

> . . . its range of existence is overly long. It is known from sites dating as early as sometime in the 13th century up until fully into the 16th century. Without tree-ring data, pure Chupadero sites have to be dated by intrusive material, as practically no thorough excavations have been undertaken.[42]

We have noted that Chupadero, El Paso Polychrome, and several associated types are of common occurrence in the Llano Estacado and Trans-Pecos, Texas, where an eastern frontier of Puebloan culture seems to have been attained in the 15th century. Witte's Chupadero sherds may have reached Clay County as this Puebloan expansion reached its maximum eastward extent, or during the greatest popularity of this type as a trade article. At any rate, a time during the 15th century is indicated.

One sherd of dark brown pottery bearing a small strap handle, from the Harrell site and evidently found on or near the stratigraphic line between Levels I and II, was identified by Mera as "Brown ware, unclassified" (pl. 6*b*). A second, nearly identical sherd in The University of Texas files, is

[42]Mera, H. P., letter of October 1, 1945.

labeled "Young County" and may have come from the Harrell site (pl. 6 *a*). Of this ware, Mera states in the same letter that

> This variety is not easily defined and appears, at the present, to be a thinning out of the better standardized brown-paste wares to the west and south [in southeastern New Mexico]. It is an eastern marginal form and has not usually been found, to the best of my knowledge, with remains of visible house structures. It normally occurs on open sites, notably among sand dunes. Only associated sherd material yields any clue as to probable period. It may be the result of an exodus of peoples in the 15th century from east central New Mexico.

It is impossible to determine whether the above sherds represent trade with southeastern New Mexico before the indicated exodus began, or with Puebloans who may have occupied the western Texas Panhandle after (or as a result of) this exodus. One may suspect a dating in the latter half of the 15th century. The same may be said for the fragments of a "Brown ware" olla from Buffalo Springs in southern Clay County (pl. 6 *d*).

Two glaze-paint polychrome sherds, one from Buffalo Springs (pl. 6 *c*), the other from Powell Goodwin's Archer County site on South Fork of Little Wichita River (pl. 6 *i*), were also examined by Mera and "could date anywhere from *circa* 1450 to a century later." Several Chupadero and glaze-paint sherds have been found in the Abilene region on sites which, while not components of Henrietta Focus, are probably rather closely related to it and belong to the same general time period. Those for which a rough dating may be made on the type of glaze used (no rims are present) are said to have been made no earlier than the latter half of the 15th century.[43]

Several difficulties lie in the path of accepting the Puebloan sherds as a completely accurate means of dating the focus. First, the sherds themselves cannot be precisely dated even in their source areas. Second, the evidence for specific association with the focus is not as satisfactory as one could wish, although in nearly every case the sites are "pure" Henrietta Focus components or overwhelmingly so. Third, the evidence for trade lies in one direction only. Against these objections, the scanty evidence points consistently in the same direction, namely, toward the latter half of the 15th and early part of the 16th centuries. Moreover, as will be seen below, the focus cannot well be identified with historic inhabitants of the same area, such as the Wichita groups. It therefore appears probable that Henrietta Focus was in existence by 1450 and continued well into the 16th century, perhaps to 1600 or thereabouts.

DOCUMENTARY CONSIDERATIONS: THE WICHITA

Sayles[44] has defined a "Wichita Phase" in Texas which covers an enormous territory extending from the upper Red River Valley completely across the

[43]Ray, Cyrus N., quoted in Smith, V. J., *The Pottery Horizons of Texas*, p. 110; and Ray, editorial note in Texas Archaeological and Paleontological Society Bulletin, vol. 1, p. 191, who quotes from a report by Mera.

[44]Sayles, E. B., *An Archaeological Survey of Texas*, pp. 85, 90. pls. XXII, XXIV, tables 7, 9, and map E.

state in a southwestward direction to the Rio Grande—an area occupying at least one-third of Texas. Among the traits included in this "Phase" are: beveled, double-pointed (diamond-shaped) knives; small, keel-backed (snub-nosed) scrapers; fine triangular (arrow) points with side notches and base notch; flake drill with unshaped base; various leaf-shaped knives; "battered handaxe" and "battered nodule"; oval milling mano and "oval bowl, milling metate"; chipped handaxe; retouched axe and knife blades; celt; and fine, thin projectile points with long barbs and long, pointed stem, made from a flake and retouched on one side only. The pottery is said to consist of "common plain ware of the Hasinai and Red River phases, together with a distinctive plain buff ware. . . tempered with bone. . . ."

Assuming for the present that these traits are found in a single complex occurring over an area over 600 miles long and 400 miles wide, it will be instructive to inquire what connection it may have had with Wichita tribes.

As no one has claimed that Wichita lived farther south than about the center of Texas, we can concentrate on the north-central region, between the parallel of present Waco and the Red River. As neither Coronado nor De Soto is known to have explored this part of Texas or the Red River Valley between the Panhandle and Arkansas boundaries, there is little possibility of determining which peoples occupied this region in the 16th century.[45]

In 1629, in answer to a request by Jumano Indians for missionaries, Fray Juan de Salas and Fray Diego Lopez left Isleta, New Mexico, and traveled 112 leagues east or southeast with the Jumano. This location must have bordered on the saline lakes of the Llano Estacado of eastern New Mexico, and it is said that here the Jumano were neighbors of the Iapes and Xabatoas; farther east were Quiviras (Wichita?) and Aixaos.[46] The latter are supposed to have been Aijados or Taovayas, a subdivision of the Wichita who may positively be recognized in the Red River Valley during the 18th century. This information might place Wichita-speaking tribes somewhere in the southeastern Panhandle of Texas by 1629, though this is highly indefinite.

In 1650, Captain Hernan Martin and Captain Diego del Castillo traveled from Santa Fe to the "Rio Nueces" (rather certainly the Concho, a branch of the Colorado in west-central Texas), remaining there among the Jumano for some six months, then followed this stream eastward through the land of the Cuitaos, Excanaxaques, and Aijados (Taovayas?). After 50 leagues they came to the borders of the Tejas Indians.[47] It is possible that this expedition

[45]Hodge contended that Coronado marched into the Colorado drainage of west-central Texas before striking northward toward Quivira. (See Brower, *Harahey*, vol. 2, p. 64.) Such a course might have taken the expedition across the Red in the vicinity of, say, Vernon or Wichita Falls, Texas. Most authorities confine Coronado's route in Texas to the Panhandle area. The weaknesses in Hodge's route, and points in favor of a route by way of Palo Duro Canyon, are ably and convincingly discussed by Wedel, *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira*, pp. 10-18. The followers of De Soto under Moscoso, according to Swanton, reached the river Daycao in Texas, probably the Trinity. (Swanton, John R., *Source Material on the History and Ethnology of the Caddo Indians*, p. 32.) This course might have reached the Trinity not far below Dallas.

[46]Ayer, Mrs. Edward E. (translator), *The Memorial of Fray Alonso de Benevides, 1630*, pp. 57-58.

[47]Kelley, J. Charles, *Jumano Relations at La Junta de los Rios* (Ms.), wherein very careful consideration is given to source material on these explorations.

explored the upper Brazos Valley before reaching the Tejas, but this again is problematical.

The following 70 years saw little, if any, exploration of the north Texas plains. Up to this time we see but two suggestions that Wichita lived in this region in the 17th century, both vague and subject to the usual questions as to direction and distance from known points. Moreover, these locations do not agree well with others, more definite, in the 18th century.

The first definite account of Europeans in the Red River Valley above its great bend in Arkansas occurs in 1719. Here Du Rivage met parties of Tonkawa and Wichita, the former probably on a hunting or warring expedition from central Texas, the latter perhaps from the north for the same purpose.

It was apparently the expedition of La Harpe in 1719 that first brought the French into contact with the Tonkawa and Wichita tribes. While at the Nassonite Caddo village in that year he sent Du Rivage to reconnoiter the country farther on. Seventy leagues up the Red River Du Rivage met a party of Quidehais, Naouydiches, Joyvan, Huanchane, Huane, and Tancaoye returning from war with the Apache, and by means of presents which he bore for the purpose he gained their friendship. Among these tribal names we recognize what were probably the later Kichai, Yojuan, and Tonkawa. Just where they were living at that time is not definitely known, but the inference is that it was in the general vicinity where they were met, near the Red River.[48] From the Nassonite village La Harpe went to the lower Canadian River and made an alliance with nine tribes, collectively referred to as Touacara, whom he found settled there. Among these were the Touacara, Toayas, and Yscanis, who seem to have been the Tawakoni, Taovayas, and Yscanis, three of the principal Wichita tribes later found in northern Texas.[49]

From this time onward the above-mentioned Wichita groups came under the influence of French traders, the Spaniards farther south realizing that the tribes of the Red River country were more or less inaccessible to them (unlike those of central and east Texas). In 1753 the governor of Louisiana acknowledged allegiance of the "Touacana" and "Hyscanis," and in 1759 the Taovayas village on Red River was supplied with French guns and flew a French flag.[50] Bolton places the Taovayas village near the modern town of Ringgold, Texas, at this time.[51]

A few years later, in 1772, De Mezieres led an expedition "among the Hasinai, Tonkawa, and Wichita Indians as far as the upper Brazos."[52] By the latter half of the 18th century, then, we can be sure that members of the Wichita nation were in occupation of the middle Red River Valley and had spread southward into the upper Brazos. The Taovayas are not known

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[48]Note that this is an "inference" and not to be taken as evidence that these tribes actually lived on the Red at this time; all the tribes mentioned were highly mobile and traveled considerable distances for war and hunting.

[49]Bolton, Herbert Eugene, *Athanase De Mezieres*, vol. I, pp. 45-46. See also Swanton, John R., *Source Material on the History and Ethnology of the Caddo Indians*, pp. 57-59 for a more extended account.

[50]Bolton, *op. cit.*, p. 47.

[51]*Idem.*, p. 48 and map in fly leaf.

[52]Swanton, *op. cit.*, p. 70.

to have lived farther south than the Red, the Wichita in the Brazos Valley being those of the Tawakoni (or Tehaucane) group, probably living near the present city of Waco.[53] Since La Harpe met a tribe recorded as Touacara, supposedly the same as Tawakoni, on the lower Canadian River in central Oklahoma in 1719, it is indicated that this tribe moved southward into Texas shortly after this date. It will be apparent, however, that proof is needed that this was the same group.

It must also be stressed that we have been speaking of "Wichita" in a loose sense to include a number of tribes speaking related dialects. Thus, the central Plains Paneassa, located near the Panis (Pawnee) on early maps and generally considered "Wichita proper," should not be confused with Touacara (Tawakoni?), Yscanis, and Taovayas, for these were clearly distinct tribes. Whether all these peoples once lived close together with their Pawnee relatives, but broke apart and wandered in separate ways, is a question which cannot be answered as yet. We can, however, be reasonably sure that there are no historical records of any Wichita member in the southern Plains as early as in the central Plains.

On the famous map drawn by Marquette in 1673, Paniassa, believed to be Wichita proper, appear in two places: (1) on the 39th parallel just west of the Kansa and not far south of the Pana, Maha, etc. (which would probably be in northern Kansas or southern Nebraska); and (2) between the 33rd and 34th parallels in the Arkansas Valley, along with several other "nations."[54]

The remarkable map of Hugues Randin, made some time between 1674 and 1681, shows Paniassa as the westernmost of several nations on the lower Arkansas (here called the Bazire).[55] This location corresponds quite closely to that of the southern Paniassa on Marquette's map, and in this case no northern group appears near the Pani. On the Minet map (circa 1685) the name "Quiuira" appears just to the south of the "R. des accanssea," plainly the Arkansas, but there is no Paniassa or name resembling it.[55a] Evidently the Spanish name "Quivira" for the Wichita was replacing the French "Paniassa" at about this time; the Minet map shows settlements on the upper Rio Grande, and "Apaches de Vaqueros" between "Quiuira" and Santa Fe.

By 1703, when the map of Guillaume Delisle appears, we can begin to find tribes located with sufficient accuracy in respect to major rivers to be of real aid. Here, strangely, Panis and Paniassa occur on two large tributaries of the Arkansas in what would be northern Oklahoma, and the same two names appear farther north on tributaries of the Missouri; in the latter case, the Paniassa are west of the "Cansa" (Kansa), and the Panis northwest of

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[53]An account of two "Tawaconi" villages, eight leagues apart on the west bank of the Brazos near Waco, may be found in Father Morfi's *History of Texas, 1673-1779*, p. 84. He locates the Taovayas in two villages on opposite banks of Red River 80 leagues west (northwest?) of the Tawaconi.

[54]Tucker, Sarah Jones, *Indian Villages of the Illinois Country, Part I, Atlas*, pl. V, and annotations, pp. 2-3.

[55]*Idem.*, pl. VI, p. 3.

[55a]*Idem.*, pl. VII, pp. 3-4.

them.[55b] Whether these tribes were actually moving back and forth (which they might have done in following the bison), or whether in copying from older maps Delisle made uncritical entries, it is doubtlessly significant that south of the Arkansas no tribal names are entered which suggest *any* division of the Wichita. On the other hand, many of the southern Caddo or "Caddo proper" do appear on this map.

As is well known, the kingdom of Quivira sought by Coronado, Oñate, and subsequent explorers lay in the central Plains. There no longer appears much doubt that the peoples of Quivira were Wichita, and a number of sites in central Kansas on or near the Arkansas river have been identified as very probably inhabited by these peoples in the 16th and 17th centuries. Moreover, there is evidence that their villages were abandoned some time between 1664 and 1757.[56]

> Unlike the Pawnee, who clung to their territory in central Nebraska from pre-Spanish days until 1875, and whose remains consequently have been identified through exploration at documented village sites, the erstwhile inhabitants of the protohistoric sites in central Kansas were gone by the time American explorations west of the Missouri set in. . . .
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> The recurrence at several widely separated sites of Puebloan sherds attributed to the period 1525–1650 is strong evidence that these villages [in central Kansas] were flourishing during the sixteenth and seventeenth centuries—that is, at the time the Spaniards were exploring and beginning to develop the country along the upper Rio Grande. . . .
>
> The repeated references by the Spaniards to grass houses and a sedentary horticultural mode of life in Quivira have commonly been interpreted as a description of the Wichita. . . . Judging from traditions and other evidence which we shall not detail tribes or bands belonging to this confederacy were at one time on intimate terms with the Pawnee of Nebraska. They were apparently the northernmost group of grass-house Caddoans as contrasted to the earth-lodge-using Pawnee and Arikara. Their history and movements previous to circa 1700 are still veiled in uncertainty; since that date they seem to have resided with related tribes at various localities on the lower Arkansas, Red, Brazos, and Trinity rivers in present Oklahoma and Texas. On present evidence it seems to me that the archaeological findings in central Kansas, insofar as direct comparisons are feasible, are in accord with what is said by the Spaniards concerning Quivira and also with what we know concerning historic Wichita material.[57]

Since the central Kansas sites (commonly referred to as the Paint Creek culture) provide satisfactory—if not conclusive—evidence that Wichita lived in this area by and before 1541, the Marquette map locates them near the Pawnee and on the Arkansas in 1673, La Harpe found Wichita in central Oklahoma in 1719, and there are no concrete evidences of any Wichita tribe in actual habitation of lands south of Red River until well after 1700, archaeological and documentary sources agree in pointing to a gradual shifting

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[55b]*Idem.*, pl. XIII, pp. 5-6.

[56]Wedel, Waldo R., *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira*, p. 10.

[57]*Idem.*, pp. 9-10.

southward of the several Wichita divisions in the 17th and early 18th centuries.

It remains to be seen whether Henrietta Focus, more or less coexistent with the central Kansas Paint Creek culture, can be identified with Wichita or their prehistoric ancestors in north Texas. We have three means of checking this: comparison of Henrietta with known Wichita ethnographic traits, comparisons with Paint Creek culture, and comparison with another Texas culture which is almost certainly Wichita (see below, Spanish Fort).

Dorsey[58] has published ethnological data which are of interesting consequence in this matter. He states that at the time of first contact with the United States Government the Wichita lived in a village on the North Fork of Red River four miles below the Elm Fork confluence, in western Oklahoma, and

> It seems possible that, at least for a hundred years or more, their permanent villages were never out of sight of the Wichita Mountains. Their range may be said to have been confined by the ninety-seventh and ninety-ninth parallels, and to have extended south from the Washita to about that part of Texas where the city of Waco now stands.
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> . . . With the Wichita proper, therefore, according to this [the Powell] classification, belong the Waco and Tawakoni, which may be regarded as sub-tribes of the Wichita.

Regarding their economic and material existence, Dorsey states that the pursuit of bison was secondary to agriculture. The familiar Wichita dwellings, large and substantially built with outer covering of grass, round and ranging from 15 to 30 feet in diameter, are described in detail. The wooden mortar and pestle were used for corn grinding, "a small, flat granite rock" for crushing seeds and medicine, and "a small wood hand mortar was used for a similar purpose." Like other Plains tribes, they used the (bone) hide flesher. A specially constructed pumpkin pounder is mentioned. We may note particularly that their villages were located on the lower levels of a hill slope in some well watered valley, and that the Wichita practiced but a single form of burial consisting of placing the body full length in the grave, with head to the east; furthermore "the burying ground was always situated on a nearby hill."[59] A chief or prominent person was buried with all his war trappings except the shield, but no information is given on whether placement of offerings with the dead was general.

In comparing these traits with those of Henrietta Focus (pp. 137–142), we find none of them present, except that the mode of life—hunting secondary to agriculture—was seemingly common to both. That wooden mortars and pestles have not appeared may of course be due to their not being preserved, but the very common use of shaped flat metates and manos with a back-and-forth motion in the Pueblo manner, and also of milling slabs with oval manos and rotary motion in all Henrietta Focus components would indicate scarce necessity for the wooden mortar too. The bone hide flesher

[58]Dorsey, George A., *The Mythology of the Wichita*, pp. 1-6.
[59]*Idem.*, p. 12.

is not known to be associated with the focus, and objects such as grooved mauls (which may have been used as "pumpkin pounders") appear occasionally in the Red River basin but in unknown association (see p. 142, note 41). Location of villages on hill slopes is also contrary to all we know of Henrietta villages, which were on stream banks and dune areas. Burials were not made on hill-tops but in village midden. The extended position with head east and offerings included (in some cases as least) are likewise unknown to Henrietta Focus, and there is no mention by Dorsey of multiple burials.

Though not given by Dorsey, there is one reference to fish taboo among the Taovayas Wichita,[60] a trait common to Plains Indians. We have noted that fish bones are common in Henrietta components, and fish-hooks were sometimes cut from bone.

From the foregoing it is evident that, while economic life was similar, Henrietta Focus differed from historic Wichita culture in many important ways. There are, in fact, few if any specific traits in common and there is little reason to believe that Henrietta Focus represents even an "ancestral" Wichita culture.

ARCHAEOLOGICAL AFFILIATIONS

Comparing this focus to the Paint Creek culture[61] we find some agreements, but many differences. Primary dependence on horticulture, supplemented by hunting of bison, deer, and small animals was common to the two cultures; use of fish, however, is not mentioned for Paint Creek. Other traits in common are:

Use of cache pits, those of Henrietta being exclusively "pocket" pits so far as known.

Bison-scapula hoe blades with socket in proximal end.

"Muller and milling slab" (Wedel), presumably referring to rotary grinding.

Small triangular arrow points, plain and side-notched.

Well-shaped snub-nosed (plano-convex) end scrapers.

Large variety of chipped knives, including unbeveled, pointed with two beveled edges, and diamond-shaped with four beveled edges (beveled knives may have entered Henrietta focus at a late time from the north).

Chipped awls or drills, bases unshaped, squared, and T-shaped.

Numerous bone awls ranging from well made with head wholly worked down to splinters with sharpened tip.

Mussel-shell spoons or scrapers.

Pierced mussel-shell pendants.

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[60]The "Taovayazes" were described at some length in a letter from De Mezieres to Croix in 1778 (Bolton, *Athanase De Mezieres*, vol. II, pp. 201-204). We find the statement that "The fish are of the best varieties, but they do not care for them." We also find references to the growing of maize, watermelons, tobacco, beans, and calabashes; to skin clothing, leggings, moccasins, leather shields, lances, "tents" and other typical Plains traits.

[61]Wedel, *op. cit.*, pp. 6-10. Wedel does not use the term "Paint Creek culture" in this work, but does in his *Culture Sequence in the Central Great Plains*. Many of the central Kansas artifacts entered in the lists below are illustrated in Jones, Paul A., *Coronado and Quivira*, esp. figs. on pp. 86, 95, 96, 103, 104. Jones labels pipes and ornaments as "catlinite," which may not be accurate. A "fine-grained red sandstone" used in this area is said by Wedel to resemble catlinite.

Bird-bone beads.
Hematite pigments.
Bone "rasps" of bison rib and deer cannon, notched on one edge.
Small pottery disks, unperforated.
Coiled basketry (single-rod coiling found in Tobias site, Kansas; coarse coiling, possibly single-rod, impressed on flat jar bases from one of Witte's Red River components of Henrietta).
Shell-tempered pottery.
Round-bottomed and disk-base jars, generally lacking any decoration (disk bases confined to Red River components of Henrietta and perhaps late).
Obsidian, by trade from Rocky Mountains or eastern New Mexico (?).
Rio Grande glaze-paint trade sherds.

In neither Paint Creek nor Henrietta sites have house patterns been recovered. In north Texas this may be due to insufficient exploration, or to the same circumstance mentioned by Wedel for the Kansas sites—namely, that houses may have been of simple construction and the floor not excavated, so that no traces of the post holes would survive.

The principal Paint Creek traits which have not appeared in Henrietta Focus are:

Cache pits as large as eight or nine feet in depth and diameter.
Ditched circles with mounded centers ("council circles").
Grooved mauls (note peculiar form shown by Wedel, pl. 3 *c*.).
Long bone projectile points, stemmed and plain.
Socketed conical antler-tip projectile points.
Eyed bone needles.
Cancellous-bone "paint brushes."
Cancellous-bone "spherical objects."
Bone "rasps" of bison rib with encircling grooves.
Flat disk beads of shell with holes at center.
Shell "gorget" with hole at edge.
L-shaped polished stone pipes with very high bowl (equal-armed stone elbow pipes, unpolished, appear in Henrietta).
Projecting-stem stone pipes.
Tubular stone pipes.
Use of fine-grained red sandstone for pipes.
Large chipped-stone blades.
Grit-tempered pottery (more common than shell-tempered in central Kansas sites except in Crowley County).
Use of two handles on jars, placed low on rim and attached by riveting (any use of handles in Henrietta is questionable).
Notching and incising of lips.
Ridged or ribbed vessel surface.
Cord-roughened surfaces (a few appear in sites of both areas, but in Henrietta, at least, their association with the complex is indefinite).
Red-slipped trade sherds (from Fulton Aspect Caddo ?).[62]
Glass and turquoise trade beads.

[62]Two small sherds from the Larcom site, Crowley County, Kansas (near Arkansas City) were shown to me by Wedel in 1944. There was not much doubt in my mind that they belong to the type *Avery Engraved* of Texarkana Focus, a type sometimes red-filmed or shell-tempered, or both. These pieces further provide an interesting check on the chronology reached in this paper, for by other means we have determined that Texarkana Focus existed during the 1525–1650 span indicated for Paint Creek by Puebloan glaze sherds. See pp. 210–211. Oddly, similar trade pieces have not been found in association with Henrietta material, although Frankston Focus sherds do occur in the area at a late time.

Conversely, there are many traits which may be taken as characteristic of Henrietta Focus and which have not been reported from the central Kansas sites. Many of them seem not to have appeared in other Plains cultures either. The list includes:

Numerous stone-lined hearths, flat and in basin-shaped pits.
Graves with stone slabs in roughly box-like arrangement.
Multiple as well as single interments.
Absence or odd placement of skull or mandible.
Beveled bison-metapodial "digging-stick tip" or chisel.
Hoe blade cut from bison skull and horn base.
Bison scapula used as "draw-shave" or knife.
Back-and-forth grinding on shaped rectangular flat slab.
Two-hand manos (rare, Red River components only).
Edged manos.
Stemmed arrow points (e.g., *Alba Barbed*).
Stemmed and triangular dart points.
Side-notched triangular arrow points *with base notch.*
Crude "bone crushers" and picks chipped from flint nodules with water-worn surface left at end to fit the palm.
Crude flint chips with spokeshaves and gravers in edge.
Curved flint knives.
Bone fish-hooks.
Bone tubes (bird-leg bones) with incised geometric designs.
Flaking tools (?) cut from thick edge of bison rib.
Sandstone hones.
Sandstone balls (concretions).
Hematite celts.
Hematite blocks with scraped and polished faces.
Sandstone "tablets," thin, with beveled edges.
Greenstone celts, thick, with tapered poll.
Equal-armed elbow pipes of greenish-brown sandstone.
Perforated mussel-shell "hoes."
Olivella beads.
Beads of fossil crinoid segments.
Round and oblong inlays (?) cut from thick mussel shell.
Spherical pottery beads.
Clay figurine (?) fragments.
Very thick, hand-molded pottery vessels, usually untempered, with heavy scoring on exterior, or plain, and pale red film on interior, hard to remove and probably baked on.
Puebloan trade sherds of southeastern New Mexico types: Chupadero Black-on-White, generalized "brown-ware."

Many of the differences listed above may be explained on the basis of geographical position with consequent exposure to different cultural influences. Thus, the common use of limestone hearths, with dart points, heavy flint "bone crushers" and picks, so-called "hoes" of heavy mussel shell, and perhaps flexed burials in oval pits lined with slabs in Henrietta seem to have been derived from the long-lived Edwards Plateau Culture (including Abilene "Clear Fork Culture") which once covered great expanses of central Texas. Trade pottery and obsidian were obtained from the west when Puebloan culture was thrusting into the Texas Llano Estacado not far away,

during the 15th century; presumably at about the same time, a Puebloan method of grinding with a back-and-forth motion on a flat slab was adopted. The Paint Creek peoples also engaged in trade with Puebloans, acquiring glaze-paint wares, turquoise, and perhaps obsidian at a slightly later time (about 1525-1650), but do not seem to have been influenced to the extent of borrowing a specific technique from this direction. However, it will be well not to speculate too seriously on such matters until much more is known about western Kansas and Oklahoma.

The precise relationships between Henrietta and the central Kansas sites cannot be well understood until specific information is forthcoming from most of Oklahoma. Until this is available, we can only say that Henrietta Focus is a Plains culture which shared some traits—notably its economic basis, scapula hoe blades, triangular side-notched and plain arrow points, numerous snub-nosed scrapers, flint "drills," beveled knives, sandstone shaft smoothers, stone elbow pipes, considerable use of bone for implements, and perhaps the thick, hand-molded pottery with baked red film inside—with several other Plains cultures. In the location of villages on banks and terraces of small streams, use of fish and making of bone fish-hooks, scapula knives, and perhaps other features, there is a distinct suggestion of Upper Republican culture rather than the later Plains horizon in which Paint Creek and Pawnee belong. An interesting point is the use of hoe blades cut from bison skull, elsewhere reported only from northeastern Nebraska in "an apparently deviant Upper Republican culture complex."[63] One would in fact be tempted to place Henrietta somewhat farther back in time, were it not for the common use of shell-tempered pottery, cross-dating with Titus Focus of the Mississippian Fulton Aspect (see pp. 209–211), and the dates indicated by the Puebloan trade sherds, all of which point to a time of about 1450 onward. On the other hand, this date may mark the opening of trade relationships to the west and east rather than the actual time at which the culture was taking shape, and an overlapping in time with Upper Republican and Nebraska therefore not at all out of the question. At the same time, it is equally possible that the focus represents a general mode of life like that of the Nebraska cultures which slowly expanded southward as far as the upper Brazos, and that traits comparable to those farther north would have appeared here at an appreciably later time. While we have little by which to judge such matters at present, the time may not be far off when greater precision will enable us to determine the time and rate of spread of Plains culture traits very reasonably.

At this point it should be noted that a number of traits were held in common by Henrietta Focus and Antelope Creek Focus in the northern Texas Panhandle, which we have dated at about 1300 to 1450 A.D. (see pp. 47–49). Many of these, as has been said, are rather generalized Plains traits on the

[63]Wedel, W. R., letter of March 21, 1945. See Cooper, Paul, *Archaeology of Certain Sites in Cedar County, Nebraska*, pl. XXIV-5 and p. 56. On p. 71 it is argued that these sites may belong either to Upper Republican or Nebraska Aspect. See also Cooper, Paul, in Nebraska Magazine, XX, no. 2, pl. XIII-lower, for a Nebraska Aspect skull-horn hoe blade.

agricultural level and probably of secondary importance in relating these two cultures. The greatest differences lie in Antelope Creek masonry buildings and general use of cordmarked utility pottery. Similar features include:

Joint dependence on agriculture and hunting of bison, deer, etc.
"Pocket" cache pits.
Bison-scapula hoe blades (those of Antelope Creek not socketed).
Grinding slabs with oval basin, rotary motion.
Snub-nosed scrapers.
Unshaped flint-spall side scrapers very numerous.
Diamond-shaped knives with four beveled edges.
Curved knives.
Flint awls or drills, bases unshaped, squared, and T-shaped.
Bone awls, ranging from well-made with head wholly worked down to splinters with sharpened tips.
Notched bone "rasps."
Triangular arrow points, plain and side-notched.
Flint hammerstones, ungrooved, very numerous.
Brown sandstone hones.
Equal-armed elbow pipes of sandstone.
Serrated mussel shells.
Olivella beads.
Pierced mussel-shell pendants.
Occasional occurrence of thick, lumpy, hand-molded pottery.
Pale red, baked film inside some vessels.
Puebloan trade pottery (from different sources, however).
Obsidian flakes (rarely, artifacts).

This list includes few traits indicating any specific connection or interplay between Henrietta Focus and Antelope Creek. As we have seen (pp. 71–74), the latter lay in an intermediate geographical position between Upper Republican and the northern Rio Grande Puebloans, and shared many traits with both; Henrietta, however, seems not to have participated to any noticeable extent in whatever borrowing took place between Plains and Puebloan peoples, directly or indirectly, through the Canadian River settlements. The few similarities to be seen with Upper Republican might be said to reflect a general mode of life once held in common, rather than direct borrowing. At any rate, Henrietta seems to have experienced a different sort of relationship with the Southwest—one more along an east-west line with southeastern New Mexico—than that which can be seen between the northern Rio Grande and central Plains.[64]

Returning to the northern affiliations of Henrietta Focus: if specific connections with Paint Creek or "Quivira" culture are tenuous, there seems to be still less agreement with protohistoric Pawnee of Lower Loup Focus, although all three cultures appear to have coexisted roughly between 1450 and 1650. The traits held in common, such as economic basis in agriculture

[64]Bird-bone tubes with incised geometric designs, and beads of fossil crinoid segments, neither of which are common in Henrietta components, were found at Pecos and may provide some slight evidence of contact. Another point deserving consideration is the use of flat, disk-shaped bases on Chupadero pottery in New Mexico, decidedly an odd feature in Southwestern pottery and very similar to bases found in Paint Creek and Henrietta Red River vessels. It is not inconceivable that this Chupadero feature was borrowed from the east.

and hunting, use of cache pits, scapula hoe blades, snub-nosed scrapers, chipped awls or drills, four-edged beveled knives, triangular arrow points (disregarding notches for the present), crude side-scrapers, longitudinally-grooved sandstone arrowshaft smoothers, stone elbow pipes, bone awls in great variety, bone beads, mussel-shell beads, pendants, and scrapers, antler-tine flaking tools, notched-bone "rasps," are too general in Plains cultures to provide a basis for relating Henrietta and Pawnee in a restricted sense. Features which serve to distinguish protohistoric Pawnee (circa 1600) have not been found in Henrietta association. Thus the Pawnee earth lodge with its bison-skull shrine, incised pottery with cloistered rim, "small, slightly dished mortars," small triangular arrow points without stems or notches, quartzite side scrapers, "rubbing stones," polished and perforated gypsum crystals, large and heavy grooved mauls, chipped celts, chipped hoes, elbow pipes of catlinite and "pipestone," bison-rib shaft straightener (wrench), bison-ulna pick, antler and bone bracelets, and ornamental animal skulls,[65] are unknown in northern Texas. Some of these traits become more common or more characteristic in historic Pawnee (*circa* 1800), while some new traits appear. Strong[66] lists 12 artifact types especially common in historic Pawnee, including a "unique type of pottery," large crude quartzite scrapers, grooved mauls, "molds" of reddish stone, "whetstones," catlinite elbow pipes, bison-rib shaft straightener, elbow-type hide-scraper handles of elk antler, "paint brushes" of spongy bone, bison-rib beaming tools, toothed fleshing tools of bone, and cylindrical ornaments of shell. He further mentions glass beads (very numerous, especially in graves) "metate" and mano, cupped anvil stone, three-quarter grooved axe, bone "plume holders," individual inhumation in hilltop cemeteries, offerings placed in graves, stone balls, polished celts ("rare or lacking"), antler knapping tools, perforated animal teeth, animal-jaw "corn shellers," bison-horn spoons, mussel-shell spoons, numerous horse remains, and a number of perishable objects probably preserved only in the latest sites: wooden mortar with three legs, wooden bowls and platter, cradle board, bison-hair yarn and cloth, twined rush matting.

Aside from such items as "whetstones" (hones?), mussel-shell spoons, "metate" and mano (rotary milling slab?), antler knapping tools, stone balls, and polished axes (acquired by trade from the east?), there is little in either protohistoric or historic Pawnee to suggest any contact whatever between these peoples and those of Henrietta Focus. The items just mentioned are not restricted enough in distribution to aid in this matter. It will be apparent, however, that protohistoric Pawnee and Paint Creek had several distinctive features in common, including very large villages covering 100 acres or more and located on hills or promontories where a good view was desirable for defensive reasons. Both the historic Pawnee and Wichita buried their dead in hilltop graves. There are thus many reasons, archaeological and historical, for believing that the "kingdom of Harahey" described to Coronado by the

[65] Strong, W. D., *An Introduction to Nebraska Archaeology*, pp. 66-67.
[66] *Idem.*, pp. 61, 66-67.

Quivirans as lying to the north of them, was a reference to the Pawnee in their Nebraska homeland.[67]

There is little room for doubt, then, that these linguistic relatives resided in their respective sectors of the central Plains in 1542. In eastern Nebraska, Upper Republican culture, should it prove to be ancestral to that of Pawnee, would indicate a long residence for these members of the Caddoan stock in the same general territory. In central Kansas, no culture has been identified which might be taken as ancestral to the Wichita of Paint Creek, although this of course does not prove that such will not be found. In Texas, the only culture which might be construed as possibly ancestral to a Plains Caddo division such as the Wichita is the Henrietta Focus, and on examination such a connection is seen to be improbable. All things point to the Wichita having moved southward at a later time than during the existence of Henrietta Focus. The history of this movement will not be known in full until the connecting links are recognized in Oklahoma, where some Wichita tribes were found in 1719 by La Harpe.

We may now turn toward the east, where another Caddoan division, the "Caddo proper" occupied a very large territory in the adjacent sectors of Texas, Oklahoma, Arkansas, and Louisiana. The extent of this area, popularly known as "Caddo," may be seen on the accompanying map (Map 1). Here two general horizons have been recognized by the writer, the earlier known as Gibson Aspect, the later as Fulton Aspect. Only the Fulton may be satisfactorily identified with the Caddo peoples, the Gibson differing from it in many important ways, much as Upper Republican and Nebraska differ from Pawnee and other late occupants. Gibson Aspect *may* represent ancestors of the Caddo proper, but arguments may also be advanced to the contrary. An outline of these aspects and their respective foci will be found on pp. 205–216.

We find here a striking and highly significant circumstance in that *there is very little in common between the Plains-like Henrietta Focus and the cultures of the "Caddo area" directly to the east.* Peoples of Henrietta were almost certainly contemporaneous with the Caddo proper of Fulton Aspect, for we occasionally find trade pieces of shell-tempered *Nocona Plain* pottery, beveled knives, and snub-nosed scrapers in graves which unquestionably belong to Titus and Frankston Foci. Two such vessels from Titus graves are shown in Plate 5 *c, d.* None of the typical Plains artifacts such as beveled knives, chipped awls, snub-nosed scrapers, various bone implements, stone elbow pipes, scapula hoes, flexed burials without offerings, cache pits, etc., are known to foci of the "Caddo area," except for their occasional appearance *in those foci on the western and northern frontiers which were exposed to coexistent Plains cultures.* This does not mean that Henrietta was completely

[67] "Perhaps it is going beyond the evidence to say that the Harahey of Coronado's time were some group of Lower Loup peoples but the general contemporaneity of Paint Creek and Lower Loup, their relative geographical position, and the evidence of cultural connection and probable direct intercourse seem to give basis to such an identification." (Wedel, W. R., letter of August 12, 1944.) See also Lesser, A., and G. Weltfish, *Composition of the Caddoan Linguistic Stock.*

distinct in every way, but the contrasts are so strong that there can be no doubt that two basically different cultural traditions existed here side by side with practically no interchange of specific traits.

As will be seen in another section (Sanders Focus), Henrietta material overlies Sanders Focus but the two cultures have in common only the scapula hoe with socket for hafting, a similar small, stemmed arrow point (cp. *Alba Barbed,* fig. 7 *m-o* with *Bonham Barbed,* pl. 22 *c*), sandstone hones, and both single and multiple burials although those of Henrietta were flexed and Sanders extended. The type *Alba Barbed* is found in other Gibson Aspect foci, namely, Haley, Gahagan, Spiro, and Alto; and both single and multiple burials occur in Spiro, Haley, and Gahagan Foci besides Sanders, while burials of Alto Focus are unknown. These burial traits, and the arrow-point style *Alba Barbed,* are very common in Gibson Aspect foci and there is every reason to think they were borrowed by Henrietta Focus from peoples of this aspect adjoining them on the east.

Since, however, Henrietta Focus pottery is nearly always shell-tempered, and the Gibson Aspect is entirely without this feature, it is probable that Henrietta was on the whole contemporaneous with Fulton Aspect and only overlapped slightly with the earlier Gibson. This is borne out by the aforementioned occurrence of Henrietta vessels in Titus Focus graves. Greenstone celts, occasionally appearing in Henrietta components, are found in both the Gibson and Fulton Aspects.

In short, Henrietta Focus was a Plains culture of unknown ethnic affiliation which occupied a large territory adjoining the "Caddo area" on the west but presents an almost wholly different cultural tradition. These people farmed, hunted the bison and other game, fished, and lived in small villages on stream banks in much the same way as the Upper Republicans, probably lacking, however, the substantial dwellings of the latter; not only did they live much farther south, but also at a later time. Henrietta Focus was mainly contemporaneous with the later of two aspects (the Fulton) in the "Caddo area," both of which are plainly of an eastern tradition generally called the "Mississippi Pattern" or "Temple Mound stage"; and, although adjacent to and contemporaneous with members of the Caddo-proper linguistic family represented by Fulton Aspect, Henrietta Focus seem not to have been much influenced by them beyond a trade relationship.

Very much the same situation obtains in respect to Caddo culture as seen in Fulton Aspect and the cultures of their linguistic relatives in the central Plains. Wedel has considered the possible origins of Pawnee culture from various points of view—archaeological, linguistic, and mythologic—with the conclusion that

> As will have become obvious by this time, the material traits in Pawnee culture were drawn in largest measure from the east *and southeast.* . . . These traits were acquired *largely during the residence of the tribe in the old Caddoan habitat on the lower Mississippi and adjacent areas to the west.* They sprang from the same basic subpattern as did the Iroquoian, Muskhogean, and related cultures of the eastern Woodland. . . .[68]

[68] Wedel, W. R., *An Introduction to Pawnee Archaeology,* p. 102 (italics mine).

From archaeological studies, at least, there appears to be practically no support for a contention that Pawnee material culture can be traced to "the old Caddoan habitat" to the south or southeast. I cannot recall a single Pawnee trait which may be said to point specifically in this direction. Wedel's own trait comparisons showed that affiliations of the Pawnee lay much more strongly with peoples of the woodlands to the east, and somewhat less so with the Puebloan Southwest, rather than to the south.[69]

Similarly, "Quiviran" remains of central Kansas fail to reveal any characteristics which may be taken as evidence of a close relationship with the Caddo proper. We are thus faced with the circumstance that, archaeologically, the Plains members of the Caddoan stock with which we have been dealing —Pawnee and Wichita—reveal practically nothing in common with their forest-dwelling relatives to the south except pursuits of agriculture and pottery making. When a thorough study of house types is made among these and other cultures, something more concrete may turn up. On an earlier horizon, square houses with four central supports, central firebasin, and extended entranceway, which we have noted (pp. 69–70) as being very similar in Spiro Focus of Gibson Aspect and Upper Republican culture, suggest some affiliation between these peoples. Houses of the Pawnee, Wichita, and Fulton Aspect Caddo in Texarkana and Belcher Focus were, on the other hand, all round, and those of the Pawnee and Fulton Aspect had extended entranceways. Thus, throughout this belt there seems to have been a similar shift from square or rectangular houses to round structures which retained the entranceway. This does not necessarily mean, however, that the shift was due to an influence operating entirely within these cultures, for it may have come about through some outside factor affecting all of them.

To summarize, it is always possible that further work will change our present picture quite radically, but on a pre-European-colonization level the separateness of material culture in the "Caddo" area as a whole from Plains peoples to the north, northwest, and west is quite as striking as that existing between Puebloans and the Plains. We have no good evidence that southern Caddo (except along their borders facing the open Plains) borrowed any specific traits from their linguistic relatives in the Plains, or *vice versa;* neither can we show that the Caddo proper once lived together with (or near) Pawnee and Wichita groups. Furthermore, *temporal factors indicate little if any choice between the central Plains Caddoans and the Caddo proper in the developments of their particular cultures.* Various considerations make it seem quite certain that protohistoric Pawnee, Wichita, and Fulton Aspect Caddo were all living in their historic environments in 1542, and that in each case they had been there for at least a century up to that time.[70] It is not

[69] *Idem.*, pp. 99-102. The statement that "thin, delicately chipped triangles or arrowpoints of chert [are preponderant] over all other forms in Iroquoian and Caddoan areas. . ." is quite untenable for southern Caddo territory, where such points are unknown in most foci and only one of many forms in the others.

It seems of no little significance in this problem that Pawnee shared many ritualistic traits with the Puebloans, pointing to their extensive contacts, if not origin, in a southwestward direction. See Parsons, Elsie Clews, *Ritual Parallels in Pueblo and Plains Cultures, with Special Reference to the Pawnee.*

[70] A discussion of dating in the Fulton Aspect will be found on pp. 207–211.

known what sort of culture preceded that of the Quivira Wichita in central Kansas, but in the two other cases an earlier culture horizon can be recognized which *may* represent the ancestors of the known tribes (Upper Republican before Pawnee; Gibson Aspect before Fulton Aspect Caddo). The identity of these forerunners is in either case an involved problem and will likely be resolved as much by physical anthropology as by archaeology. If, however, it should be shown that the earlier peoples were probably ancestral Caddoans, in neither case can the beginning dates of the culture be determined accurately enough to show that one was earlier than the other. In other words, Upper Republican and Gibson Aspect existed coevally during at least three centuries before 1450, but in seeking a possible ancestral "Caddoan" culture, there is as yet no temporal choice between these two. Neither are there any other known cultures which would fit the "ancestral" role.

Returning to Sayles' "Wichita Phase," it is my opinion that it has no traceable connection with known Wichita tribes, and that the latter did not appear in northern Texas until European explorations were well underway, after 1700. The "Phase" as defined includes several Henrietta Focus traits found only at the northern end of the area Sayles assigned to it, *i.e.,* in the upper Red and Brazos valleys. It also includes traits diagnostic of what we now call Austin Focus and believe to represent Tonkawa tribes in central Texas (see pp. 165–168); other materials which Kelley refers to the Jumano of western and west-central Texas; and still others referrable to Coahuiltecan tribes in extreme southwestern Texas toward the lower Rio Grande. There is little reason to retain it in archaeological literature.

One final point must be mentioned. This is the occurrence of several traits in Henrietta Focus which are strangely suggestive of archaeological remains in the Ohio basin. Thus, attempts to build grave "boxes" of stone slabs, though very crudely done, remind one of the common "Middle Mississippi" trait in Tennessee-Cumberland Aspect. The burials were flexed in both cases, but this practice was too widespread to draw any inference at present. However, use of hematite celts and polished hematite blocks, crudely shaped triangular arrow (?) points easily distinguished from the side-notched varieties, a generally plain and shell-tempered pottery lacking handles, and a very thick, heavily scored pottery probably hand-molded,[71] all further suggest affiliation with the Tennessee-Kentucky-Ohio valley region rather than the Plains or intermediate areas. This matter is difficult to evaluate at present but will bear further attention.

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[71]At the Ceramic Repository, University of Michigan, Dr. James B. Griffin kindly permitted me to examine a number of eastern shell-tempered potteries in November, 1944. Certain collections from Clark and Posey counties in southern Indiana were particularly similar to the type *Nocona Plain* in the range of colors (tan, cream, reddish tan, grey, brown, pinkish brown, dark grey-brown, etc.), their bumpy interior surface, soft (at times satiny) feel, abundance of shell flakes showing on surfaces, globular bodies with everted rims, lack of decoration, and few handles. So great are the resemblances one may wonder that native clays from such widely separate areas could produce such nearly identical results. Certain collections from the western end of Kentucky contained extremely thick and crude sherds of yellow paste tempered with coarse clay lumps and shell, and bearing heavy gashed lines on the exterior, very much like the Harrell site sherds in pl. 6 *f-h*.

The Spanish Fort Site

WE HAVE JUST concluded that Henrietta Focus does not provide satisfactory evidence for identification with Wichita tribes, or even with their possible ancestors. The Paint Creek culture, representing the "Quivira" sought by Coronado, is much more convincing in this respect. Moreover, documentary considerations revealed ample reasons for believing that Wichita groups were in the central Plains at least two centuries before their appearance as far south as Red River. Here the first definite record of Wichita-speaking tribes concerns the Tawakoni and Taovayas. They are consistently mentioned as distinct from other Wichita in French and Spanish records of the 18th century.

Since the Taovayas appear to have been a different group from the Paniassa or Quivirans it is possible that they represent a more southerly member of this family which had actually been in residence along the Red for a long time, coevally with other Wichita in the central Plains. We have, however, some evidence that this was not the case, and that the Taovayas, like other Wichita, came into the Red Valley shortly after 1700. This evidence is so far chiefly drawn from a single large site near the village of Spanish Fort in northern Montague County, Texas. Although it does not agree exactly with Bolton's location of the Taovayas villages, it is nearby and very probably represents the same settlements.

Working from documentary sources, Bolton placed three Taovayas villages on the banks of Red River just below the mouth of Little Wichita River,[72] north of the present town of Ringgold, Texas. From the mouth of the Little Wichita, the Red flows northeastward for about 30 miles, then makes a broad turn toward the southeast. The great site known as Spanish Fort (locally believed to have been one of Coronado's camps) is found on the high banks on both sides of Red River, just east of the most northern point of this bend. It is therefore about 25 or 30 miles farther downstream than Bolton's location of Taovayas villages, and on the eastern rather than western side of the hump formed by the Red River bend (Map 1).

Witte[73] has published a short account of Spanish Fort and the local collections gathered there. He unhesitatingly terms it an historic Wichita village,

[72]Bolton, Herbert Eugene, *Athanase De Mezieres,* vol. I, map in fly leaf; pp. 21-25, 46-48, 113-116.

[73]Witte, Adolph Henry, *Spanish Fort, An Historic Wichita Site.*

that visited by De Mezieres in 1778, and hence that occupied by the Taovayas. He describes and illustrates many of the Indian artifacts and European articles of iron, copper, brass, and glass. An enormous collection from this site (including both the Texas and Oklahoma sides of Red River) is in the possession of Mr. Joe Benton of Nocona, Texas, who has made a special effort to amass material from the surface. Both these gentlemen have kindly allowed me to examine their collections, which warrant a full publication. We shall but briefly mention some of the outstanding objects.

One of the most striking features of Spanish Fort is the great number of pipes, all of elbow form and mainly of stone. Those of pottery do not seem to differ significantly from stone pipes, except those of catlinite. Witte has described a few of these in the paper mentioned, and Mr. Benton has several hundred complete and fragmentary specimens. They are well made and highly polished, whether of stone or pottery, and many have a short spur jutting beyond the heel where bowl and stem adjoin. A typical feature is a wide, flat sill surrounding the openings at both ends—around the bowl and where the mouthpiece was inserted. The stem arm of the pipe seems always to be of about the same length as the bowl, or shorter, but not longer. Mr. Benton has some 15 pipe fragments of what appears to be true, flecked catlinite. One of these is a rectangular block above which rises a cylindrical bowl, while the mouthpiece was inserted in a hole in the side of the block. Pipe fragments of fine-grained red sandstone also appear.

Mr. Benton's collection includes at least 17 sherds of *Tewa Polychrome* or "Modern Painted," a type made in the northern Rio Grande area from about the time of the Pueblo Revolt (1680) on into the 18th century.[74] I know of no examples of this pottery anywhere between Spanish Fort and Pecos. In this connection, his finding of clay figurine fragments, human and animal, one plainly representing a horse head with the bridle indicated by incised lines, provides further indication of Pecos traits.[75] There is one sherd suggestive of *Jeddito Polychrome* or a similar Hopi pottery of northeastern Arizona. On the other hand, an eastern connection is shown by no less than 26 sherds definitely belonging to the type *Natchitoches Engraved,* a diagnostic of the historic Glendora Focus in the "Caddo area" (see fig. 18). Still other artifacts from this site include three greenstone celts of thick, oval cross-section, with tapered poll and shaped by pecking and grinding; disks and disk beads of thick mussel shell; a bead of *Oliva* shell with spire removed; arrow points cut from gar-fish scales (otherwise found only on the Gulf coast in Texas); globular beads of pottery; two bear teeth perforated for stringing; brown sandstone shaft smoothers with longitudinal groove; chipped flint awls or drills with unshaped bases; many manos, both unshaped stream pebbles and well-shaped rounded-rectangular forms of sandstone; a few "digging-stick tips" of beveled bison metapodial; plain shell-tempered potsherds; snub-nosed scrapers; and a variety of large and small projectile points of flint and chert. Mr. Benton and others have found many grooved mauls

[74]Kidder, A. V., and C. A. Amsden, *The Pottery of Pecos, Vol. 1.*
[75]Kidder, A. V., *The Artifacts of Pecos,* figs. 94-104, esp. fig. 104.

on sites in this vicinity,[76] and Witte lists them as also present at Spanish Fort. In addition to the objects just mentioned in the Benton collection, we may note that Witte lists still others, such as "incised and paddle-marked sherds," "a Pueblo black-on-white specimen" (possibly *Tewa Polychrome?*), cylindrical beads cut from conch-shell columnellae, "fossil crinoid stems, drilled and unworked"; he also states that "Flint specimens from Spanish Fort often carry fossil fusilinids, graptolites, etc.," indicating a source for this flint either in Paleozoic outcrops to the south or in southern Oklahoma.

Among European articles seen in the Benton collection or mentioned by Witte in his own material from Spanish Fort are great numbers of copper and iron projectile points—conical, stemmed, and non-stemmed—of various sizes;[77] iron knives, axes, hoes, scissor blades, chisels; pieces of locks, brooches, bridle bits and fastenings, guns, crucifixes, etc.; copper bracelets, rings, "tinklers," and pieces of pots and vats; glass beads of many kinds, including a white variety with colored spiralling stripes. These are said to have once littered the ground over hundreds of acres. Witte also mentions burials which have not been investigated.

Among the Indian artifacts listed above are a number which suggest Henrietta Focus traits. However, I have heard from several persons that the site is very large and there are distinct concentrations of material on the surface. Anyone collecting from the "site" as a whole would hardly have failed to mix specimens from various parts of the locality. Henrietta Focus components are extremely common all through this section. It is thus to be urged that controlled excavations be conducted in order to distinguish, if possible, between historic occupation areas and those without European objects. Although commercial and other collectors have gathered and dispersed forever an untold number of artifacts, Messrs. Benton and Witte have fortunately managed to salvage very great numbers and made them available for research.

We can conclude that Spanish Fort represents the Taovayas villages under French domination in the middle 18th century. There is no other known site on this entire stretch of Red River which answers the requirements. This means that Bolton's location is some 30 miles too far upstream and on the wrong side of the big U-shaped bend of Red River below the Little Wichita. As may be seen in the letters of De Mezieres, the Taovayas were an important element in the continual negotiations between Caddo, Wichita, Apache, and other tribes, as well as French and Spanish officials, during the latter half of the 17th and 18th centuries. The appearance at Spanish Fort of potteries made at Pecos and in the lower Red River region at a time reckoned independently as covering the same period is a rather neat check on the chronology of early historic cultures between Southwest and Southeast. It also confirms the impression that the Taovayas villages were a veritable crossroads for officials, explorers, missionaries, and Indian hunters and emissaries, between the lower Red River country and New Mexico.

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[76]For a record of grooved mauls in north Texas see p. 142, note 41.
[77]Witte, *op. cit.*, pl. 31, p. 237.

Still unanswered is the question of when the Taovayas may be said to have taken up residence in the Spanish Fort locality. Were we to segregate those specimens in the collections which are typical of Henrietta Focus, they would constitute but a fraction of the total, and the residue would rather clearly suggest historic materials in the central Plains rather than anything else in Texas. Thus full-grooved mauls, stone elbow pipes with distal spur, elbow pipes of fine-grained red sandstone, ridged or paddle-marked pottery, and use of flint or chert with fusulinid fossils, were reported from the central Kansas sites by Wedel.[78] The incised and shell-tempered pottery, and the European objects themselves, are similar to those reported from historic Osage sites in western Missouri.[79] Catlinite pipes are positively indicative of northern trade at a very late time, this material being unknown in Texas in other than full-historic times.[80]

For the present it may be said that (1) Spanish Fort is primarily a full-historic site with many characteristics not found in the same region in pre-European sites; (2) these elements point northward to the central Plains tribes and may be explained as resulting from the southward movement of Wichita groups, including Taovayas, approximately between 1700 and 1750; and (3) Henrietta Focus material in Spanish Fort collections probably represents an earlier occupation by different peoples. Whether any thread of connection, other than a sharing of generalized Plains traits based on hunting combined with agriculture may be traced from Henrietta Focus to historic Spanish Fort, can only be answered by excavation.

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[78]Wedel, *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira*, pp. 3-6, pls. 8-9. In this case the chert bearing fossil fusulinids is said to come from quarries near Maple City, Kansas, and Hardy, Oklahoma.

[79]Berry, Brewton, Carl Chapman, and John Mack, *Archaeological Remains of the Osage.*

[80]Catlinite pipes have also been found on an historic site on the H. E. Womack farm 22 miles NW of Paris and one mile W of Garrett Bluff, on Red River, Lamar County, Texas. Test excavations were made by The University of Texas in the summer of 1931. Like Spanish Fort, this site yields a wealth of European objects and pottery like that of Glendora Focus, representative of historic Caddo in the lower Red River Valley. Catlinite pipes have also been found at Mission Espiritu Santo (Aranama), established at present Goliad, Texas, in 1749. This locality is about 400 miles due south of Spanish Fort and 40 miles inland from the Gulf of Mexico coast.

Austin Focus

WE MAY VERY briefly consider still another culture in Texas which shared a few traits with Henrietta Focus, but is found in a more southern territory and existed during a somewhat later period. Many of its components are without evidence of historic contact, but in some cases the same artifacts are found with blue and red glass beads and iron of European origin. This has been termed the Austin Focus by J. Charles Kelley, and a fuller account is under preparation by him in connection with central Texas archaeology.

Materials which we assign to this focus occur consistently in the same form over a very wide territory occupying perhaps one-sixth of the State, approximately in its center (Map 1). Its boundaries are not easily determined, no doubt due to the fact that in protohistoric and historic times, Texas Indian tribes other than east Texas Caddo were very mobile. Though possibly indulging in agricultural practices to some extent, they were essentially hunters, roaming widely in pursuit of bison and other game. After 1800, constant pressure from horse-riding raiders such as Apache, Lipan, and Comanche also forced the less warlike tribes of Texas to move about, form various short-lived alliances, and to suffer the vengeance of whites who believed all Indians equally responsible for depredations.

Nonetheless, there is a broad agreement in the nature of late archaeological materials found over considerable areas and the general distribution of certain historic tribes. We thus feel reasonably sure that certain artifacts invariably occurring on the surface of camp sites or in the top few inches of sites showing long occupancy represent the transitory camps of Tonkawan tribes.[81] This applies to an area centered in the vicinity of Austin, reaching eastward to the lower Brazos River, southward about half way to the Gulf coast,[82] southwestward beyond San Antonio to Frio River or thereabouts, westward perhaps as far as San Angelo, and northward at least to the vicinity of Abilene and the upper Brazos, but beyond the Brazos typical central Texas

[81]The article *Tonkawa* by Bolton in *Handbook of the American Indians* is the best available account of these tribes, their history and customs. Included with Tonkawa are several subtribes: Yohuane, Mayeye, and Ervipiame.

[82]A belt from 40 to 50 miles wide along the central Gulf coast of Texas contains pottery-bearing material on a very late, perhaps completely historic horizon, obviously related to the interior but still sufficiently distinct to be easily recognizable. Some elements of the late coastal horizon were included by Sayles, E. B., *An Archaeological Survey of Texas*, in a "Rockport Phase."

material definitely fades away. On the northeast, contemporaneous remains are found about Waco,[83] but these differ in some ways from Austin Focus and may be referred to the Wichita-speaking Tawakoni rather than Tonkawa. San Angelo is an arbitrary point for the westward extent of Austin Focus, for in this direction there is some difficulty in clearly distinguishing it from Jumano material found along the Concho River, a western tributary of the Colorado. As the Jumano problem is being treated extensively by Kelley no attempt to describe it will be made here.

Briefly, the principal material traits which distinguish Austin Focus are: considerable numbers of small, light arrow points of two main styles: (1) with long, sweeping barbs and long, sharply pointed stem, (2) with short barbs and corner notches resulting in a stem narrow at the neck and flaring at the base; diamond-shaped knives with four beveled edges; knives with one rounded end and the other pointed with two beveled edges; very crude snub-nosed scrapers usually made by chipping a steep bit at the end of a thick flint spall; crude side scrapers with one chipped edge; large and small leaf-shaped blades chipped on both faces and sometimes double-pointed; light flint awls or drills with base unshaped; edged manos showing back-and-forth grinding (flat-faced metates, however, have not been definitely recognized); an undecorated pottery *(Leon Plain)* usually bone-tempered, poorly to well smoothed or polished on the exterior, interior poorly smoothed, shaped (so far as known from fragments) in the form of jars with rounded bottoms and high vertical neck with slight shoulders, and sometimes bearing loop handles (number and position not known); notched bison ribs and deer metapodials in more northern sites; flexed burials in crude stone-lined pits; *Oliva* (not *Olivella*) shells made into beads by removing the spire and opening a hole at the opposite end by sawing through the lip; occasional appearance of triangular pendants, plain or decorated with punctated lines, cut from conch-shell wall; and European trade articles. *Oliva* and conch shell reflect trade with Gulf coast tribes. Added to this list is the general occurrence of trade pottery obtained from the Hasinai Caddo of Frankston Focus, centered in the Neches Valley east of Trinity River in central-east Texas (see pp. 206–207). Frankston Focus pottery was carried widely into central Texas, appearing in some quantity in the Abilene area, and even as far west as the Rio Grande at Presidio (see p. 209).

Repeated occurrence together of the resident bone-tempered pottery *Leon Plain,* two distinct arrow-point styles, beveled knives, crude snub-nosed scrapers, and Frankston Focus trade pottery, while not an impressive list, is highly characteristic of what we call Austin Focus. Notched bones, found in Lake Buchanan Basin sites on Colorado River,[84] may represent a trait borrowed from

[83]Researches of Messrs. Frank H. Watt and Frank Bryan in the Waco section have shown a definite contrast between earlier culture with heavy flint implements and innumerable dart points like those of Edwards Plateau culture, and a shallow late horizon with light arrow points, pottery, and beveled knives probably to be associated with the Wichita-speaking Tawakoni (Teruacane) tribe. See p. 147, note 53.

[84]Jackson, A. T., *The Fall Creek Sites,* pl. XXI. In pls. XXII-1 and XXIII Jackson shows sherds of the type now called *Leon Plain;* those in his pl. XXII-3 are Frankston Focus trade pieces, not "Caddo influence" on the resident pottery.

Plains tribes, but could also point to Puebloans or Pueblo-influenced peoples to the west. Beveled knives are somewhat better evidence of a trait acquired from the Plains, and we have seen that they are not present in north Texas until very late pre-European times. Flint awls or drills with delicate shafts and unshaped bases, and crudely fashioned snub-nosed scrapers may also point the same way; however, some idea of their distribution in space and time over North America as a whole will be needed before any inference can be drawn.

During the 18th century, when Tonkawan tribes became well known to the Spanish and French, they had many characteristic Plains material-culture traits. Bolton[85] mentions, for example, that they had horses, following bison long distances; planted few or no crops; lived in scattered villages of skin tipis; used sign language; used the spear as well as bow and firearms; wore defensive armor of leather jacket, shields, and helmets to which bison horns and plumage were attached; utilized the bison for every conceivable purpose: brains to soften skins, horns for spoons and cups, "the shoulder-blade to dig up and clear off the ground", tendons for thread and bowstrings, hoofs for glue, hair for ropes, pelts for saddles, shields, tipis, footwear, and blankets. They also engaged in trade, offering deer skins, bison robes, tongues, and tallow to the whites.

This possession of Plains elements in historic times is not very strongly supported in archaeological remains, as we have mentioned. It therefore seems possible that the Tonkawa acquired these traits in very late times through contacts with Wichita, Comanche, and Lipan, who were moving southward into Texas at about the same time. The archaeological material attributable to Tonkawa shows somewhat greater similarity to that of other groups in southern and western Texas. In this connection the Tonkawan linguistic connections are of interest. This family has usually been classed as independent, but Swanton long ago argued for an ancient relationship with Coahuiltecan and Karankawan.[86] This may indicate a southern origin for the Tonkawa, supported to some extent by a general similarity between *Leon Plain* pottery and that found about Spanish missions established on the coastal plain. There is also considerable agreement in projectile-point styles of the Tonkawa, the Jumano who adjoined them on the west, Hasinai Caddo to the east, and the Karankawa, who inhabited the central Gulf coast of Texas in historic times.

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[85]Bolton, article *Tonkawa* in *Handbook of the American Indians.*

[86]Swanton, John R., *Linguistic Position of the Tribes of Southern Texas and Northeastern Mexico*, pp. 39-40: ". . . The Tonkawan stock was evidently strongly marked off from both Coahuiltecan and Karankawan, and yet the resemblances which we find point to an ancient linguistic unity between it and those we have just considered. Atakapa is apparently more remote, and it has features in common with Chitimacha, the next language to the east, while there are traces of contact with Tunica and even with the Muskhogean tongue.

"Perhaps the most striking point brought out by this investigation is the surprisingly close resemblance between Cotoname, which was spoken near the mouth of the Rio Grande, and Tonkawa. . . ."

Whether these linguistic resemblances were due to ancient relationships or to recent borrowing, they point to more intimate communication between Tonkawa and coastal peoples than with more interior tribes.

While the late inhabitants of the vast reaches of central, southern, and western Texas reveal some characteristics in common, there is considerable difficulty in relating this block to any of the major North American archaeological provinces such as the Southwest, Plains, Southeast, and Middle America. We can be rather sure, however, that the remains of these peoples form only a superficial film over the relatively long-lived cultures featured by heavy flint industries and lack of pottery through most of Texas. In the extreme western and eastern sections of Texas, pottery, agriculture, and light arrow points are found in cultural remains of considerable depth so that time sequences and relationships can be worked out. In the central and coastal portions, however, this is not the case, these traits and associated elements being compressed so greatly that few if any sites reveal a depth of more than a few inches, with stratification of pottery-bearing cultures a virtual impossibility. Since European objects sometimes appear in these sites, we can be sure that the whole horizon falls into protohistoric and historic times.

Austin Focus can be safely placed in such a late horizon. We first learn of the Tonkawa in 1691, when Francisco de Jesus Maria "unmistakably included this tribe and their associates, the Yojuane, in his list of enemies of the Hasinai, writing the names 'Tanquaay' and 'Diujan'."[87] We can only guess at their location at that time, but if we are correct in associating Austin Focus with the Tonkawa, it is probable that they lived west of the Hasinai. We also have ample evidence that Hasinai pottery was being carried westward by this time if not considerably before (see p. 209). Between 1746 and 1749 three Spanish missions were established on San Gabriel River, an eastward-flowing stream between present Austin and Waco. Among the tribes gathered here were the Mayeye, Yojuane, and Tonkawa.[88] During the 18th century they seem to have wandered considerably, but within a fairly restricted territory between the Colorado and Trinity rivers.

It has also been mentioned (pp. 126–128) that in the Abilene-Clear Fork-upper Brazos region in particular, many sites reveal mixtures of Henrietta and Austin Focus artifacts. The proportions in which these complexes appear vary greatly from site to site, and there seems ample reason to believe that at least two distinct complexes are present, as well as extraneous elements which may belong to neither. A careful site-to-site analysis of this entire part of Texas may be expected to reveal the nature of whatever carry-over might have obtained between the Henrietta Focus type of culture and that of Austin Focus.

[87]Bolton, *op. cit.*
[88]*Idem.*

PART III

NORTHEAST TEXAS

The Sanders Site, Lamar County, Texas

WE WILL NOW turn to a very different phase of archaeological investigation, namely, that dealing with cultures in the great area occupied in historic times by members of the "Caddo proper" division of the Caddoan stock. The material content of these cultures is, on the whole, not at all Plains-like, but falls within what is generally called the "Mississippi Pattern," especially that part which applies to the "Southeastern archaeological area." I confess to being unable to define these terms accurately. In the minds of most archaeologists they denote a major contrast to the general run of material found in other sections of the United States such as the Plains, Southwest, and Pacific coast. The Southeast is thus regarded as a major culture area, more or less comprising the southern half of the Eastern United States, which is well-watered forest land rather than semi-arid open plains. "Mississippi Pattern" is a general label for a vast amount of archaeological material found over practically the whole of the Eastern United States, of great complexity and occupying a relatively late historical position extending into the period of European conquests. The "Pattern" is itself an abstraction, a classificatory term intended to encompass a variety of cultural expressions which bear a few general features in common; among these are the building of flat-topped "temple mounds," great variety in pottery vessel shapes and decorative techniques, copious offerings of pottery and other artifacts in graves, and many implements of bone, stone, shell, and pottery which assume distinctive forms and are found in association with the afore-mentioned traits.

Archaeological cultures in the "Caddo area" fall almost entirely within the general conception of "Mississippi Pattern" and agree with it in occupying an historical position in the centuries preceding European invasions and continuing for some time after. More precise estimates of the time covered by these cultures will appear in a subsequent section, Sanders Focus: Age and Affiliations. The "Caddo area" occupies adjacent sectors of Arkansas, Louisiana, Texas, and Oklahoma, totalling perhaps 70,000 or 80,000 square miles (Map 1). Within it at least twelve foci belonging to two distinct aspects may be recognized, as well as certain other material which does not belong to either. The two aspects contrast rather strongly, yet together form a block which sets the "Caddo area" off as a specialized development even within the "Mississippi Pattern" as a whole. This will be discussed below.

In this publication, we will deal in detail with only one complex in the "Caddo area." This is Sanders Focus, which occupies a key position on the western frontier of the "Caddo area" and Southeastern province in general. In tracing its relationships, other foci of the same aspect (Gibson) and the later Fulton Aspect will be discussed in summary terms. A detailed paper on the entire area has been in preparation for some time by the writer and is to be published. Sanders Focus, however, is of great importance in our attempt to project Puebloan datings into cultures of the Mississippi Valley region.

Components of this focus are found in a narrow north-south belt on both sides of Red River, approximately on the border between eastern forest and open plains. Four or five components are known in Lamar and Fannin counties, Texas, on the south side of Red River and at least one in Choctaw County, Oklahoma, on its north side.[1] This group lies between 80 and 90 miles due west of the Oklahoma-Arkansas boundary, or about twice that distance following up the Red itself. The locality is also about 90 to 100 miles northeast of Dallas, Texas. Another group of sites which yield the same specific pottery types as the first lies between 70 and 100 miles to the south, in the upper valleys of the Sabine River. Two components, just north of Grand Saline in eastern Van Zandt County, have been excavated,[2] and there are surface collections on hand from eight or ten other sites in western Wood County and southwestern Hopkins County. This southern group is about 80 miles east of Dallas and 100 miles west of the Texas-Louisiana boundary, and likewise lies approximately on the western frontier of "Mississippian" cultures in the Southeast. However, little data exist for a detailed study of the focus except at the Sanders site.

The type site lies principally upon the property of T. M. Sanders, one mile west of Direct, in the extreme northwest corner of Lamar County, Texas. It consists of two eminences which have long been termed "mounds," and a low ridge or saddle of camp midden between them. All lie on the edge of a river terrace on the east side of Bois D'Arc Creek, which here flows in a northeasterly direction to Red River about three miles away. In a straight line the Red is about one-half mile to the north. The site has been a mecca for amateur collectors and indiscriminate looters for many years. In July and August of 1931 a small crew under A. T. Jackson and B. B. Gardner conducted excavations for the Anthropology Department of The University of Texas. They examined "mound 1" thoroughly, and trenched "mound 2" and the midden ridge between them (fig. 9, pl. 16). The field notes, specimens, skeletons, and a report prepared by Jackson are on file at the University.[3]

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[1]A surface collection from the Pat Boyd farm, two miles west of Sawyer and one mile west of Kiomatia River in Choctaw County, Oklahoma, is on file at The University of Texas. It consists of about 200 sherds and a number of flint and stone artifacts, all of which agree very closely with the type component at the Sanders site.

[2]Sites on the Fred Yarbrough and T. M. Joslin farms, excavated in 1940 by the WPA-University of Texas Archaeological Survey, W. A. Duffen, field foreman.

[3]Pearce, J. E., *The Archaeology of East Texas*, pp. 678-682, presented a brief summary of this work.

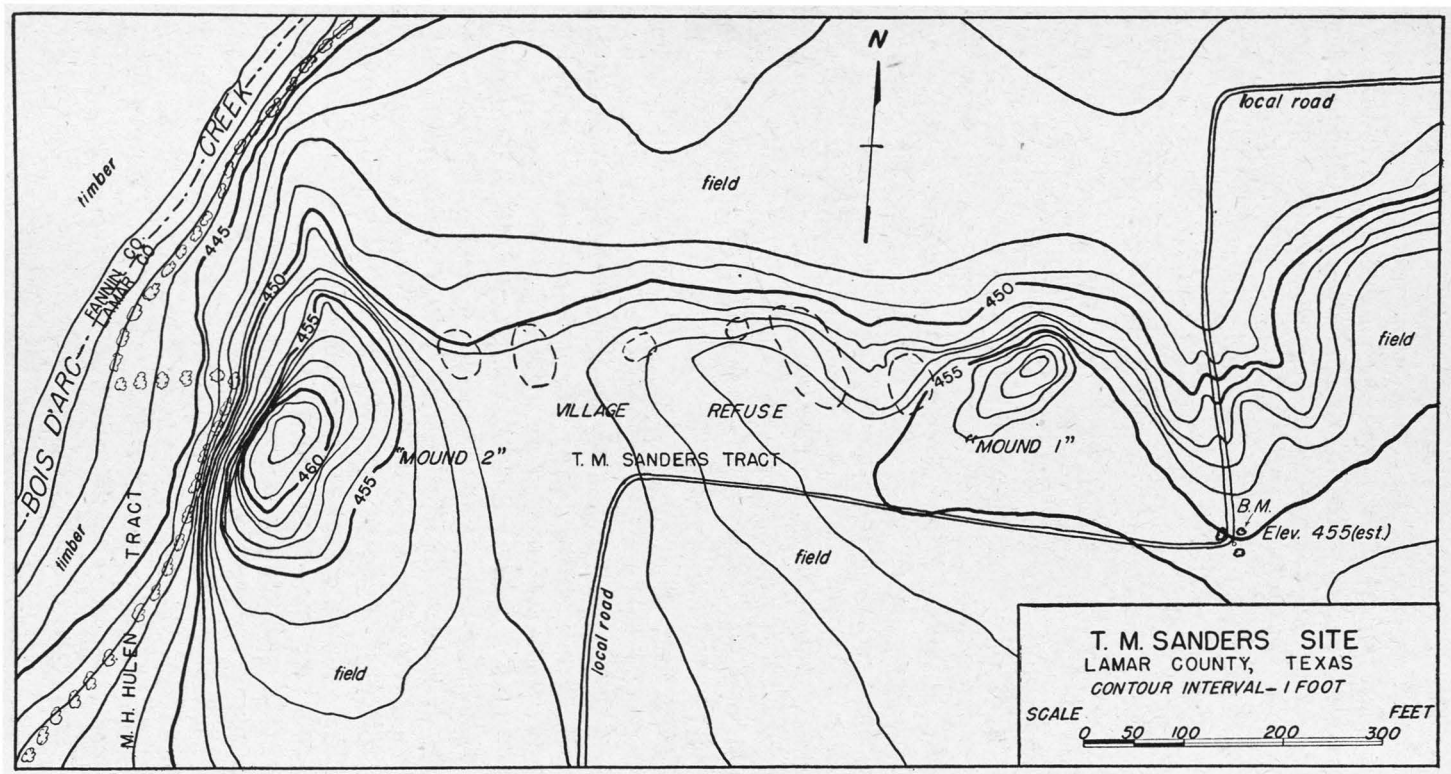


FIG. 9. Contour map of T. M. Sanders site showing position of "mounds" 1 and 2. Each "mound" appears to have been a natural sandy knoll capped by a layer of camp refuse. Note greater steepness of "mound 2" on west side where bank drops to Bois D'Arc Creek, and of "mound 1" on north side toward same bottomland. Broken lines mark test excavations in saddle between "mounds." See fig. 10 for detail of "mound 1," in which burials were found. Work conducted by The University of Texas in 1931.

According to Jackson's report, the "mounds" had the following dimensions in 1931:

> Mound No. 1 has a length of 175 feet, a width of 70 feet and a height, on the steep north side, of 12 feet. On the south side its height is only four feet. Mound No. 2 is 230 feet long, 90 feet wide and has a maximum height of 16 feet. To the south of Mound 2—near the creek, for a distance of several hundred yards—is an extension of the village. Along the edge of the terrace for half a mile to the east of Mound No. 1 is an almost continuous area of occupation. The site apparently was occupied for a considerable time by fairly large numbers.

With the exception of part of "mound 2," the entire site had been cultivated for at least 40 years, and no doubt the eminences had been lowered and dragged out appreciably. The plow had destroyed many graves, but Mr. Sanders had salvaged a number of specimens, especially of pottery and conch shell, which agree with the grave complex described below.

STRATIGRAPHY

Although the field notes leave several questions unanswered, it is evident that the height and steepness of these "mounds" applied to but one side in each case—the side coinciding with the terrace edge facing the creek bottom land (pl. 16 *a, c*). On the terrace side, the slope was quite gradual and the height of "mound 1" only about four feet, that of "mound 2" about twice that (pl. 16 *b*). Nothing definite was said about the internal structure of "mound 2." It is clear, however, that "mound 1" was not intentionally erected. Jackson's notes state that "As the work progressed it became apparent that instead of being strictly an artificial mound this was a natural knoll upon which had been deposited an additional three feet of soil."[4] A profile sketch of one side of this eminence shows that the "additional three feet of soil" consisted of about 18 inches of black midden surmounted by a two-inch lens of red soil, two inches of ashy deposit, and finally about 18 inches of "red clayey loam," which forms the present surface and includes the plow zone. It is not clear whether this physical stratigraphy applies to the entire "mound 1," and no record of the position of artifacts in relation to these layers was kept. Many of the artifacts labeled "surface," "6 to 14 inches," etc., are completely distinct from those found at somewhat greater depths; hence they may have been associated with the top 18 inches of "red clayey loam." However, the homogeneous series of 21 graves discovered in this eminence are recorded at depths ranging from eight inches to 47 inches, and thus must have been dug into all levels from the "red clayey loam" to the underlying black midden. The one grave recorded at 47 inches was dug from the black midden layer down into the sterile clay of the natural knoll.

For the present, it is safe only to distinguish the grave material from that recorded as "surface." These are not only typologically distinct, but the

[4]Mr. Carl Chelf, a member of the 1931 crew, informs me that there was no evidence that either "mound 1" or "mound 2" had been intentionally built. Both consisted of midden surmounting natural knolls.

surface artifacts can be satisfactorily related to other known cultures. A number of objects are thus left "loose," for they cannot be assigned to the grave complex or the surface material at the present time.

BURIALS

The 21 graves were in two groups, one scattered over the highest part of "mound 1," and the other along the eastern end of the eminence where it levels out along the terrace edge (fig. 10). There were no distinctions in placement or content between the two groups. They contained a total of 60 individuals. Twelve graves contained a single individual; the other nine contained 48, with from three to eight persons in each. Without exception the body was extended at full length, usually on the back but at times on the side or twisted to one side. In group burials the individuals had been placed very close together, their bones closely adjoining or overlapping (pl. 17 *a-d*). Most of the graves were much longer than necessary to accommodate the bodies, but their width was not increased in proportion to the number of bodies; thus, a grave with one individual was 102 inches long by 32 inches wide, while another with five was 106 by 38 inches. The extra space at the head end of the grave was sometimes filled with ceramic offerings, placed some distance back of the heads (pl. 18 *a*), but in others the vessels were crowded about the heads (pls. 17 *a, d,* 18 *c, e*). Some vessels were found between or next to the legs. Bottles were evidently always placed close to the head. Personal ornaments such as shell beads, gorgets, and earspools had been left in place as in life (pl. 18 *b*). Only one burial, containing one individual, was without artifacts of some kind.

Grave pits were all rectangular. One skeleton lay with head to the west, the direction of another was uncertain, and the remaining 58 lay with head due east or within about 15 degrees of east; i.e., within the range of seasonal variation in the point of sunrise.

No cremations were found, but in several instances there was evidence of fire in connection with burial ritual. Burial 1, an aged male, lay "on a bed of ashes five feet eight inches long," the grave pit being 108 by 20 inches. In burial 2, a male about 18, there were "ashes beneath the hips." Burial 11, containing a male about 55, is said to have had ashy soil in the fill. In all, seven of the 21 graves contained ashes; five of these were single interments, all adult males, and two were group burials containing adults of both sexes. In no case, however, was the skeleton burned or scorched in the slightest degree. Presumably, ashes were placed on the grave floor, or, if a fire was built within the pit, it had been allowed to cool before the corpse was introduced.

HEAD DEFORMATION

The skeletal material is, on the whole, in very good condition. The skulls are large and dolichocephalic, and nearly all, including both sexes, exhibit pronounced frontal and occipital deformation (pl. 21 *a, b*).

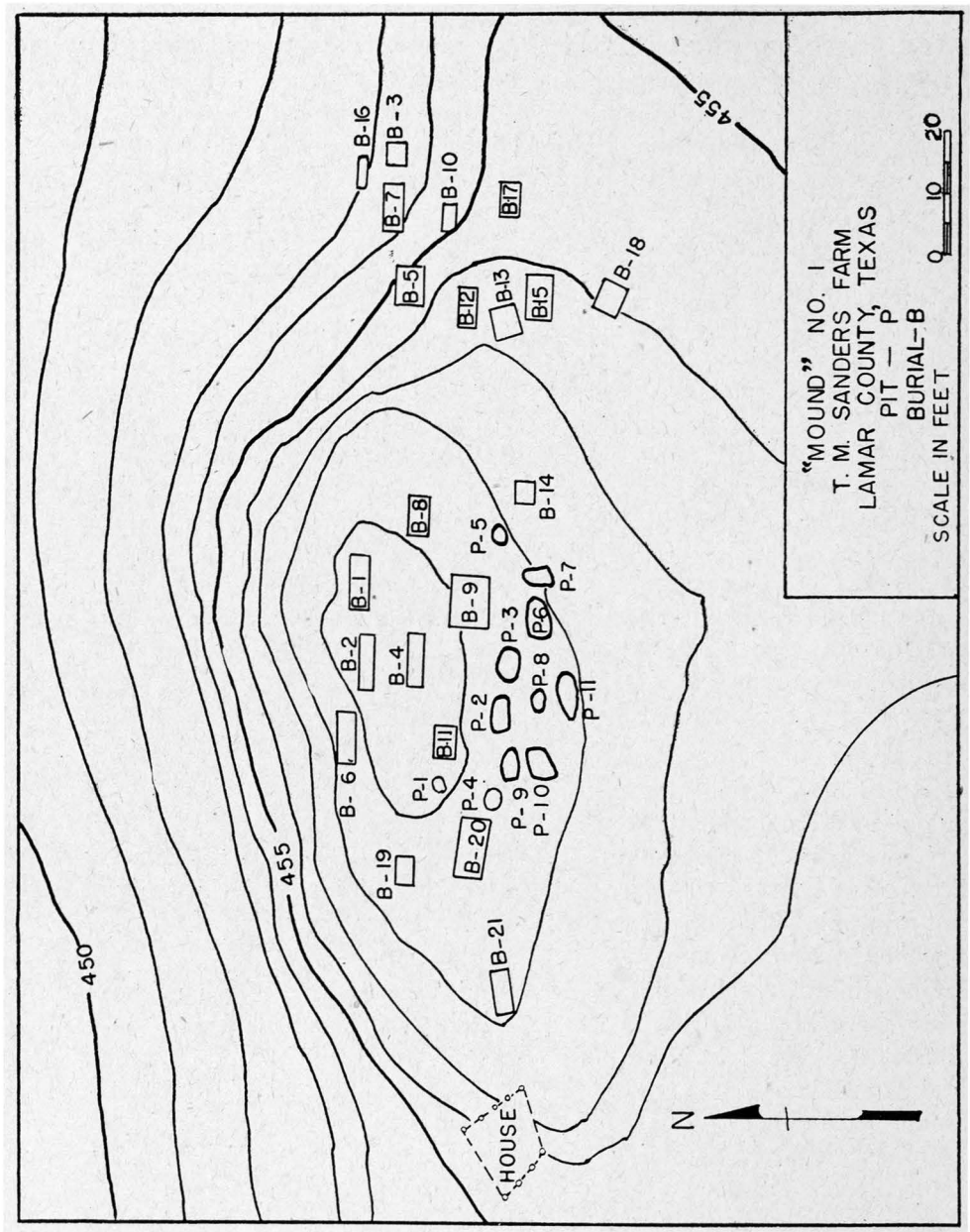


Fig. 10. Contour map of knoll known as "mound 1," T. M. Sanders site, Lamar County, Texas. Interval 1 ft. Burials may be seen in two groups, in top of eminence and at eastern foot, but all belonged to Sanders Focus complex. Cache pits on crest were dug from near surface and probably resulted from a later (Henrietta Focus?) occupation. Remnants of house pattern at left of unknown affiliation.

ARTIFACTS OF SHELL

Among the most interesting artifacts are those made from conch shell *(Fulgar perversum)*. Four "dippers" or "bowls" made by removing the columnella were found in four graves, in each case with an adult male.[5]

[5]The age and sex of these remains were determined by Dr. Marcus S. Goldstein in his analysis of Texas Indian skeletal material, 1939-41. Manuscript on file in the Anthropology Department, The University of Texas.

Three of these evidently were undecorated, although one or two are too poorly preserved for one to be positive. They were found in situ as follows: one against the right elbow of burial 8, a male about 35 (pl. 18 *d*); one on the chest of burial 9 (pl. 18 *a*), another male about 35 (beads cut from conch columnellae lay under this shell); and one between the shoulders of two males about 30 years of age in burial 20, which contained four persons. In the last case, 316 very small disk beads cut from conch-shell side wall covered the "dipper." Jackson remarks that ". . . this suggests a beaded coverlet over the shell." This "dipper" has a small perforation at each end, near the spire and near the pointed end.[6]

The fourth "dipper" has an engraved decoration consisting of two groups of four parallel lines encircling the shell, with pendant triangles on the lower line of each group (pl. 21 *g-g'*). A small hole 1/8 inch in diameter was made near the trimmed lip where it curves in closest to the spire. It was found at the right elbow of burial 6, a male about 35 years old, and contained some squirrel bones. Like the fragment mentioned below, it bears green stains of copper oxide.

Two "dippers" were recovered by Mr. Sanders from plowed graves. One perfectly preserved specimen was carefully scraped and brought to a rather high polish. The other is the cut and polished top of a dipper from which the columnella was removed, and on one side of the spire there is a long green stain evidently caused by contact with copper (pl. 21 *c*). In addition, there is a small, complete conch shell (not a dipper), well polished, with two tiny holes, one in the lip near the spire, the other at the pointed end (pl. 19 *d*). This was probably a pendant of the kind shown suspended from the necklace of human figures connected with the "Southeastern ceremonial complex."[7]

Conch-shell gorgets also form a significant link in the "Southeastern ceremonial complex." The Sanders site has yielded almost all such objects found in Texas and represents the most westwardly point at which gorgets decorated in this manner have been found. This point is about 150 miles southwest of the famous Spiro site in eastern Oklahoma. The present record includes 21 specimens, of which 17 were found in situ in 12 graves, and four were recovered by Mr. Sanders. All decorated and most plain specimens are illustrated in Figures 11–13 and Plate 19 *e, f, i, j*. One decorated example is so badly rusted the design is indecipherable (fig. 12 *c*). All gorgets are roughly circular and bear two suspension holes close to the upper edge. In many cases they were found in place high on the chest, about at the top of the sternum, undoubtedly where they were worn in life. In others the gorget lay

[6]Human figures depicted on shell and copper in the "Southeastern ceremonial complex" sometimes bear a large pointed object hanging from the belt (Waring and Holder, *A Prehistoric Ceremonial Complex in the Southeastern United States*, fig. V a-c, g). This has been interpreted as representing a beaded pouch, pointed apron, or a decorated conch shell. The small holes at the top of Sanders shells indicate that they were suspended, point down, in some way, although they were not found near the waist in burials. Jackson's suggestion of a beaded coverlet over one shell provides the interesting possibility that it was carried in a beaded bag or net.

[7]Waring and Holder, *op. cit.*, figs. III *r-s*, V *a-b, f*.

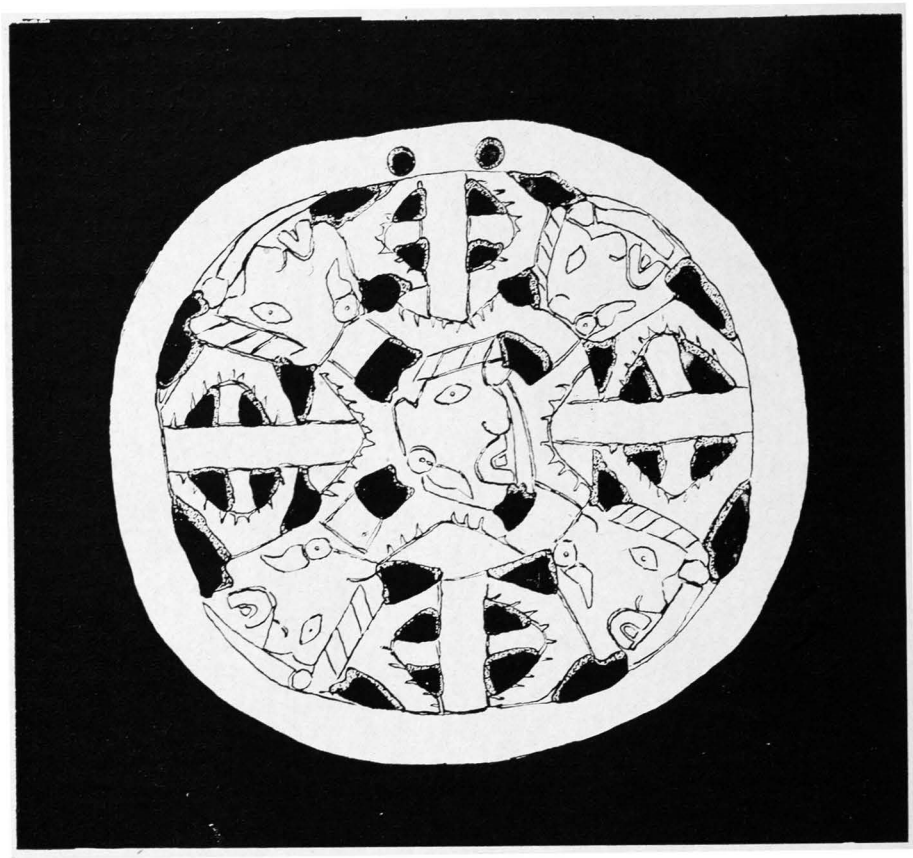


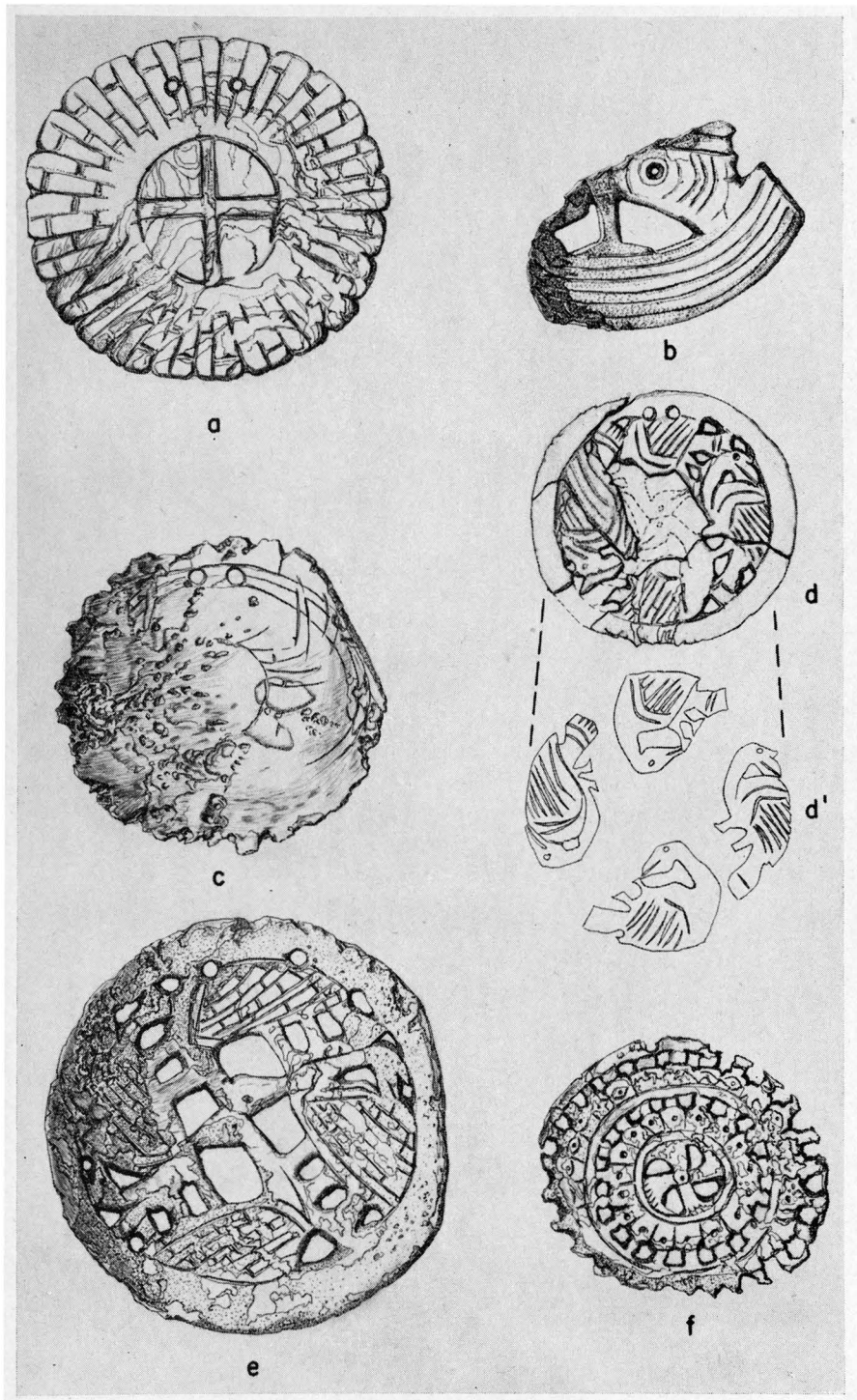
FIG. 11. Conch-shell gorget with five human heads, T. M. Sanders site. Found with female (?), age about 30, one of five skeletons in burial 12. Decoration consists of cut-out areas and engraved lines. All heads in right profile, with head band, "beaded forelock," diamond-shaped eye, round earspool with hooked attachment, and tongue shown between thick lips. Each arm of the cross bears a bisected diamond-shaped figure similar to the "bi-lobed arrow" symbol (Waring and Holder, 1945). See also pl. 19 *f*. Actual size.

at the side of the chest or on an upper arm bone, probably having slipped there after burial. Their diameters range from two and a half to six inches.

Burial 1 (male, age about 70) had two gorgets, one a plain ring with center cut out (pl. 19 *e*), the other plain except for a notched or scalloped edge (fig. 13 *b*). Burial 2 (male, age about 18) had a small gorget in which a cross was formed by cutting out four segments (fig. 13 *e*). Burial 3 (male?,

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FIG. 12. Conch-shell gorgets. T. M. Sanders site, Lamar County, Texas. Found with Sanders Focus burials and recovered from plow zone of "mound 1." Gorget *a* bears a central engraved cross surrounded by a circle, a plain area, then radiating lines extending to the lobed perimeter. *b* shows the tail and legs of a turkey cock similar to complete gorget in pl. 19 *i*. *d*, *e* each bear four turkeys in composite. Small cut-out areas outline the legs and tail of all four birds on *d* and *e*. The design of *c* is obliterated, while *f* consists of a central cut-out cross of semicircles, a double circle, a ring of dots, a ring of small pentagonal cut-outs, another circle, a ring of diamonds with central dot (compare with human eye on heads shown in fig. 11), and finally another ring of pentagonal cut-outs, many of which have broken out along the perimeter. Size ½.


a
b
c
d
d'
e
f

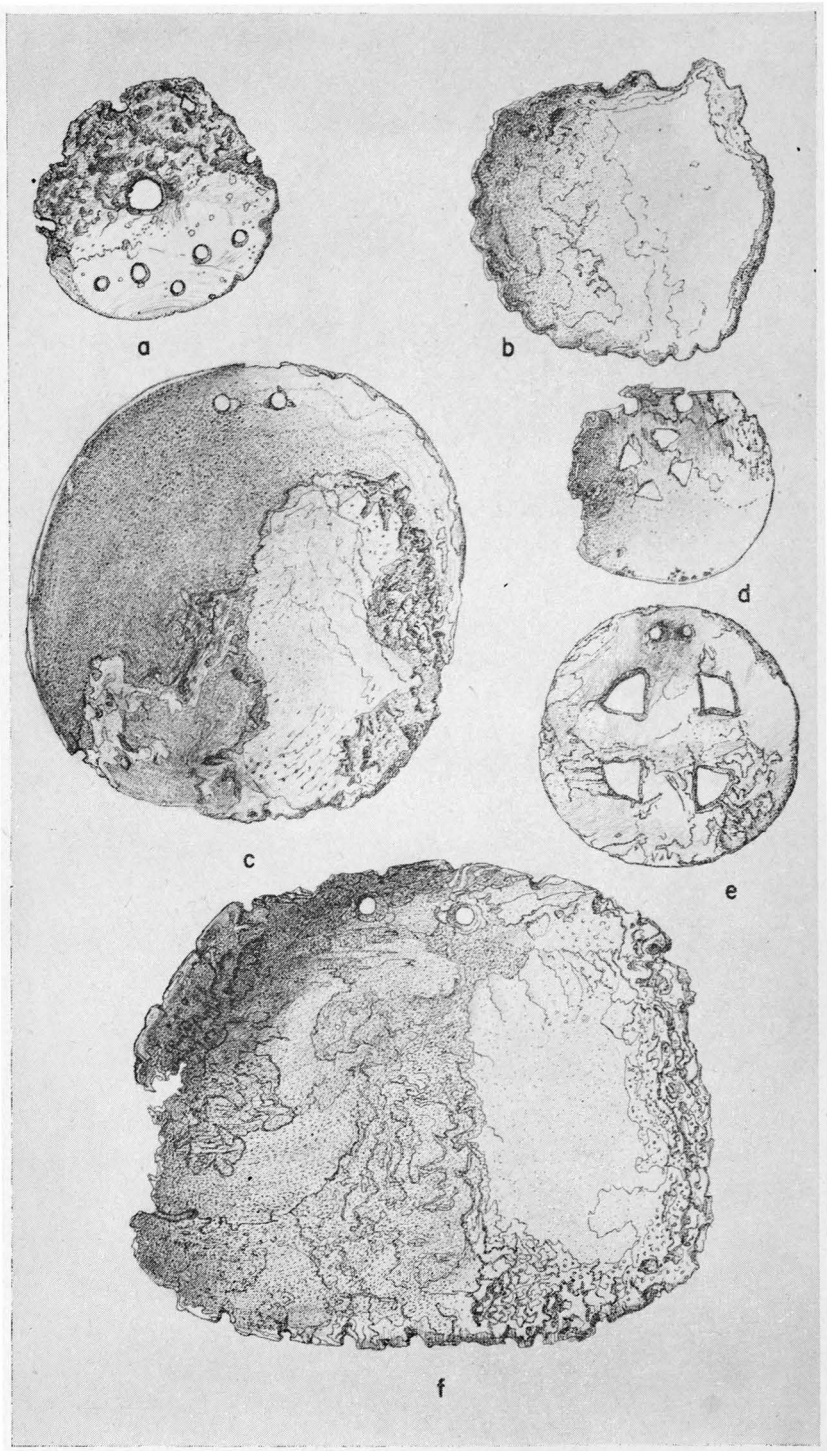


FIG. 13. Conch-shell gorgets, T. M. Sanders site. None have engraved decoration, only scalloped perimeter *(b, f)*, a series of holes *(a)*, central cut-out cross *(d, e)*; and *(c)* is plain except for usual pair of suspension holes at top. Size ½.

age about 10) had part of a plain, very thin gorget (fig. 13 *c*). Burial 4 (male, about 40) had a very large gorget six inches wide and four and three-fourths inches high, plain except for regular notches around the edge which form about 25 shallow lobes (fig. 13 *f*). In burial 5, which contained seven persons (four males about 30, 40, 55, and 60; two females about 25 and 60; one child about 6), the male of about 30 had a most interesting gorget with a human face in full view, carved in relief. The hair is shown as parted and caught in two strings of globular beads which hang at the sides of the face (pl. 19 *j*). The female of about 25 had a piece of gorget with five concentric lines around the periphery, and cut out areas which seem to outline the legs, tail, and part of the wing of a turkey (fig. 12 *b*). Burial 8 (male, about 35) had two gorgets, one with engraved but now obliterated design and a scalloped edge (fig. 12 *c*), and another plain but badly decayed gorget. Burial 9 (male, about 35) is said to have had one specimen with scalloped edge, but this has been lost.

Burial 12 contained five skeletons: three females (?) of about 14, 16, and 30, one male (?) adult, and a child of 5. The female (?) about 30 (which looks like a male to the writer) had a most interesting gorget on which are engraved five human heads: one in the center and four in the quadrants (pl. 19 *f*, fig. 11). Serving as arms of a cross between the four heads are diamond-shaped cut-outs which may represent a ceremonial symbol known as the Bi-lobed Arrow.[8] Though some lines are no longer clear, it is plain that the drafting of eye, nose, mouth (with tongue sticking out), hair, and beaded forelock, were done in a style strongly resembling that on some Spiro shells. Another of the skeletons in burial 12, probably a young female, bore a plain gorget on the sternum. The edges had been beveled in a horizontal plane by rubbing the gorget, concave side down, on an abrasive stone.

Burial 13, with three males (?) of about 10, 12, and 12 years, and three females of about 25, 35, and 35, contained the parts of a gorget shown in Figure 12 *d-d'*. These were close to the youngest male (?). The design consists of four turkeys in two opposing pairs; the heads of one pair meet in the center of the gorget to form a cross, while the heads of the other pair are turned to face the bird's back. Figure 12 *d'* shows this design with the four turkeys pulled apart to show the composition more clearly. The postures are the same as those described below for the gorget shown in Figure 12 *e* and found by Mr. Sanders.

Burial 17 contained eight skeletons: males estimated at 25, 45, and 60 years, and females of about 25, 35, 45, 55, and 60. These were all at length in a pit only 84 by 35 inches (pl. 18 *c*). The male of about 45 had a small exceedingly thin (thickness 1/8 inch) gorget, highly polished, with a small cross cut out somewhat off center (fig. 13 *d*). Burial 19, a male of about 40, had parts of two gorgets, plain except for scallops or lobes around the perimeter. Burial 20, with four persons, males estimated at 30 and 60 years, a female about 22, and another of indeterminate sex estimated at 35 to 50

[8]Waring and Holder, *op. cit.*, p. 15, fig. I, row III, and fig. V *d*.

years, yielded the nearly perfect gorget shown in Plate 19 *i*. This was with the male of about 30 and very clearly depicts a turkey cock arranged against a cross, the arms of which are decorated with circles with dotted centers alternated with diagonal bars. The conventionalization of wing feathers, fan-shaped tail, and spurs may be noted.

The four gorgets plowed up by Mr. Sanders are also of great interest. One of these is small, flat, and thick, with nine holes near the edge and one at the center, but no design (fig. 13 *a*). Another, somewhat obliterated, shows four turkey cocks in the quadrants, which are set at an angle of 45 degrees to a vertical axis marked by the suspension holes at the top. The central cross is formed by the necks and heads of two identical turkeys at the top and bottom of the gorget; their heads meet at the crowns and the bill of each touches the forward foot. At the sides are two other identical turkeys, but these have their necks erect, the head turned over the back, and the bill tucked into the wing. Together the four birds provide a unique and difficult composite involving complete symmetry in two different poses (fig. 12 *e*). The effect is pleasing and the work neatly done. It may be noted that the wing feathers are drawn with the same conventional lines as the single turkey cock from burial 20 (pl. 19 *i*). A third specimen has a series of 26 small pentagonal cut-out areas around the perimeter, another ring of 17 cut-outs inside the first, and a central cross consisting of four semicircular cut-outs (fig. 12 *f*). Below each of the struts between the outer ring of holes is a diamond with a dot in the center; these conform exactly in size and shape to the drafting of the human eye on other Sanders gorgets and Spiro figures on whole shells. Below the inner row of struts is a series of dots, but no diamonds appear. The fourth plowed specimen is in excellent condition and bears an engraved design consisting of a circle around a cross in the center, and a zone of radial lines around the outer part. Crossing lines connect the radial lines at regularly staggered intervals and the edge bears a lobe for each two radial lines. The effect is quite remindful of the depiction of turkey wing feathers on other gorgets (fig. 12 *a*).

Returning to the 17 grave gorgets: only one was found with a skeleton definitely female, and two with skeletons questionably females. Twelve were with adult males of ages 18 to 70 years, and two with what Dr. Goldstein judged to have been males about ten years of age. Ten of the gorgets were found in single interments, seven in multiple interments. The multiple burials contained adults of both sexes who often seem to represent two generations, and sometimes a child as well. In three instances (burials 1, 8, 19) an adult male was supplied with two gorgets but in no case did these form a matching pair. It appears likely that social factors operated in the interment of these groups and perhaps in the ownership of the gorgets. More such data in connection with the "Southeastern ceremonial complex" should cast some light on the nature of this religious movement. The narrow range of motifs in the Sanders gorgets may prove to be significant toward an understanding

of the growth and diffusion of this movement or "cult."[9] For example, the cross is involved in every decoration in the series, with exception of scalloped edges. The human face, turkey, diamond-shaped eye symbol, Bi-lobed Arrow, and Beaded Forelock appear to exhaust the list of other motifs. Six examples of conch-shell "dippers" and one small whole-shell pendant have already been described. Although copper sheeting appeared on two earspools, and copper stains on bone hoes and a "dipper" fragment, no hammered plates or suggestions thereof were found.

The remaining traits associated with the grave complex will be mentioned but briefly. The site warrants a complete publication, which it may be hoped will be accomplished.

A total of about 5,500 beads cut from conch shells came from 17 of the 21 burials, ranging from four to 2,500 per skeleton. These beads are of two kinds: a small disk cut from the side wall (pl. 20 *f*), and barrel-shaped, ranging from one-quarter to one inch long, cut from columnellae (pl. 20 *a, e*). From three graves came three long tubes cut from conch columnellae and drilled longitudinally from both ends (pl. 19 *a, b*). Their position near the skull in each case suggests use as ornaments on hair braids, but there was only one to a skeleton and they may be but another form of bead. Still other beads in the form of flat, polished disks with central hole were found; these were cut from conch side wall and are of rather uniform size, one and one-quarter to one and one-half inches in diameter (pl. 19 *g, h*). Other disks, unperforated, with edges serrated, and polished triangular or claw-shaped objects which may have been inlays[10] were found with burials (pl. 22 *i*). A pendant made by perforating the end of a long mussel shell also came from a burial (pl. 19 *c*).

Three burials had one, three, and 22 beads, respectively, made of perforated fresh-water pearls (pl. 20 *c*). Three others each contained from 20 to 150 beads made from *Olivella* shells by removing the spire (pl. 20 *d*); these have been identified as a West Indian species.[11] One burial contained a number of very fragile beads made from *Lithospernum* seeds.

ARTIFACTS OF BONE

Eighteen bison-scapula hoe blades were recovered from the Sanders site by the University crew. Only one was found in situ in a grave (burial 20, with four adults), while 17 whole and fragmentary examples came from

[9]Elsewhere I have presented a more extended consideration of the nature of this "cult," suggesting that there may have been several interrelated local "cults" in a late Southeastern horizon, that the religious phenomena represented may have been quite complex, and that considerable time may have been involved in its development (Krieger, Alex D., *An Inquiry into Supposed Mexican Influence on a Prehistoric "Cult" in the Southern United States*).

[10]In the Museum of the American Indian, New York, are displayed several barrel-shaped wooden beads from Spiro Mound, Oklahoma. These are about four inches long and have long triangular shell inlays in their sides, quite like the Sanders objects.

[11]Edward W. and Delila Gifford, Berkeley, California, kindly identified these shells (letter of October 12, 1945). The species is *Olivella jaspidea* Gmelin, native to the Gulf of Mexico and West Indies. In view of this identification, it would be well to examine carefully other *Olivella* beads in Texas in order to determine their source. Pearce (*op. cit.*, p. 679) referred to the same Sanders beads as "fossil olivia shells of a species found only in Texas in a region several hundred miles southeast in the direction of the coast. . . ." The shells are not fossils.

test trenches in the midden areas. Amateurs have reported two others from Sanders graves. An outstanding feature of these hoes is that all of them complete enough for a determination bear a round socket in the proximal end (pl. 23 *a-a''*). This socket is from three-fourths to one inch in diameter, and probably averages about two inches in depth. It doubtlessly served for the reception of a handle, either a straight shaft or one arm of a crotched stick. Otherwise, the hoes resemble the common Plains implement, the longitudinal spine having been removed, and the distal edge ground to a bevel. Of the 18 specimens on hand, nine bear bright green stains of copper oxides. These are long, dribbling stains on the blade, spots around the neck, etc. No copper which may have been used as an aid in hafting these specimens has been recovered. One hoe, cut from bison skull and horn base was found on the surface and is believed to belong to a later culture (see below).

There were nine bone awls in graves, but these offer nothing distinctive. In each case, the awl was made by pointing a sliver of deer leg bone (pl. 23 *i, k*), better-made specimens being absent. All chipped-stone awls or drills were from the surface (see below).

PIPES

Seven pipes were recovered from as many graves. Five of these are of pottery and featured by delicate construction, the bowl thin-walled, the stem long and fragile. The stem either blends with the distal side of the bowl or extends beyond it an inch or so (pl. 22 *g*). The other two are well shaped and nicely polished elbow pipes of grey-brown Ouachita Sandstone, an exceedingly fine-grained material. One has arms of equal length (pl. 22 *e*), the other is L-shaped with a peculiar, high narrow bowl[12] and a very short stem (pl. 22 *f*). Both ends of these pipes have low flanges. All pipes were with adult males.

EARSPOOLS

Earspools were found in but one burial, number 20. A male of about 30 had one spool by the left mastoid and the other six inches from the skull. The two spools are carved from a reddish siltstone, are pulley shaped, and covered on one face with very thin copper sheeting (pl. 22 *a, b*). Aside from green stains on conch "dippers" and scapula hoes, these earspools provide the only evidence of copper so far found at this site.

CELTS

One celt was found in a grave. It was nearly rectangular, flat on the two faces, shaped by chipping, and subsequently the bit was sharpened by grinding (pl. 21 *f*). Perhaps it should be termed an adze rather than a celt, for with its flat faces it could have been mounted against a flat surface at right angles to the handle. This is probably significant in the present case,

[12]Wedel, W. R., informs me that he has found tobacco caking in the long arm of such pipes.

for all other ground-stone cutting artifacts at the site, coming from the surface, are thick celts with tapered, rounded poles, pecked surfaces, and thick bits.

CHIPPED STONE

Of chipped stone artifacts, there were five long, narrow, bi-pointed knives in burial 1, an aged male. These are beveled in four directions, but so narrow and thick that the bevel is hardly noticeable (pl. 22 *j, k*), and the edges all worn smooth.

Sanders Focus is perhaps the only culture in Texas in which but a single type of projectile point occurs. This type *(Bonham Barbed)* is a small, thin, very light arrow point with serrated edges, slight barbs, and a bulb-shaped stem (pl. 22 *c*). It resembles *Alba Barbed* (see Henrietta Focus) but is longer and narrower. Of 32 specimens of *Bonham Barbed* recovered, 24 were in six of the burials, the others loose in the midden. Jackson notes that in two cases the grave specimens lay as though originally in quivers. Many other projectiles, both light arrow points and heavier dart points, were recovered from the surface, but none can be associated with the Sanders Focus graves.

POTTERY

Sanders Focus pottery can be rather fully defined from the type site material alone. Where it appears elsewhere, even a hundred miles away, it is remarkably uniform in shape, decoration, paste, and finish. The following data is condensed from a detailed description.[13]

Sixty-two whole and restorable vessels were recovered from the 21 burials. As these contained 60 individuals, the average offering was one vessel per person. However, the distribution was quite uneven. Five burials containing 12 skeletons had no pottery; three of these were single and two multiple: burial 7, with two male and three female adults, and burial 18, with three male and one female adults. Conversely, some single burials had several vessels: burial 9, adult male, seven; burial 11, aged male, four. Other group burials contained vessels more or less corresponding to the number of individuals interred: burial 5, seven skeletons, six vessels; burial 17, eight skeletons, eight vessels; burial 15, six skeletons, six vessels; burial 12, five skeletons, six vessels; burial 20, four skeletons, seven vessels.

Loose sherds from the midden trenches total about 2,200 specimens. About 1,200 of these can be identified with vessels of a particular shape or design, and after careful matching have been estimated to represent some 420 individual vessels. The remaining 1,000 sherds are plain body pieces. The 420 vessels, plus the grave series of 62 restored specimens, give a type-site representation of about 482 vessels. All statements on relative proportions in the following discussion are made on the basis of this vessel count, *not* on

[13]Krieger, A. D., "Pottery of the Sanders Site", manuscript on file in the Anthropology Department, The University of Texas (1942).

individual sherds. The number of pieces into which a vessel breaks, or the number recovered in excavation, is obviously largely a matter of accident and unreliable for true proportions.

Sanders Focus pottery is unique in the "Caddo" area in the relative abundance of undecorated specimens. About 42 per cent are of this nature, including simple bowls, carinated bowls, cylindrical jars, and (rarely) bottles. A rich, chocolate brown is the predominating color, but this grades into light brown and tan on one side, and to very dark brown on the other. Fire mottling occurs infrequently. The paste in characteristically coarse and abundantly tempered with clay, including pulverized sherd in some cases. Other tempering material was used less frequently, sand occurring in many bottles, and pulverized bone being added to clay lumps in some utility jars. Shell tempering is quite absent. The pottery is soft (hardness 2 to 3, centered at 2.5) and breaks cleanly, often along coil seams. Surfaces are commonly finely and evenly rippled from use of a polishing tool. With the exception of red-filmed bottles *(Maxey Noded Redware)* and a few bowls, however, the surface was rarely brought to a high gloss. Cylindrical vessels *(Sanders Plain, Canton Incised)* are often sooty, are never filmed, and would seem to constitute the cooking ware in this complex.

Simple bowls, carinated bowls, jars with everted necks, and cylindrical jars invariably have flat, disk-shaped bases on which they stand solidly. However, other forms have gently rounded bottoms; these include small bowls with two lip lugs, small vessels with tall cylindrical neck and small, bulbous bodies, and all bottles. Wall thickness ranges from 5 to 8 mm. Vessels with rounded bottoms are of uniform thickness throughout, but flat bases are considerably thicker than the walls. Thus a carinated bowl with walls 7 mm. thick may have a disk base 10 to 12 mm. thick. Lips are always simple and rounded or very slightly flattened, never thickened. Lips of bowls are often scalloped (pl. 24 *b, c*) or notched. Handles are quite absent from all types except *Monkstown Fingernail Punctated,* which consists of jars with outcurving rims; these usually bear two opposed handles (or, rarely, lugs) attached at the lip and base of the rim. The upper end of the handle or lug is molded into two points which project slightly above the lip (pl. 29 *d-g*).

Sanders pottery rather readily divides into five types on the basis of consistently discrete combinations of shape, decoration, and finish. These are named *Sanders Plain, Sanders Engraved, Canton Incised, Maxey Noded Redware,* and *Monkstown Fingernail Punctated.* Examples may be seen in Plates 24-29, and variations in shape in Figure 14. Table 5 shows the relative frequency with which the various vessel forms occur in each type, the kind of vessel and frequency with which red film occurs, and proportions of the types in the series as a whole. Table 6 shows the frequency with which each vessel form occurs in a type, broken down into complete vessels and those represented by sherds.

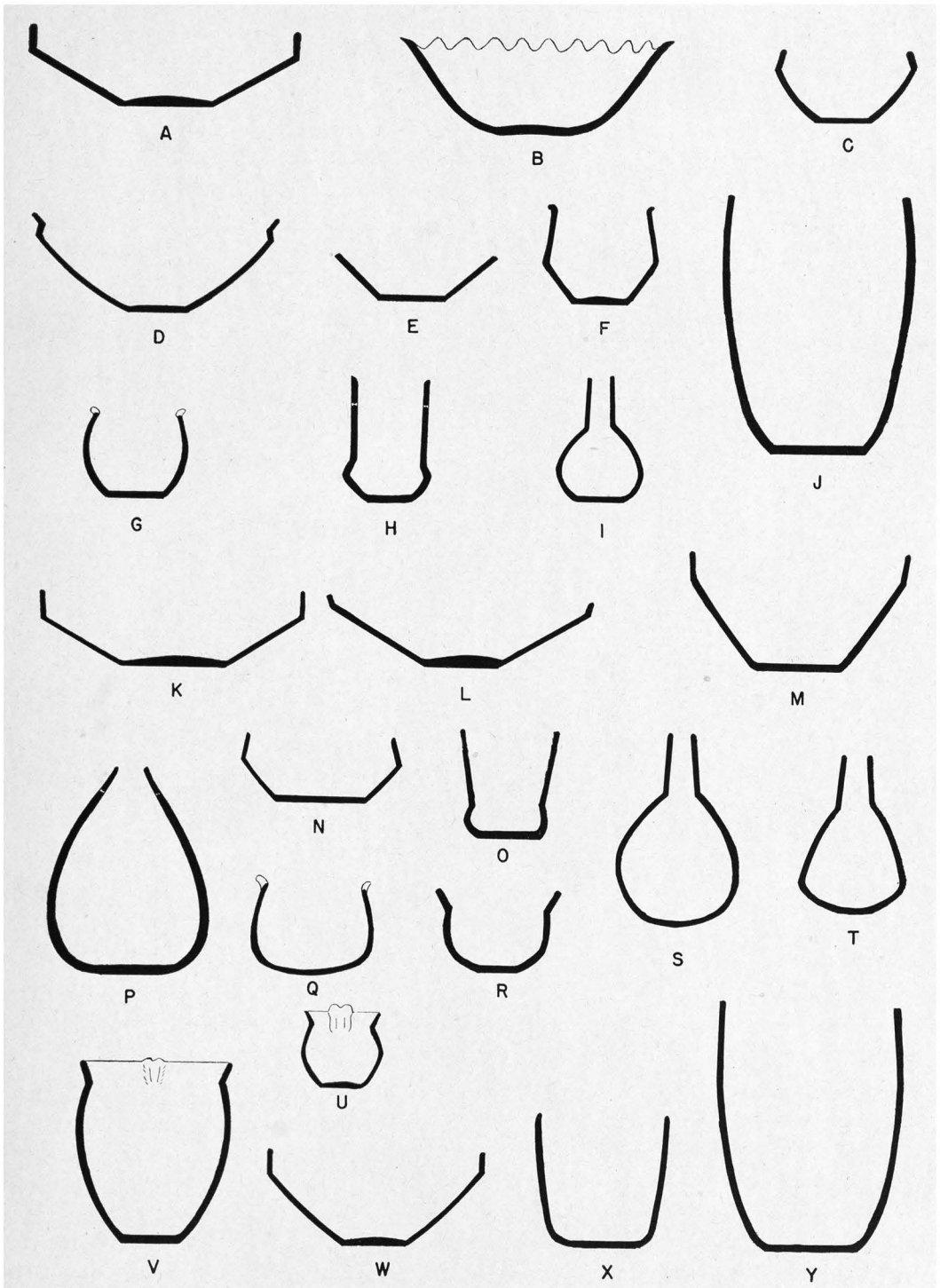


FIG. 14. Characteristic vessel shapes of Sanders Focus pottery. Drawn to scale from type-site specimens. *a-j Sanders Plain; k-r Sanders Engraved; s-t Maxey Noded Redware; v-u Monkstown Fingernail Impressed; w-y Canton Incised* (see pp. 188–191 for discussion). Actual vessels shown in pls. 24–29. Size about 1/8.

Space does not permit full discussion of the types and the problems which arise in the relationships of vessel shapes and decorations. It may be argued, for example, that the red-filmed vessels should constitute a type in themselves. However, my feeling is that filming was applied to some "good" vessels simply as a variation. Utility vessels such as tall cylindrical jars were not so treated, nor were those with fingernail decorations. *Sanders Plain* and *Sanders Engraved* are clearly very closely related types. Each includes six vessel forms, four of which were common to both types (fig. 14). Both include some red filming (Table 5).

TABLE 5

FREQUENCY WITH WHICH VESSEL FORMS AND RED FILM OCCUR IN SANDERS FOCUS TYPES

Type	*Vessel form (fig. 14)*	*Unfilmed*	*Red-filmed*	*Total*	*Percent filmed*
Sanders Plain	simple bowls	55	10	65	15.4
	carinated bowls	39	11	50	22.0
	cylindrical jars	36	....	36	.....
	bottles	30	....	30	.....
	bowls with 2 lip lugs	9	....	9	.....
	"goblet"	2	....	2	.....
		171	21	192	(11.0)
Sanders Engraved	carinated bowls	30	12	42	28.6
	large neckless bottles	14	....	14	.....
	bowls with 2 lip lugs	9	....	9	.....
	"goblet"	3	....	3	.....
	bottles	3	....	3	.....
	spittoon-shaped bowls		2	2	100.0
		59	14	73	(19.2)
Canton Incised	cylindrical jars	130	....	130	.....
	carinated bowls	4	....	4	.....
		134	....	134	
Maxey Noded Redware	bottles		38	38	100.0
Monkstown-Fingernail Punctated	jars with everted rims	24	....	24	.....
TOTALS:		388	73	461	
Unclassified:				21	
GRAND TOTAL:				482	

Sanders Plain is numerically the most important, with 192 vessels or 42% of the total. The lips of bowls were often notched transversely or deeply scalloped (pl. 24 *b, c*). Two plain bowls have a compound rim which turns upward from the body, then bends outward sharply, while the lips are scalloped (pl. 28 *a, d*). Some simple bowls[14] are quite large, up to 42 cm. across the mouth and 18 cm. deep (pl. 24 *a-c*) and others small (pl. 26 *d, g, j*). The carinated bowl form is little more than a simple bowl with rim added which turns upward, either vertically or slanting slightly inward or outward; the rim varies in height from 2 to 8 cm. (pls. 25 *a-d,* 28 *b*). The peculiar

[14]"Simple bowl" designates a vessel of even contour from base to lip, *i.e.*, there is no change in direction of the wall, which may be convex, straight, or concave.

TABLE 6

NUMBER OF VESSELS IN SANDERS FOCUS TYPES, BASED ON WHOLE SPECIMENS AND SHERD COUNTS

	Sanders Plain		*Sanders Engraved*		*Canton Incised*		*Maxey Noded Redware*		*Monkstown Fingernail Punctated*		TOTALS		
	Whole*	Frag.†	Whole	Frag.	Whole	Frag.	Whole	Frag.	Whole	Frag.	Whole	Frag.	
Cylindrical jars or pots (utility vessels)	....	36	....	....	2	128	....	....	....	....	2	164	166
Carinated bowls	12	38	8	34	....	4	....	....	....	....	20	76	96
Bottles	2	28	....	3	....	....	16	22	....	....	18	53	71
Simple bowls	7	58	....	....	....	....	....	....	....	....	7	58	65
Jars with everted rims	....	....	....	....	....	....	....	....	5	19	5	19	24
Bowls with two lip lugs	7	2	5	4	....	....	....	....	....	....	12	6	18
Large neckless bottles	....	....	5	9	....	....	....	....	....	....	5	9	14
"Goblets" with cylindrical neck and small bulbous body	2	....	2	1	....	....	....	....	....	....	4	1	5
"Spittoon-shaped" bowl with small body and widely flaring rim	....	....	1	1	....	....	....	....	....	....	1	1	2
Totals:	30	162	21	52	2	132	16	22	5	19	74	387	461
Type Totals:	192		73		134		38		24				

*Includes whole and restorable vessels from graves and trenches.
†Estimated true number of vessels represented by sherds which can be related to known types.

"goblets" (pls. 26 *a, c,* 27 *b*) with small body and tall cylindrical neck, bear two suspension holes on opposite sides just below the lip. Another vessel, shaped somewhat like a beer mug without a handle, is very dark brown, thick, heavy, well polished (pl. 26 *b*). Bowls with two projecting lip lugs occur (pl. 26 *h*). Bottles have globular bodies and straight necks (pl. 26 *e, f*). The 36 cylindrical jars included in *Sanders Plain* agree with this type in coarse paste with clay temper, crudely polished and rippled surface, shades of brown centering around chocolate, and occasional notched lips. They are of the same shape as *Canton Incised* jars.

Sanders Engraved includes carinated bowls (pl. 27 *a, c, e, f*); deep bowls with mouth slightly smaller than base and two out-turned lugs on the lip (pl. 27 *d, h*); "goblets" (pl. 27 *b*); large pear-shaped bottles with a small opening at the top and no neck (pl. 27 *g*); a bowl with sharply everted rim, shaped like a spittoon (pl. 28 *e*), and a fragment of a second such bowl; also three fragments of engraved bottles. Decoration consists exclusively of a single band of very simple straight-line motifs such as parallel diagonal lines, hatched and cross-hatched triangles. The triangles stand in a row with points up or points down, alternating up and down, or joined at the apices (pl. 27 *a-h*). These lines were usually engraved (cut through the finished, polished surface) and filled with red ochre, but occasionally incised in the still-plastic clay. Decoration is found on the rim of carinated bowls, and just below the lip of other vessels.

Canton Incised, so far as can be determined, consists of but two vessel forms: cylindrical jars and carinated bowls, with the latter rare. Decoration consists of a single broad band of incised diagonal lines in "hachured" arrangements or nested triangles just below the lip of the vessel (pl. 28 *f, g*). Between the sets of lines pitched in opposite directions, there are often triangular areas filled with rude punctates, executed with a sharpened stick pushed straight into the clay, or by gouging and pinching the clay with fingernails.

Maxey Noded Redware consists of bottles exclusively. Their exteriors were covered with a hard, bright red film before baking. This surface is sometimes beautifully polished. Decoration usually consists of three (rarely, two or four) sets of small appliquè nodes arranged in vertical rows on the body. Each set includes three (rarely, two or four) rows of nodes, and the spaces between and around the nodes are marked with punctates or small slits (pl. 29 *a-c*). One interesting specimen is a complete three-chambered bottle, or rather a composite of three separate bottles jointed together by struts and having one spout in common (pl. 29 *a*). Where each of the three necks joins the common spout, a human face in full view is rudely modeled, projecting outward slightly. Fragments of two other such specimens were found. It has been mentioned that sand temper was used more commonly in Maxey bottles than in other vessels. Possibly a degree of porosity was achieved in this manner.

The fifth type, *Monkstown Fingernail Punctated,* is the most sparsely represented, there being only five complete vessels and some twenty sherds, and it may represent a trade ware. All specimens are from jars with out-curved rims. These vessels give the only evidence of the use of handles in this complex, with one exception (see below, negative-painted bottle). The two handles vary from strap to loop-shaped and at the lip bear two small points which jut upward like ears (pl. 29 *d-g*). The handles are decorated with fingernail gouges and pinches, as are the vessels themselves. The patterns made with fingernail marks are sometimes curvilinear, consisting of arcs, scrolls, and scattered gougings. They cover the entire surface, except in the case of one tall jar of which only the upper third is decorated (pl. 29 *d*). The type thus contrasts strongly in several respects and would seem to represent a different conception from the rest of the Sanders Focus pottery. However, the paste, clay temper, brown colors, and general treatment agrees with the rest of the complex and three whole specimens came from the burials. As in the other types, shell temper is absent.

A specimen of what may be negative-painted pottery was found at the head of one of six skeletons in burial 15. This is a bottle of peculiar shape, having a sort of platform around the base of the spout, and four very small loop handles attached to the outer edge of this platform (pl. 28 *c*). Painted "banners" occur in nine vertical bands on the body of the vessel, their peaks all pointing to the right. Around the platform are eight more triangular "banners," their bases against the base of the spout and their points toward the perimeter of the platform. The vessel is a light reddish tan, probably unfilmed, while the banners are painted in pale red ochre. In other respects and "feel" this bottle appears to agree with the type *Maxey Noded Redware,* but remains unique. If it is a trade piece, it is difficult to suggest a likely source.

From a depth of four inches came a complete bottle with complicated engraved decoration (fig. 15). The shape is similar to that of bottles in the type *Maxey Noded Redware.* The temper is coarse clay grit or sherd, and the surface where not flaked off, shows a high polish and was probably never filmed. The clay is a reddish tan considerably fire-mottled. The decoration, presenting a complex series of scrolls, circles within squares, etc., agrees closely with engraved bottles found on the Haley farm site on Red River in southwestern Arkansas.[15] This is the type site for a Haley Focus in southwest Arkansas and northeast Texas. The Spiro, Sanders, and Haley Foci of the Gibson Aspect were approximately contemporaneous.[16] The bottle in question is quite likely a Haley Focus trade piece in the Sanders site, although the shape and color are somewhat closer to resident bottles in the Sanders complex. Conversely, Moore illustrates a bottle from the Haley site which, with its appliquè ridges and sloping upper part, appears to be an intrusive piece of the type *Maxey Noded Redware.*[17]

[15]Moore, C. B., *Some Aboriginal Sites on Red River,* figs. 40, 41, 44, and pl. XL.
[16]Krieger, A. D., *Archaeological Horizons in the "Caddo" Area* (Ms.).
[17]Moore, *op. cit.,* fig. 47.



FIG. 15. Engraved bottle from Sanders site, found at depth of four inches. Shape and design characteristic of Haley Focus bottles about great bend of Red River in southwest Arkansas; probably a trade piece in Sanders Focus. Height 8 inches, diameter 4½ inches.

MISCELLANEOUS MIDDEN REMAINS

A number of interesting artifacts are recorded from the midden layers in and between the two "mounds," bearing such labels as "depth 18-36 inches," etc. They are not represented in the graves, but neither are they notably present in the surface collection. Hence I suggest that they probably belong to the same culture complex as the graves, with the understanding that some or all may prove not to be with further data.

Objects of bone include what appears to be a fish-hook carved from a large bird bone (pl. 23 *h*); two or three deer jaws (pl. 23 *c*) with distal end removed and diastrema well polished ("corn shellers" or "sinew stretchers"); three deer cannon bones with polished longitudinal groove (pl. 23 *f*) which are variously called "beaming tools," "dehairers," and "corn shellers"; deer vertebrae with spinal canal worn smooth (pl. 23 *e*) and possibly used as shaft wrenches or smoothers; ten or twelve turkey bones, mainly humeri, with one to five tiny holes punched through the wall in a cluster near one end (pl. 23 *g*); four deer crania bearing antler stubs but with the face and lower parts of the skull chopped off (pl. 23 *d*). The last-mentioned may be nothing more than skull fragments resulting from attempts to extract the brains, but it is more likely that the calvaria with antlers were strapped to the head as decoys or ceremonial headdress. Rude bone awls of sharpened splinters and fish vertebral spines (pl. 23 *i-k*) also were found in the midden. One is impressed by the range of uses for deer bone, supplemented to some extent by bird and fish bones.

One very thin, flat celt of greenish-grey serpentine was found in two pieces, one on the surface, the other at a depth of seven inches. This is of spatulate shape (pl. 21 *h*) and suggests the form of celt found widely with the "Southeastern ceremonial complex." It is reasonable to suppose that this specimen belonged to the ceremonial complex at Sanders, as seen in the shell gorgets and "dippers" already described.

A number of single and double-bitted axes chipped from dull brown chert and novaculite have been found on the site, by the University crew and by various amateurs. The double-bitted specimens are chipped so that a shallow groove encircles their midsections (pl. 21 *d, e*). The bits are quite thick and the objects may have been used either as hoes or axes.

Two grooved abrading stones or "awl sharpeners" were found. One is a gritty white material known as Catahoula Sandstone and must have been carried to the site from somewhere in extreme southeastern Texas or southwestern Louisiana, where it outcrops.[18] The other is a dark brown sandstone formed on "ironstone" concretions almost everywhere in eastern Texas, but probably not in the immediate vicinity of the Sanders site.

About 20 pottery disks, all with a large central perforation, were recovered, the majority being made from the flat, disk base of Sanders Focus pottery vessels. Usually the whole base was used, hence some of the disks range up

[18]Information from Dr. H. B. Stenzel, Bureau of Economic Geology, The University of Texas.

to 12 cm. in diameter and 12 mm. in thickness. The outer edge is unsmoothed in all cases, including those disks made from sidewall fragments. The central bore ranges from 1 to 2 cm. in diameter and is often smooth; therefore it is possible that these objects were used as spindle whorls. Mussel shells with central holes of about the same diameter as those in the disks were also found scattered in the midden (pl. 22 *d*). These are commonly termed "hoes," but due to their fragility, lack of battering, and the fact that numerous hoes of bison scapulae were found here, such an interpretation is unconvincing.

Grinding implements are represented by unshaped, flattish slabs of "ironstone" concretion, and stream-pebble manos. The grinding slabs, as universally in eastern Texas, are very small, usually measuring about 20 to 30 cm. across and from 6 to 12 cm. thick. They are simply blocks, on one face of which is a shallow oval basin, while around the sill there are one or more pits chipped into the rock which may well have served for steadying acorns or other nuts to be cracked. The mano is likewise unshaped, being a convenient pebble or small block of "ironstone." The motion used was clearly a rotary one, there being no suggestion of back-and-forth grinding in the Sanders site material, or anywhere in the lands to the eastward. As stated, it is not certain that these implements belong to the focus.

Occasional ochre pigments, stream-pebble hammerstones, and smooth pebbles which may have served in pottery finishing, also occurred here and there in the "mounds" and test trenches.

Some indications of diet are given by the large number of deer, turkey, and dog bones found over most of the site. Deer bones were decidedly predominant, followed by turkey and dog in about equal numbers. Six or eight of the dog skeletons recovered are so nearly complete that the animals may have been buried, or at any rate not dismembered. Turkeys may have been kept for ceremonial purposes (witness the shell gorget engravings). Aside from scapula hoes, very few bison bones were recovered. No other artifacts of bison bone were found, indicating that this animal, though undoubtedly available in this area, was not hunted to any great extent. The scapula hoes may even have been obtained by trade. Bones of turtles, opossum, fox, squirrel, badger, and other small animals occurred sparsely, while fish are represented by four or five ribs. Evidently the economy was based primarily on agriculture, supplemented principally by deer, and to a much lesser extent by various small animals and fish.

HOUSES

Post holes were discovered in both "mound 1" and "mound 2." Most of these reportedly failed to outline definite structures. However, several floor plans (number not stated) are described by Pearce:

> Where these were completely traced out, they were all found to have only three walls; the fourth, usually to the south but in one case to the west, had been left off and the whole space used as a door. This must have been covered with skins in the winter. These holes were two and one-half inches to three

inches in diameter, 9″ to 23″ deep and usually 9″ to 13″ apart. The lodges varied from 8′ by 10′ to 10′ by 12′ in size, and were fairly rectangular in form. The fire pit was in the middle and at different levels, indicating a building up of the mound site through long continued occupation. Floors of these lodges were noted at depths of 24″, 38″, 64″ and 120″ below the top of a rounded prominence of this site, called by Mr. Jackson a domiciliary mound.[19]

The "rounded prominence" referred to is the eminence called "mound 2" in Jackson's field notes and report (fig. 9). As has been pointed out, no record of the internal structure of this eminence was kept, and according to Mr. Carl Chelf, both "mounds" were natural knolls capped with midden refuse. Hence there is grave doubt that the term "domiciliary mound" is aptly used. However, since house floors were found at different levels, one being ten feet below the peak, the question of how the eminence accumulated must go unanswered. That the houses had posts on but three sides is interesting and unique; the fourth side may have been unintentionally destroyed by the excavators in some cases, but in at least one instance (pl. 16 *d*) a bank remained after three sides were traced, and the fourth side did not appear after this bank was cleared. It should also be noted that the recognizable houses were found in "mound 2," while the graves discussed above were all discovered in "mound 1." The few potsherds from "mound 2" are quite like the grave pottery, but this does not necessarily prove that the houses belonged to the same culture complex. Only further, careful excavations will answer these questions.

No information was gained on doorways. A number of burned clay lumps bearing impressions of reeds and grass were recovered, indicating earth-covered walls or roofs. There were no charred logs or other evidence that the houses had burned.

SURFACE MATERIAL[20]

Several hundred specimens of chipped flint, pottery, bone, shell, and miscellaneous stones were found upon the surface of the entire site and were not recorded from below the surface. Nearly all of these may be identified as characteristic of complexes other than that represented by the Sanders extended burials. The indicated cultural stratification should be checked with other excavations, if possible. Among these remains are plain, shell-tempered potsherds of the type *Nocona Plain,* associated with the Henrietta Focus. There are also many small, thin, light arrow points of a triangular shape, some unnotched, others with side and base notches; thirty-odd small snub-nosed scrapers of Ray's "P. scraper C" form; a variety of side scrapers made

[19]Pearce, J. E., *The Archaeology of East Texas*, p. 680.

[20]Through much of this discussion I have purposely avoided precise figures on the occurrence of various artifacts. Due to the manner of collection from such an extensive site, the fact that several specimens were mislabeled and later proved to have come from other sites, and the lack of connection with known physical stratigraphy, it appears that there is danger of misleading implications, and little purpose served, in attempting to be exact where there is inadequate control.

by retouching the edges of large flint flakes; small flint drills or awls with unshaped bases; gravers; diamond-shaped knives with beveled edges; one hoe blade made from a section of bison skull cut across the crown and including the horn base (pl. 23 *b-b'*), a form of hoe found in the Henrietta Focus; ten or twelve thick, rounded celts with pecked body and tapered poll; and a few longitudinally grooved sandstone shaft smoothers. We may also recall that 17 of the 18 scapula hoe blades, all of which were socketed, came from various parts of the site, only one being found in an extended burial.

Jackson's report mentions many refuse pits in the highest part of "mound 1," found alongside some of the extended burials of the series already discussed (fig. 10). The levels from which these pits were dug is not given, but it is mentioned that "most of the artifacts [in pits] were from depths of six to 20 inches." Hence they seem to have been dug from very near the surface. The pits were roughly oval and from three to eight feet across. Since they were full of rubbish (animal and bird bone, broken shell, ash, etc.) when found, Jackson suggested that they were first intended as storage pits, then later used as refuse pits. There is no suggestion that they were undercut in any way, or lined with stone.

There are reports from amateurs of at least seven flexed burials in the "mounds." One is reported to have had a small decorated gorget and a scapula hoe,[21] while another described as "semi-flexed" was supplied with typical Sanders grave pottery, a scapula hoe, and two bone awls.[22] In both cases the hoe had the typical socket in the proximal end. It thus appears possible that a flexed burial position was used occasionally by the same people who made the burials described in a foregoing section. In the other five instances of flexed burial, however, there were no accompanying artifacts.

The occurrence of numerous small, well made snub-nosed scrapers, diamond-shaped beveled knives, notched and unnotched triangular points, small flint "awls" with unshaped bases, gravers, socketed scapula hoes, a bison-skull hoe, sandstone shaft smoothers, numerous "pocket cache pits," and flexed burials without offerings, indicates a surface occupation by one of the southern Plains tribes. As all these traits are characteristic of Henrietta Focus, and moreover, some of the surface sherds are of the shell-tempered type *Nocona Plain,* this site provides stratigraphic superimposition of Henrietta Focus material over that of Sanders Focus.

This, however, does not exhaust the surface material recovered. Present also are at least 200 potsherds which can readily be identified with definite culture complexes centered farther east, down the Red River Valley, and to the south and southeast in the upper Neches, Sabine, and Sulphur river systems of northeast Texas. Thus some 20 sherds, many of them tempered with finely pulverized shell and decorated with complex engraved designs, can be easily identified as belonging to characteristic types of Texarkana Focus. About 150 sherds representing some 40 vessels, nearly all tempered

[21]Rex Housewright, *A Multiple Burial in Lamar County.*

[22]Information in files of Anthropology Department, The University of Texas, from Mr. and Mrs. O. L. Crook and Miss Maud Neville of Paris, Texas.

with shell, belong to the type *Nash Neck Banded* of Texarkana Focus. Since this type seems to have been a utility ware, actual occupation of the site by a down-river group seems likely. The westward limits of Texarkana Focus are quite imperfectly known, but its pottery types are rather common in surface collections from sites along the south side of the Red in Bowie and Red River counties. West of Sanders such pottery disappears almost completely within a few miles, appearing only sporadically as trade ware in the middle Red River Valley.

One particularly interesting specimen is that shown in Figure 16. The fragments of this bottle are unusually thin and the restoration was extremely difficult. Nonetheless, there is no doubt about its peculiar oval shape and the position of the two modeled frogs. The surface is somewhat flaked but once bore a beautifully polished red film. The paste is tempered with very finely divided shell. Although effigy appendages and modeled features are of rather common occurrence in the central Mississippi basin and adjacent regions, no specimen strictly comparable to this bottle has come to my attention. Its plow-zone position and shell temper indicate it was not part of the grave complex.

Another remarkable specimen is the large olla shown in Figure 17. Most of the pieces came from surface, but two sherds are said to have been in burial 11. If so, this is the only shell-tempered vessel which may have been associated with these burials, but this cannot be accepted at face value. The restoration shows this vessel to have been about 59 cm. (23¼ inches) in height, the greatest diameter 56 cm. (22 inches). The wall is about 7 cm. thick, the mouth 17 cm. (7 inches) across, and the flat disk base 10 cm. (4 inches) across. The capacity is estimated at about nine gallons; it is an unusually large vessel for this entire area. Double ridges of applied filets extend downward from the base of the neck at four points.

There are also 15 surface sherds definitely of Titus Focus types. In general, components of this focus are found in the Sulphur River Valley and its tributaries, a system which roughly parallels Red River and likewise flows eastward across northeastern Texas. More surprising is the finding of at least 15 sherds of Frankston Focus types. These include modeled animal and bird heads broken from the rims of bowls, and body sherds covered with brushing and fingernail punctates. Frankston Focus components are found from 100 to 150 miles south of Sanders, mainly in the Neches, Angelina, and upper Sabine valleys.

One surface sherd if of particular interest, for it appears to be a Southwestern trade piece (pl. 6 *k*). This is described on p. 208.

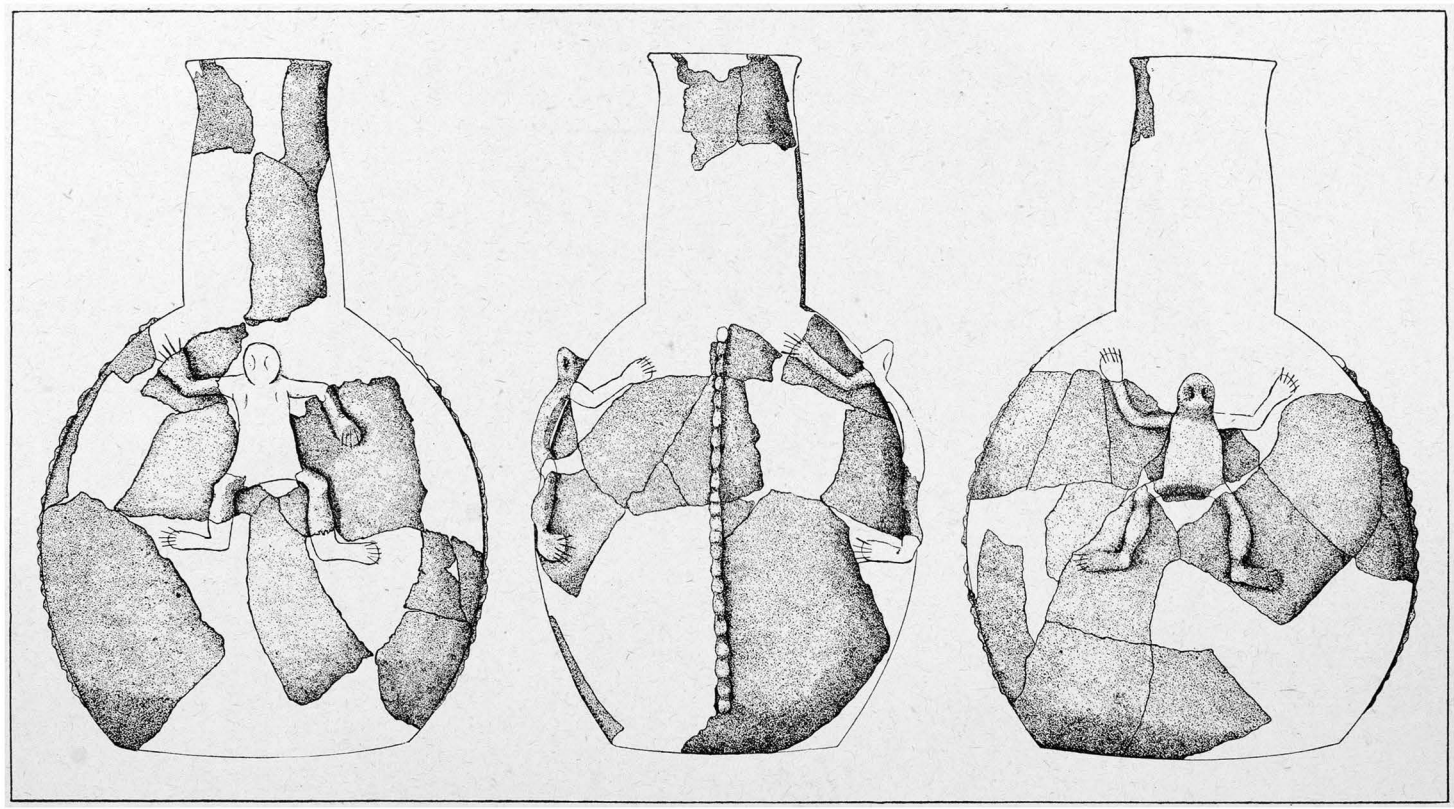


FIG. 16. Red-filmed bottle found in fragments on surface of the Sanders site. Tempered with very finely pulverized shell, thickness of walls only about ⅛ inch. Height 10 inches, diameters 5¼ and 6¼ inches (note oval shape).

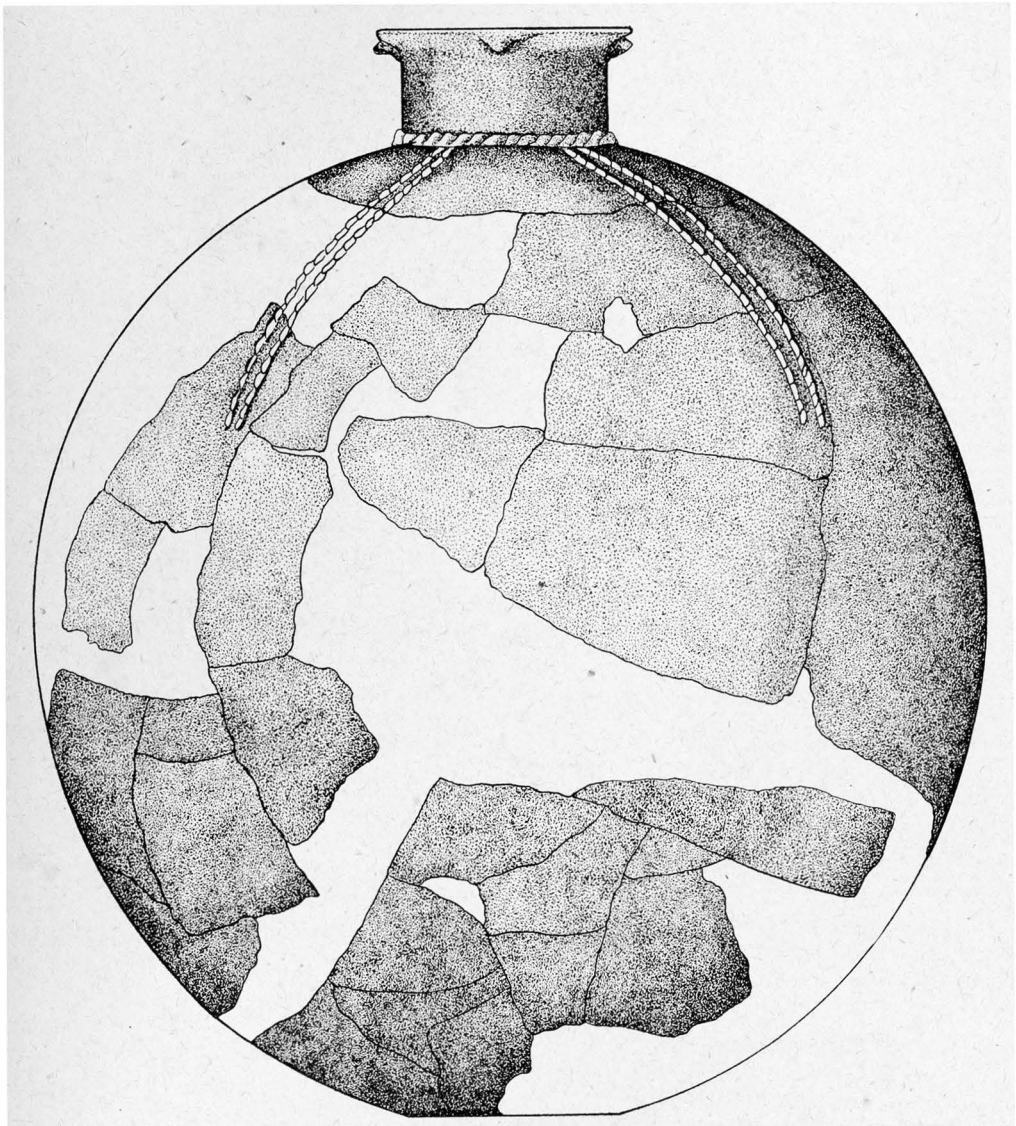


FIG. 17. Large shell-tempered olla from T. M. Sanders site. Restored from fragments found on surface, probably not associated with Sanders Focus but with later occupation.

The Sanders Focus

SANDERS FOCUS TRAITS

FROM THE FOREGOING sections it will be seen that a Sanders Focus must be based primarily on the series of 21 graves and associated traits found in "mound 1" at the Sanders site; this record may also be supplemented to some extent by artifacts found in test pits into the midden of "mound 1" and the saddle between the two "mounds." As we have seen, the surface collections are almost wholly distinct from the grave and midden artifacts, and represent other known culture complexes.

There follows a listing of Sanders Focus traits, with notations as to which traits are in probable (but not proved) association.

Type Site: on property of T. M. Sanders one mile west of Direct, on E. bank Bois D'Arc Creek, northwest corner of Lamar County, Texas (½ mile S. of Red River).

Other Components: excavated sites on Yarbrough and Joslin farms in upper Sabine Valley near Grand Saline, eastern Van Zandt County, Texas; surface collections from western Wood and Hopkins counties, Texas; Pat Boyd farm near Sawyer, Choctaw County, Oklahoma.

Economy: primary dependence on agriculture (no direct evidence of which plants grown), supplemented mainly by deer, also various small mammals, turtles, fish; numerous dog and turkey remains. Few bison remains; these mostly artifacts (scapula hoe blades).

Villages: located on banks and terraces of small tributary streams; not found so far on large rivers. Most sites seem quite small but no adequate information. Type site very large but how much of it was occupied by Sanders Focus peoples is unknown.

Architecture: only information is from type site and this incomplete: dwellings rectangular with wall posts set individually on three sides, the fourth side reportedly left open (or "covered with skins"); size about 10 by 12 feet; no data on fireplaces or entrances, burned clay indicates exterior walls and/or roofs were of sticks and reeds covered with clay. Association of these houses with focal complex not proved.

Agricultural Implements: bison-scapula hoe blade with socket in proximal end. Also so-called "hoe" of heavy mussel shell found in midden, not definitely associated.

Food Storage: nothing known. (Numerous "pocket cache pits" on top of "Mound 1" dug from near surface and probably belong to later occupation.)

Food Preparation: pottery types consist of *Canton Incised,* a cooking ware usually in the form of cylindrical jars with flat round bases; and *Sanders*

Plain, Sanders Engraved, Maxey Noded Redware, and *Monkstown Fingernail Impressed* (see pp. 185–192; pls. 24–29).

Grinding implements (association not certain) consist of common east Texas ironstone concretions, usually a flat slab with round or oval basin worn in top, and any convenient pebble used as mano with rotary motion; pits in sill around basin and in face of mano probably used for nut-cracking. No sign of back-and-forth grinding implements; no attempt to shape either slab or mano.

"Corn shellers" of deer cannon bone with longitudinal groove found in midden and probably associated with focal complex.

Hearths not found.

Cutting, Scraping, Skin Preparation, etc.: long, narrow, double-pointed flint knives with four steep beveled edges, resembling diamond-shaped knives but narrower and edges usually polished very smooth (may have been used for boring as well as cutting).

Celt or adze with flat faces and sharp bit (one example).

Flint spalls for cutting, scraping (unshaped; edges retouched).

Axes (or hoes?) of flint and dolomite, thick and crudely chipped into single and double bits, with two shallow notches at edges for hafting. Association not certain.

Sewing, Punching, etc.: splinter awls of deer leg bone, unshaped except for sharpened tip.

Sandstone hones for sharpening awls, including local brown sandstone and imported white Catahoula Sandstone found in southeast Texas and south-central Louisiana.

"Sinew stretchers" of deer jaw with polished diastrema.

Chipping, Flaking, etc.: antler-tine tips, and deer-ulna tools with chisel-like tips, neither definitely associated with complex.

Weapons: arrow points of one type only, *Bonham Barbed,* with narrow blade, slim tip, edges often serrated; short barbs, stem bulb-like, expanding in middle.

Dart points: probably none.

Shaft straighteners: deer vertebrae with smoothed canal may have served such purpose.

Woven artifacts: none known.

Ornaments: plain and engraved shell gorgets (see Ceremonial). Large variety of barrel-shaped beads, length one-fourth to one inch, cut from conch-shell columnellae. "Hair tubes," length three to five inches, cut from conch-shell columnellae and drilled from both ends. Disk beads and triangular objects (inlays?) cut from side wall of conch. Small, whole conch shell used as pendant, suspended from pointed end with spire downward. Beads of West Indian and Gulf of Mexico shells (*Olivella jaspidea Gmelin*), spires removed. Fresh-water pearl beads. Beads of perforated *Lithospernum* seeds.

Pulley-shaped earspools of reddish siltstone, covered with thin copper sheeting on one face. Green stains on scapula hoe blades and spire of one conch shell indicate further use of copper.

Red ochre pigments; green clay pigments.

Head deformation: general in both sexes, therefore perhaps ornamental. Deformation generally both frontal and occipital.

Ceremonial: ashes in graves suggest fire in burial ritual; skeletons are not scorched, indicating ashes were placed in graves cold or fire burned out before interment made.

Conch-shell gorgets with engraved designs suggest ritualistic devices, but as they were found with persons of both sexes, ranging in age from 10 to aged, these objects may have been secular as well. Some gorgets plain or plain except for scalloped edge; others bear designs cut through shell, engraved, or carved in relief. All with designs include the equal-armed cross motif, either cut out or drawn with three parallel lines; combined with the cross are other motifs: turkey (single and fours), human face in full view in relief, human face in profile, diamond-shaped eyes and eye symbols, bilobed arrow, beaded forelock, earspool.

Conch-shell receptacles ("dippers") are found. Of four examples, two are plain, one too badly decayed to judge whether decoration was present, and one is encircled with spaced lines and pendant triangles similar to the simple pottery designs. All with adult males.

Elbow pipes of polished Ouachita Sandstone; long-stemmed pottery pipes. All with adult males.

Deer calvaria with antler stubs, but face and lower parts removed, may be ceremonial headdresses, or perhaps hunting disguises. Association not certain.

Long, thin, spatulate celt of steatite. Association not certain.

Burials: Both single and multiple interments, latter with persons of both sexes and various ages often indicating two or three generations. Up to eight skeletons in a grave, but pit not enlarged proportionately, so that the more skeletons, the more crowded. Grave rectangular, pottery placed about heads and shoulders, occasionally at sides. Personal ornaments left in place; arrow points in line suggest quivers placed at side of males. Position extended on back or side in all cases excavated, but amateurs report that loosely flexed position was also used occasionally. Heads nearly always to east. Ashes in graves, but no evidence of cremation, whole or partial.

Miscellaneous Traits: Bone fish-hook (?). Turkey humeri with holes punched through wall on flat surface near one end. Association not certain.

Potsherds made into disks with central hole, worn smooth inside. As flat, disk vessel bases usually used, these are rather thick and heavy. Association not certain.

Trade indicated by presence of engraved bottle similar to Haley Focus type (fig. 15); possibly by negative-painted bottle with four handles (pl. 28 *c*). Hones of white Catahoula Sandstone from southeast Texas or southern Louisiana.

The circumstances of uncertainty surrounding such a trait list are such that "Sanders Focus" may seem quite ethereal. In Texas archaeology and that of the "Caddo" area as a whole, however, there is little trouble in recognizing the main features of the complex. The pottery types, burial method, decorated shell gorgets, polished stone elbow pipes, copper-covered stone earspools, and great variety of shell beads, including pearls, provide sufficient contrast with other complexes in this region for one to be sure one is dealing with a unique culture. Such bone artifacts as punched turkey humeri, deer calvaria, deer-jaw "sinew stretchers," and deer vertebrae with smoothed canals, likewise are not found elsewhere in the region. The occurrence of a single type of small projectile point, supposedly for arrows, without accompanying dart points, is also unique. It may be hoped that better-controlled excavations will provide a closer definition of the complex.

Sanders Focus: Age and Affiliations[23]

BEFORE THE MEANING of the Sanders Focus complex can be understood, it will be necessary to discuss the varied surface remains on the Sanders site. This variety indicates that the locality was frequently visited by different groups moving up and down the Red River Valley, and perhaps by hunting expeditions traveling from the forests to the east to the open plains farther west. Such an interpretation appears more substantial than that a single group occupied the site after abandonment by the Sanders Focus people, and engaged in trade with others. That is to say, if the surface remains were the result of trade alone, there should be evidence of a more prolonged occupation by a resident people. It is probably significant that the surface objects can be identified with culture complexes found to the west, east, southeast, and south, but none can be recognized which point specifically to the north—to Oklahoma, Kansas, or the Central Plains.

It has already been stated that Henrietta Focus, representative of a Plains people in the Red River Valley to the west and the upper Trinity and Brazos systems to the southwest, was a late prehistoric culture which reveals no evidence of contact with Europeans (pp. 143–144). The provisional estimate of its time of existence is about 1450 to 1600. The superimposition of this material on the Sanders Focus at the type site does not in itself provide a date for the latter; however, this, taken together with certain other lines of evidence to be cited, makes the chronological position of Sanders Focus reasonably clear.

THE FULTON ASPECT

We have mentioned, for example, that sherds definitely identifiable as Texarkana, Titus, and Frankston Focus types were found on the Sanders site surface. These foci are included in the Fulton Aspect, which embraces late prehistoric and historic cultures in the "Caddo" area. The Aspect also

[23]In this section all references to archaeological complexes in the "Caddo" area are condensed from the Ms. *Archaeological Horizons in the "Caddo" Area.* In this work their content and interrelationships are explained at length.

includes the Belcher, Bossier,[24] Fort Coffee,[25] Glendora,[26] and probably one or two other foci not yet named.[27]

There can be no question of the historical position of Glendora Focus. Its components usually—but not always—include European articles of iron, glass, brass, etc., and this applies over a very large territory extending from the Womack site near Sanders in northern Lamar County eastward nearly to the Mississippi in Louisiana and Arkansas[28] (Map 1).

Frankston Focus was, in the main, a prehistoric culture centered in the Neches, Angelina, and upper Sabine valleys of central east Texas. Its components consistently yield five pottery types: *Poynor Engraved, Bullard Brushed, Maydelle Incised, LaRue Neck Banded, and Killough Pinched.* We have, however, a peculiar circumstance in that all or most of these types seem to have been continued into historic times, but with the addition of another type found only in historic sites. The latter, *Patton Engraved,* appears invariably in those Frankston Focus sites which also yield glass, iron, etc.; conversely, it is missing from components which lack evidence of European material. This is shown in Figure 18. The point is significant and will be referred to again in connection with the carrying of Frankston trade pottery westward across Texas. In further mention of Frankston Focus the pre-contact complex will be indicated, unless otherwise stated.

The Frankston Focus can be rather satisfactorily identified with Caddo tribes of the southern or Hasinai division (in contrast to the northern or Red River Caddo and those to the east in Louisiana). As early as 1542 Europeans encountered Caddo tribes in this part of Texas. In that year, De Soto's followers under Luis de Moscoso crossed the Red, probably below its great bend, and marched west and southwest far into present Texas. Successively, the peoples met were the Amaye, "perhaps 20 miles east" of the Red in northwest Louisiana; Naguatex or Nawatesh (Place of Salt) on the Red; then Hacanac; and turning southwestward, two very poor provinces called Nissohone and Lacane, and a more populous one known as Nondacao; then the Hais, Soacatino, and a "considerable province" called Guasco; Naquiscoca and Nacacahoz; and finally they came to the river "Daycao," beyond which were Indians living in "wretched hovels" whose

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[24]The Belcher and Bossier Foci have been named by Dr. Clarence H. Webb. In his *Pottery Types from the Belcher Mound Site,* Webb has described ceramics which characterize Belcher Focus. Organization of both foci is still in process by Webb, with the writer assisting.

[25]Orr, Kenneth G., *The Archaeological Situation at Spiro, Oklahoma; A Preliminary Report.* Ceramically, at least, this focus clearly stands within the Fulton Aspect; it also has Plains-like features.

[26]A focus first suggested by Orr in *The Eufaula Mound: Contributions to the Spiro Focus.*

[27]In the course of correspondence and conferences with David A. Baerreis, University of Oklahoma, in 1942, suggestions of a "McCurtain Focus" in the southeast corner of Oklahoma developed. This was closely similar to Texarkana Focus ceramically, but house forms differed.

In the upper Ouachita Valley of central Arkansas, Dr. and Mrs. T. L. Hodges and others have collected extensively. There is considerable local emphasis on certain ceramic forms sufficiently distinct from other foci in the Fulton Aspect to provide the basis for still another division (information from Clarence H. Webb, who suggests the name "Mid-Ouachita Focus"). See Hodges, T. L. and Mrs., *Suggestion for Identification of Certain Mid-Ouachita Pottery as Cahinnio Caddo.*

[28]Webb, C. H., *A Second Historic Caddo Site at Natchitoches, Louisiana,* presents a recent summary and discussion of Glendora Focus. This paper also includes an outline of the Fulton and Gibson Aspects.

speech was unintelligible to the others.[29] Swanton identifies "Daycao" with Trinity River. There can be little doubt that the Red, Sabine, and Neches were crossed and names recorded were Caddoan. Many appear in similar form 145 years later when La Salle passed through the "Cenis" (Hasinai) provinces in his attempts to reach the Mississippi from the Texas Gulf coast, 1686-1687.

Several large Frankston Focus components agree very closely in location with Swanton's placement of important Hasinai settlements, among them Nacono, Nabadache, Neche, Nabiti, Nadaco, and others.[30] The agreement is in fact rather astonishing in view of Swanton's not having available any detailed archaeological data. Now, it is highly important that in 1542 Moscoso found that the tribes referred to as Hasinai by Swanton *were already engaged in trade with the Puebloans.* They are said to have been in possession of turquoise and cotton blankets, for which they probably offered bow wood of Osage orange.[31]

The question naturally arises: can contact between Hasinai (or any Caddo) villages of the 16th century and contemporary Puebloans be demonstrated archaeologically? With a single exception[32] no turquoise has been found in eastern Texas, and there is of course no evidence of cotton blankets. However, there is some rather satisfactory evidence of different nature. Most of this involves, not the Frankston, but another focus, the Titus, components of which are very common in an area adjoining that of Frankston Focus on the northeast. They occur on the north side of the upper Sabine Valley and in the Sulphur River and Cypress Creek valleys, all of which drain eastward toward Louisiana. Texarkana Focus, components of which lie still farther north and northeast about the great bend of Red River in extreme northeast Texas and southwest Arkansas, also enters the problem of comparisons with the Southwest.

The evidence for contact between northeast Texas Caddo and Puebloans assumes four distinct aspects: (1) presence of certain vessel forms (ollas) in Titus Focus which appear to resemble most closely those of the upper Gila basin in western New Mexico; (2) appearance at Pecos Pueblo in late Glaze III and Glaze IV times of new vessel forms which are foreign to the Southwest but common in Texarkana and other foci of northeast Texas; (3) the technique of neck-banding utility vessels in several northeast Texas Foci; and (4) recovery of a few Puebloan trade sherds in northeast Texas with—or probably with—Titus Focus material. The first three problems are discussed at length in Part IV.

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[29]Swanton, John R., *Source Material on the History and Ethnology of the Caddo Indians*, pp. 31-32. The employment of secondary source material in such important matters may bear objections; however, Swanton's vast experience in this field and the close agreement between his conclusions and the archaeological material provide a combination of great practical value.

[30]*Idem.*, fig. 1.

[31]*Idem.*, p. 37.

[32]A single tiny turquoise bead was recovered in The University of Texas-WPA excavation of the large Hatchel Mound 11 miles northwest of Texarkana, Bowie County, Texas. This was found deep in the midden strata which represent the type component for Texarkana Focus.

The five Puebloan sherds[33] are illustrated in Plate 6. The accompanying remarks below are from Mera's identifications.[33a] The specimen shown in plate 6 *n* is a uniformly corrugated body piece, "an example of true 'Upper Gila' brown ware." It was found at the J. E. Galt site in Franklin County, an important Titus Focus component with intrusive grave vessels from Texarkana Focus. The corrugated rim sherd in Plate 6 *m* comes from a surface collection on a Titus Focus component in Cass County, just west of the junction point of Louisiana, Arkansas, and Texas. The paste is black and tempered with crushed rock or mineral, and the exterior sooty. Another corrugated rim sherd which lacks the lip (pl. 6 *l*) is from a collection made by Mr. Jack T. Hughes in southern Red River County; the paste is dark brown to black with crushed rock (?) temper. Mera writes of these two sherds that they have "a superficial 'Upper Gila' look [but] are distinct from anything known to me." The fourth sherd is unquestionably Chupadero Black-on-White (pl. 6 *j*) and was collected by Mr. Hughes on a Titus Focus component in Shelby County, within 30 miles of the Texas-Louisiana boundary. A fifth trade sherd (pl. 6 *k*) is highly polished on both sides, the interior a smudged black, and Mera's statement is that it "also seems to be from the Upper Gila region." It comes from the Sanders site surface, where it may have been associated with any of the foci represented, Titus among them.

A Titus Focus provenience for these pieces is not wholly satisfactory, but the two most definitely identifiable sherds (Gila brown body-corrugated, and Chupadero) were rather surely from such an association, while the others were seemingly so. On the other hand, though four of the five sherds point toward the upper Gila, direct trade with the source area is not necessarily shown. The possibility of a relayed trade through settlements of the southern Rio Grande area must also be considered.

> Upper Gila brown ware is a basic type in the region from which the name was taken. It is commonly found, probably as an intrusive, in southeastern New Mexico ruins with El Paso, Chupadero, and early glaze, which should date it, if your specimens came from that area, in the earlier part of the 15th century. There are no tree-ring data available from this section. (Mera)

Be this as it may, the most significant point at present is the fact of contact; further discoveries and more precise determinations may be hoped for.

To recapitulate at this point: Glendora Focus clearly represents the latest unit in Fulton Aspect, most of its components bearing European trade articles. Frankston Focus was primarily pre-European but extended into a period of contact with an addition of one distinctive pottery type, *Patton Engraved.* The Caddo (Hasinai?) met by Moscoso in 1542 were said to obtain turquoise and cotton blankets from peoples far to the west, undoubtedly Puebloans; and some Frankston Focus components agree closely in location with im-

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[33]I have not included here a complete Puebloan vessel found on Aud's Creek in southern Lamar County, Texas, by Mr. George T. Wright. This is described and illustrated by Wright in *A Pueblo Pot Found Near Paris, Texas.* Mera identified it as of Zuñi manufacture, stating "Its decorative style is representative of a fashion in use circa the middle of the 19th century."

[33a]Mera, H. P., letter of Oct. 1, 1945.

portant Hasinai villages (or tribes) as placed by Swanton. However, most archaeological evidence of Puebloan contact and influence is to be found in Titus Focus material, Texarkana and Frankston reflecting this only secondarily. It should be emphasized that the "contacts" were of two different sorts. First, the presence of a few Puebloan sherds in Titus Focus components proves at least a trade relationship with southern Rio Grande or upper Gila peoples; but added to this is a similarity in the shape of Titus Focus ollas and some of those of the upper Gila, and a neck-banding technique which may have been derived from the same source. Second, changes which took place in the shape of vessels at Pecos from Glaze III to Glaze V were not, so far as known, due to any particular influence from within the Southwest and were more likely due to suggestions gained from the Titus and/or Texarkana Focus peoples far to the east (see pp. 232–235).

Thus, three lines of evidence (historical record of 1542, dating of Pueblo sherds in east Texas, and time of changes in vessel forms at Pecos) point to the same conclusion: that northeast Texas Caddo and Puebloans of central New Mexico knew of one another and were in contact (however sporadically) well before the time of De Soto's explorations west of the Mississippi. It appears undeniable that Titus Focus had come into existence as a distinct culture complex by 1500 at the latest, and probably by 1450. The evidence, though meager and scattered, is consistent.

An interesting check on this tentative chronology is provided by the discovery, by J. Charles Kelley and associates, of two trade sherds in a site at the junction of Conchos River (of Mexico) with the Rio Grande near Presidio, Texas. The two sherds are unquestionably of the type *Patton Engraved,* which has been mentioned as occurring with European articles in the latest Frankston Focus components. Presidio is about 600 miles in a direct line west of the homeland of this focus in the Neches Valley of central east Texas. The building in which the sherds were found was inhabited in 1583, when Espejo visited this locality, but was abandoned within the succeeding 100 years. Kelley informs me that 1650 would provide a reasonable date for this abandonment, and that it may have been earlier. Conversely, several light, thin arrow points of a form typical of the same culture at Presidio (Concepcion Focus) have appeared at the Richard Patton site in Anderson County, east Texas, the very site from which the greatest number of *Patton Engraved* vessels has been recovered, together with glass beads and iron knives.

This leads to the question of when European articles might first have been obtained by east Texas Indians. I was long under the impression that the first opportunities arose in the years beginning with 1686–1687, when La Salle's party explored this section (an argument which assumes that the De Soto expedition left nothing which could be recovered by archaeology). However, the extensive researches of my colleague J. Charles Kelley into source material on the history and activities of Jumano Indians have shown that some of these people were inveterate traders and often—perhaps

almost annually—trekked many hundreds of miles across Texas for the purpose of exchanging goods with the Spanish of New Mexico on the one hand and the "Tejas" (Spanish term for Caddo, especially Hasinai) at their fairs on the other.[34] Movements of this nature were surely in effect by 1650, and very probably for a considerable time before that, perhaps as much as a century. The Spanish conquerors of Mexico pushed their explorations into northeastern Mexico shortly after the Conquest, establishing mining camps and missions far to the north in the middle 16th century. Between 1568 and 1594 at least eight missions had been established in northeastern Mexico, and a new province, Nuevo Leon, created in 1579. After 1580, Saltillo, Parras, and Santa Barbara had become favored starting points for Spanish expeditions to New Mexico and present Texas.[35] It appears that Jumano and other Indians, such as Coahuiltecans, were fully capable of carrying glass beads, guns, knives, etc. (which would naturally have had great interest and value to the natives) as far as the Neches Valley in east Texas by 1600, far in advance of Europeans themselves. Father Anastasius Douay, who accompanied La Salle on the first trip to the Hasinai in 1686, has left a vivid account of the large amount of Spanish articles ". . . such as dollars, and other pieces of money, silver spoons, lace of every kind, clothes and horses" in possession of these Indians at that time. There was even a "bull from Rome" and horses were common. "They have intercourse with the Spaniards through the Choümans [Jumanos] their allies, who are always at war with New Spain" and "There were then some Choüman ambassadors among them, who came to visit us."[36]

Here, as in so many parts of North America, identification of the source and time of manufacture of European articles would aid greatly in more exact dating of "historic" culture complexes.

It is necessary to consider very briefly certain other aspects of chronology within the Fulton Aspect. First, only the Glendora and Frankston Foci have yielded evidence of European trade articles; the Titus, Texarkana, Belcher, Bossier, and Fort Coffee Foci reveal not the slightest hint of historic contact. However, the characteristic pottery styles of Belcher and Titus rather clearly provide the prototypes of Glendora pottery, and for this reason as well as their late stratigraphic position, must have been made during a period not long preceding the introduction of European goods. Second, we can be sure that the Texarkana, Belcher, and Titus Foci were contemporaneous, since the components of each commonly contain minor amounts of pottery characteristic of the others. The Fort Coffee Focus, recently recognized by Orr in eastern Oklahoma, also probably should be included in this block. However, Frankston Focus pottery does not enter the others either as minor wares or trade material in the same degree. Along the upper Sabine Valley, scores of sites yield either Frankston or Titus Focus pottery, but seldom both, and

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[34]Kelley, J. Charles, *Jumano Relations at La Junta de los Rios* (Ms.). Swanton (*op. cit.*, pp. 35-37) also cites considerable evidence to the same effect.

[35]Coan, Charles F., *A Shorter History of New Mexico*, Pt. 1, pp. 46-48.

[36]Quoted by Swanton, *op. cit.*, p. 39.

there would therefore seem to have been either a time differential between them or a rather rigid social barrier between two groups of Caddo tribes. Bossier Focus pottery in northwest Louisiana and adjacent Texas provides a similar circumstance in regard to Belcher and Titus Focus. The question of temporal difference, if any, must await stratigraphic excavations.

Since Titus and Belcher pottery provide prototypes for historic Glendora Focus ware, it has been suggested that these were late protohistoric cultures. However, this is not to be taken too literally, since we have definite evidence that the Texarkana Focus existed for an appreciable time. At the Hatchel Mound northwest of Texarkana, WPA-University of Texas excavations revealed two superimposed flat-topped "temple" mounds, which in turn had been completely covered with a huge mantle of midden refuse not intentionally built up. This mantle attained a thickness of 14 feet at the center and contained 16 house outlines. It contained Texarkana Focus material throughout, from the surface of the underlying flat-topped mound to the modern surface, with intrusions of Belcher and Titus Focus pottery likewise occurring throughout this thickness. In the upper three feet were about 60 sherds of Glendora Focus pottery, yet there was no sign of European material. Therefore, the Texarkana-Titus-Belcher block of cultures, while admittedly of late prehistoric position in the "Caddo" area as a whole, was in existence long enough for refuse 14 feet thick to accumulate on the Hatchel Mound. The Glendora material on its surface may be supposed to date during the years before the extended contacts with Europeans began in 1686—that is, at perhaps 1650 or 1675. Texarkana, Titus, Belcher, etc., would then appear to have been in existence at fully as early a time as Frankston, *i.e.,* during the time of De Soto's entrada. Our discussion of Puebloan sherds and vessel shapes in Titus Focus has already led to the tentative conclusion that this culture was flourishing by 1500 if not before; and we can be sure that Texarkana and Belcher were coexistent with it.

De Soto's followers under Moscoso, in order to reach the Hasinai Caddo and eventually Trinity River, must have passed through the lands in which we find materials of the Belcher and Titus Foci. We may surmise that the expedition also met peoples of these foci, although it is doubtful that this can be proved without the help of European material referrable to De Soto's time.

In conclusion, there are reasons to suspect some temporal differentiation between the various foci of Fulton Aspect, but all must have overlapped in time of existence within the same general horizon. This horizon cannot have appeared any later than 1500 A.D. and the actual time may have been closer to 1400.

The ceramic traditions characteristic of each of these foci were surely closely interrelated. An impression of the variety of vessel forms and decorations may be gained from Figure 18. Forms include simple bowls, carinated bowls, bottles, squat jars with short everted rims, tall jars with gently everted rims, and globular ollas with small, high-rimmed necks. Decoration consists of engraved designs on bowl rims and the bodies of bottles and ollas; very

rude incising of simple straight-line motifs commonly alternated with crude punctating and fingernail gouging; neck-banding on utility jars in Frankston, Titus, and Texarkana Foci (but not in others) and in each focus only a very small amount of pottery is undecorated. Tempering consists of coarse clay lumps occasionally mixed with crushed bone in the utility vessels of all foci. Shell temper occurs in the polished-engraved ware of Belcher, Texarkana, and Glendora Foci (most frequently in Glendora) and consists of finely pulverized spicules rather than flakes. In those foci where shell temper occurs, much of the polished pottery was made without temper, the paste being fine and compact. Fort Coffee pottery was almost wholly shell-tempered.

Strap handles and lugs, two and four in number, are found on the jars of all foci, but only infrequently except for Frankston and Titus. Most of the foci reveal a very strong tendency toward quadration or four-times repetition of the design (in Titus pottery this is almost an invariable feature); however, Frankston and Bossier pottery reveal no interest in the number four and also lack both red film and shell temper. Bases are exclusively flat and disk-shaped in Frankston, but as one proceeds toward the northeast, round-bottomed vessels become increasingly frequent; in Texarkana round and flat bottoms are about equally represented. Square bases are unknown in the entire aspect. Modeling of bird and animal heads on bowl rims occurs in all foci infrequently; human heads are known only from Frankston and are extremely rare. "Rattle bowls" with four knobs attached to the side wall, containing tiny pebbles, occur in small numbers in each focus.

Other traits which may be said to characterize the Fulton Aspect in general are: lack of construction of burial mounds and—with two or three exceptions—of flat-topped temple mounds as well; use of temple mounds built by earlier peoples, probably merely as convenient locations for dwellings above the reaches of flood waters; use of a single burial method consisting of single interments at length, with ceramic offerings grouped about the head and shoulders but occasionally at the sides and feet; elbow pipes of pottery (no stone or effigy pipes); cylindrical conch-shell beads and pierced mussel-shell beads; hones of brown sandstone; small, stemmed arrow points; general lack (except in Fort Coffee Focus) of triangular, side-notched arrow points, snub-nosed scrapers, side scrapers, flint awls or drills, scapula hoe blades, bone artifacts other than awls, and "pocket" cache pits. Houses of the Texarkana and Belcher Foci were small and round with extended entranceway to east or southeast, without central fireplace or large interior supports, although small support posts were placed about the interior where needed. Fort Coffee houses were small and rectangular with extended side entrance, central fireplace, and two large support posts flanking the fireplace on the longer axis of the house; they seem to be smaller, less carefully built relatives of the Spiro Focus square house.[37]

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[37]Orr, Kenneth G., *Field Report on Excavation of Indian Villages in the Vicinity of the Spiro Mound*, pl. 2, house types 1, 1*a*; Orr, Kenneth G. *The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report.*

THE GIBSON ASPECT

The affiliations of Sanders Focus plainly do not lie with the Fulton Aspect. Rather, this is one of five foci included in the Gibson Aspect, which throughout the "Caddo" area stratigraphically underlies Fulton Aspect material. We may recall that Sanders components are found in a narrow north-south belt on the western frontier of Southeastern "Mississippian" culture, at the edge of the eastern forests and facing the rolling plains. The other four foci are found farther east, well within the forest lands of eastern Oklahoma and Texas, western Arkansas, and northwestern Louisiana. These are (1) Spiro Focus, of which several large components are known in eastern Oklahoma, and two small ones in northeast Texas, and within which a sequence of development has been recognized at the type site;[38] (2) Haley Focus, of which practically pure components are found at the Haley[39] and Crenshaw[40] sites on Red River in Arkansas, at Mineral Springs, Washington, and Ozan Site 1 in southwest Arkansas,[41] and at the Hatchel Mound 11 miles northwest of Texarkana, Texas;[42] (3) Gahagan Focus, for which but one component is known, a burial mound on Red River 40 miles south of Shreveport, Louisiana;[43] and (4) Alto Focus, for which the type component is the large flat-topped mound on the Davis site in Cherokee County, central east Texas.[44] Alto Focus is represented by other components in an area reaching from the Brazos River near Waco[45] eastward to the Red River in Louisiana.[46]

Space does not permit an adequate review of this Aspect. Briefly, it may be said that in each case where one of its foci has been found in stratigraphic

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[38]Orr, Kenneth G., *The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report;* and Orr, *The Eufaula Mound: Contributions to the Spiro Focus.*

[39]Moore, C. B., *Some Aboriginal Sites on Red River,* pp. 527-565.

[40]Moore, *op. cit.,* pp. 620-627; Lemley, H. J., *Discoveries Indicating a Pre-Caddo Culture on Red River in Arkansas.* Lemley recognized but two complexes at Crenshaw: "Pre-Caddo" (now considered late Troyville or Early Coles Creek), and "Caddo." The latter, however, is easily separated into (1) a series of very large graves with skeletons laid parallel in rows and ceramic offerings piled against the walls, with pottery and other artifacts closely similar to those at Haley, and (2) single burials with characteristic vessels of Texarkana Focus types placed about the heads. Judge Lemley very kindly permitted me to examine his notes and collections in December, 1942.

[41]Harrington, M. R., *Certain Caddo Sites in Arkansas.*

[42]Excavated by the WPA-University of Texas, 1938-1939, W. C. Beatty, Jr., field archaeologist. Here the previously mentioned midden mantle containing Texarkana Focus materials with Belcher and Titus intrusions overlay two superimposed flat-topped temple mounds. The original one was rectangular, about 70 by 45 feet, with steep sides and indications of a clay ramp on the south side. Over this had been built a flat-topped eminence measuring about 110 by 60 feet and 16 feet high. Partly covered by both these structures was a very large house outline, round, and 54 feet in diameter; it contained no definite fire place and only one or two small support posts, and had no extended entrance-way. This house and the two superimposed flat-topped mounds all contained Haley Focus pottery, with two intrusive *Coles Creek Incised* sherds, and five or six intrusive Sanders Focus sherds.

[43]Moore, *op. cit.,* pp. 511-522; Webb, C. H., and Monroe Dodd, Jr., *Further Excavations of the Gahagan Mound.*

[44]Excavated by the WPA-University of Texas, 1939-1941, Perry Newell, field archaeologist. This great site yielded over 96,000 potsherds and 1,000 other artifacts, as well as outlines of 35 houses. A full report on the work was completed by Mr. Newell, and an analytical section is under preparation by the writer.

[45]The Chupek site here has been investigated by Mr. Frank H. Watt of Waco, and yields Alto Focus pottery types exclusively. However, there is no sign of mound-building at this point, nor indeed, anywhere west of the Neches River Valley.

[46]Dr. Clarence H. Webb has identified at least five large sites in the Red River Valley below Shreveport which yield pottery predominantly of Alto Focus types.

relationship to Fulton Aspect material, it unquestionably underlies the latter. It is by no means certain that all five foci were contemporaneous, but Sanders, Orr's Late-Middle Component at Spiro, and Haley were almost certainly so. Gahagan and Alto probably existed at a somewhat earlier time. The five foci are closely bound together by artifact types held in common, and by occurrence of trade pieces from one to another. Again, the temporal separateness of this Aspect from the Fulton is shown by the *general failure of trade pieces from any one of the foci of one Aspect to appear in any foci of the other.* There is some local carryover of specific traits, mainly ceramic, from one horizon to the other (*e.g.,* from Haley to Texarkana and Belcher; and from Spiro to Fort Coffee) but on the whole the abruptness of change is striking. This change consists more of the disappearance of highly elaborated traits of the Gibson Aspect than of the acquisition of new traits in the Fulton horizon. This, however, is quite involved and not necessarily a case of "degeneration."

In comparing the outstanding culture traits of Gibson Aspect foci it is important to note that no burials have yet been discovered in Alto Focus sites, and that Gahagan has produced only a dozen or so pottery vessels, all of which agree exactly with Alto types and may have been obtained by trade. Gahagan houses are unknown, and the meager evidence for Sanders Focus has already been cited (p. 194). The ceramics of all foci have these features in common; highly polished bowls and bottles with very finely engraved, expertly executed designs; carinated bowls; lack of shouldered bowls; cylindrical jars; incised and punctated designs on polished vessels; coarse clay temper to which pulverized bone was occasionally added, and absence of shell temper (fig. 19).

All foci except Alto reveal both single and multiple burials in extended position. Sanders and Spiro burials were crowded into small graves, whereas those of Haley and Gahagan were placed parallel in rows in very large pits, usually with one or more skeletons laid at right angles to the main row, and the grave offerings placed in piles against the pit walls.

Burial mounds were constructed on Spiro, Haley, and Gahagan sites.[47] Flat-topped "temple" mounds were built on Spiro, Haley, and Alto sites. The Sanders Focus type site, we have seen, did not reveal intentionally built mounds, and nothing is known of this trait at other components of the focus.

Alto and Haley houses were circular and often very large, ranging from 18 to 55 feet in diameter. Some but not all had central fire basins surrounded by a raised sill or curb and lined with prepared clay. In no case has an entranceway other than one or more spaces between wall posts been discovered, nor has any definite arrangement of interior posts. Props or bench supports appear in scattered positions. Spiro houses were square to rectangular, large and sturdily built with walls oriented along cardinal directions; they had two or four large central supports, plastered floors, covered entranceway extending

[47]There is a high, conical mound about 100 yards north of the great mound at the Davis site, Cherokee County, type site for Alto Focus. The owner refuses permission to set foot on his land, but it may be suspected that this represents a burial tumulus for this particular site.

from one of the long sides, and in some cases a centrally placed fire basin.[48] Entranceway posts were set either individually on in trenches. The term "houses" as here used may include ceremonial buildings.

Some of the important material traits of this Aspect, with the foci in which they occur most commonly are: effigy pipes of human and animal forms, made of beautifully polished stone and pottery (Spiro, Gahagan, Haley); long-stemmed pottery pipes with tiny, thin-walled bowl (all foci); large stone T-shaped pipes (Spiro, Gahagan); stone elbow pipes (Sanders, Spiro); stone earspools (all foci); shell and wooden earspools (Spiro, Haley, Gahagan); ring-shaped earspools of pottery (Alto, Haley); use of copper on earspools (all but Alto); copper covering on wooden beads (Spiro, Haley, Gahagan): plain conch-shell "dippers" (Spiro, Haley, Sanders); engraved conch-shell gorgets and "dippers" (Spiro, Sanders); repoussé copper plaques (Spiro); copper masks with long noses, and hand effigies (Gahagan); pearl beads (Spiro, Haley, Sanders); *Olivella* beads (Sanders, Spiro); *Marginella* beads (Gahagan, Haley; also Spiro?); quartz crystals as charms (all but Sanders); spatulate celts (all but Alto); flint blades with recurved edges and straight to concave base, of form known as "Copena point" in Southeast (common in Spiro, Alto, and Gahagan; possibly occur in Haley); chipped and ground adzes or celts with flat sides and sharp, polished bits (all foci); abrading stones or hones of white Catahoula Sandstone (all foci); small arrow points with serrated edges, slim, needle-like tip, flaring barbs, and bulb-shaped stem widest in middle (all foci); side-notched triangular arrow points (Gahagan). Ceramic traits applying to some foci but not others include: bottle necks tapering toward the mouth (all but Sanders); square bases, especially on tall cylindrical vessels (occasionally in all but Sanders); two strap handles (occasionally in Haley, Spiro, and one type in Sanders); three-chambered bottles (Sanders, Spiro).

This list does not include a great number of special traits, presumably ceremonial, characteristic of Spiro Focus alone.

A thorough study of the problems arising from the foci of these two aspects will require a large volume. Briefly stated, a general comparison presents the incongruity of broad similarity in ceramic tradition, with, however, easily noted changes in vessel shapes and design treatments from the Gibson to the Fulton horizon—all of this in sharp contrast to abrupt changes in (and disappearance of) many non-ceramic artifacts, in burial methods, house forms, and mound building. It should be noted that the "Southeastern ceremonial complex" or "Southern Cult" occurs only in Sanders and Spiro Foci. At Spiro it is largely concentrated in the Middle Component, but appears first in the Early Component, and disappears in the Late-Middle Component (Orr). Undecorated conch-shell dippers appear in Haley graves but there is little else in this focus to suggest the "Cult," and nothing specific

[48] Finkelstein, J. Joe, *The Norman Site Excavations near Wagoner, Oklahoma;* Howard, Lynn E., *Preliminary Report on Cherokee County, Oklahoma, Archaeology;* Orr, Kenneth G., *Field Report on Excavation of Indian Villages in the Vicinity of the Spiro Mound,* pl. 2, house types 2, 3; Orr, Kenneth G., *The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report,* pl. XXX and fig. 36.

in Gahagan or Alto.[49] This statement excepts earspools, found in all five foci, and spatulate celts, found at Gahagan. These occur with "Cult" material in many cases, but extend beyond into other cultures.

The chronological position of Sanders Focus in a horizon preceding that of the Fulton Aspect is borne out in three ways: (1) relationships to other foci of Gibson Aspect; (2) stratigraphic superimposition of Henrietta Focus material and Fulton Aspect (Texarkana, Titus, and Frankston Foci) pottery over the Sanders complex at the type site; and (3) lack of intrusions or trade pieces of Sanders types in any Fulton Aspect focus throughout the "Caddo" area. Sanders Focus must therefore have existed at an earlier time than the Plains-like Henrietta Focus and the Fulton Aspect, which we have shown by independent methods of dating were both in existence before 1500 and probably by 1450 if not earlier. Accordingly, it appears inescapable that Sanders Focus with its "Southern Cult" material is to be dated at previous to 1450, perhaps between 1300 and 1400 A.D. It could not have survived as late as 1450 without some evidence of contact with cultures of the later horizon. Since Sanders pottery appears in the Spiro Late-Middle Component at Spiro Mound, the latter may be cross-dated with Sanders.

AFFILIATIONS

Certain ceramic features of Sanders have counterparts in Spiro and other cultures to the northeast. Among these are tripartite bottles, or three-chambered bottles with a single spout. Orr[50] illustrates one from Eufaula mound, a component of Spiro Focus. Harrington illustrates another from Ozan Site 1 in southwest Arkansas,[51] a Haley Focus component. In southeast Missouri, Evers illustrates a tripartite bottle, a bottle with three legs, another with four human faces molded in relief much like the faces on the Sanders bottle (pl. 29 *a*), and a bottle with four small handles at the base of the neck, remindful of the Sanders negative-painted (?) bottle with four tiny handles at the edge of the platform (pl. 28 *c*).[52] Moore illustrates a tri-partite bottle from northeast Arkansas.[53] This vessel form (also bottles with three legs) may be said, I believe, to be found rather generally in "Middle Mississippi" associations from the central Mississippi basin eastward as far as Etowah in northern Georgia. It may or may not be significant in this problem that Morris has found a three-chambered vessel and stirrup-spout bottles in the La Plata district of southwest Colorado, where they are recorded from a Pueblo I period.[54]

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[49]At the Davis site, type site for Alto Focus, a small human head, carved from white stone and showing the left profile with a Forked Eye symbol, was discovered on a high dais of green clay. This dais was built upon the platform mound but the period to which this belongs has not been determined.

[50]Orr, Kenneth G., *The Eufaula Mound: Contributions to the Spiro Focus*, fig. 3 *g*.

[51]Harrington, M. R., *Certain Caddo Sites in Arkansas*, pl. LXXXVIII *a*.

[52]Evers, Edward, *The Ancient Pottery of Southeastern Missouri*, pl. 1, nos. 23, 24, 25; pl. 4, no. 28; pl. 7, no. 121.

[53]Moore, C. B., *Antiquities of the St. Francis, White, and Black Rivers, Arkansas*, fig. 34.

[54]Morris, Earl H., *Archaeological Studies in the La Plata District*, pl. 240, *c, f, h.* The stirrup bottle is not known to occur at Spiro or Sanders, but is known in the central Mississippi basin.

The modeling of frogs (or other animals) on the side of bottles, seen in one Sanders specimen (fig. 16) is perhaps of very rare occurrence in the Southeastern province. Similar specimens are shown by Holmes from northeast Arkansas, and Moore from the Crenshaw site in southeast Arkansas.[55]

Negative-painted pottery is extremely rare west of the central Mississippi basin, and probably represented solely by trade pieces. We have mentioned a unique Sanders bottle on which triangular banners appear to have been painted in this manner (pl. 28 *c*). Moore[56] discovered a bottle in a Haley site grave which also contained typical Haley Focus pottery; this is painted in a fashion entirely in agreement with negative-painted bottles found widely in "Middle Mississippi." No such pieces have been found in Spiro Focus.

Jars with everted rims and handles which bear tips projecting above the lip, found in the type *Monkstown Fingernail Punctated* at Sanders, have counterparts in Spiro Focus[57] and "Middle Mississippi" in general.

At least one Sanders bowl with flat base and flaring sides, shaped like a truncated cone (pl. 24 *a*), is coated inside and out with a rich red-ochre film and is "hole-tempered." The temper was evidently limestone, and its leaching has left angular pits in the filmed surface. This pottery is comparable to the type *Monks Mound Red*,[58] Old Village Focus at Cahokia, southern Illinois. Some connection is not improbable, since the simple engravings on Sanders pottery, consisting of diagonal hatching or a band of hatched triangles, are much like the engraved motifs found in the central Mississippi basin.[59] Furthermore, the Sanders bowls which are broadest near the base and bear two lugs jutting out from the lip (pls. 26 *h*, 27 *d*, *h*) are somewhat remindful of "bean pots" in Spoon River and Trappist Foci in southern Illinois;[60] this applies to the general shape, those at Sanders not having long handles.

Sanders pottery is quite distinct from that of Spiro Focus in most respects, as it is from that of the other Gibson Aspect Foci, and those of the Fulton Aspect as well. Several vessel forms are unique, but the carinated bowl is common here as elsewhere throughout the "Caddo" area. The high proportion of plain vessels is noteworthy, as mentioned above. Complete lack of square bases and quadration in design provides a contrast with all surrounding foci. As the above notes indicate, there appears to be some thread of connection in the direction of the Ohio-Mississippi confluence. However, a great many traits characteristic of the central basin are totally lacking in Sanders Focus. The solution of this matter requires much better organization of archaeological complexes in northern Arkansas and southern Missouri than now exists.

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[55]Holmes, W. H., *Ancient Pottery of the Mississippi Valley*, fig. 438. Moore, C. B., *Some Aboriginal Sites on Red River*, fig. 123.

[56]Moore, C. B., *Some Aboriginal Sites on Red River*, pl. XXXVII.

[57]Finkelstein, J. Joe, *The Norman Site Excavations near Wagoner, Oklahoma*, fig. 1 *a*, *d*, *f*.

[58]Named by James B. Griffin and mentioned by Bennett, John W., *Archaeological Explorations in Jo Daviess County, Illinois*, p. 153. I have seen sherds of this type in the collections of Dr. P. F. Titterington, St. Louis. Thanks are due to Richard S. MacNeish for pointing this matter out, and for his opinion that the Sanders bowl was limestone-tempered.

[59]Collections seen in the Ceramic Repository for the Eastern United States, Ann Arbor, Michigan, in October, 1944.

[60]Bennett, *op. cit.*, p. 153, 155-156.

In two or three non-ceramic features, Sanders affiliates with southern Plains cultures rather than with the east. The highly polished L-shaped stone pipes (pl. 22 *f*) were shared with Fort Coffee Focus, which followed Spiro in eastern Oklahoma, and the Paint Creek culture of central Kansas.[61] Use of the bison-scapula hoe with a round socket in the proximal end was shared with Henrietta Focus, Fort Coffee, and Paint Creek.[62] Claw-shaped objects of conch shell, which may have served either for pendants or inlays in wooden beads, were shared with Spiro and appear in Upper Republican.[63]

The sharing of a few traits with other complexes does not necessarily mean that Sanders was contemporaneous with them in a strict sense. That L-shaped pipes and socketed hoe blades were common to Sanders, Fort Coffee, and Paint Creek is a case in point. The differences between them far outweigh the traits in common. Sanders, in fact, lacks the triangular arrow points, snub-nosed scrapers, diamond-shaped knives, pocket cache pits, and many other features common to Henrietta, Paint Creek, and Fort Coffee. From all present indications it must also have preceded them in time.

On a bluff near the Troyville Mound in eastern Louisiana, Walker[64] found single and multiple burials, extended on back and side, and crowded together in much the same fashion as at Sanders. It is not certain that these burials belonged to the Troyville culture period and there are few if any other similarities with Sanders.

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[61]Wedel, W. R., *Archaeological Remains in Central Kansas and Their Possible Bearing on the Location of Quivira*, pl. 8 *a-b*. Orr, Kenneth G., *The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report*, fig. 34 *u*.

[62]Wedel, *op. cit.*, pl. 6 *b*. Wedel informs me that neither the L-shaped pipes nor socketed hoe blades are known to occur in the central Plains except in the central Kansas sites.

[63]See note 10 and Strong, W. D., *An Introduction to Nebraska Archaeology*, pl. 9, fig. 2 *i-n*.

[64]Walker, Winslow M., *The Troyville Mounds, Catahoula Parish, La.*, fig. 13, pp. 34–35, pl. 2 *b*.

PART IV

PUEBLOAN-CADDOAN RELATIONSHIPS

Ceramic Resemblances Between the Southwest and "Caddo Area"

PECOS VESSEL FORMS

CERTAIN RESEMBLANCES IN vessel form and surface treatment in the Rio Grande Glaze Paint series and some foci in the "Caddo" area are apparent. As it is of the greatest importance to work for the closest possible agreement in dates, we may examine the premises on which the Pecos chronology was based.

Kidder[1] offers the following table of estimated dates for Pecos Pueblo:

1300-1375	Black-on-White period
1375-1425	Glaze I
1425-1475	Glaze II
1475-1550	Glaze III
1550-1600	Glaze IV
1600-1700	Glaze V
1700-1838	Modern period, pueblo abandoned in 1838.

Part of this sequence was derived from tree-ring dates, part by reasoning the length of undated periods. The Black-on-White period was cross-dated from ruins in the Pajarito, and Glaze I from Glorieta ruin. "By 1390, however, Glaze I had made its appearance in the Pecos Valley, for it occurs at the Glorieta ruin, where a kiva yielding the above date is correlated with the early development of Pueblo IV." The duration of Glaze I is unknown, but a "structure on the mesilla was erected at about the beginning of Glaze II," and "The South House (Glaze II) beams which have been dated by Stallings were almost all cut in the 1430s and 1440s." Further, Stallings has a reading of 1447 from the Glaze II Frijolito ruin on Pajarito Plateau.

While "No data were gathered at Pecos to aid in the chronological delimitation of Glazes III and IV," Glaze V pottery seemed to have been in use early in the historic period. In correcting a former belief that the historic period began at Pecos with the Coronado visit in 1540, Kidder reasons that the brevity of this visit could hardly account for the amount of European material

[1]Kidder, A. V. *The Pottery of Pecos*, vol. II, p. 610.

which marks the period, and instead it must be correlated with the beginnings of real colonization in New Mexico.

My earliest china-, glass-, and copper-bearing strata should therefore most probably be assigned to around 1625. If this be correct, the uncontaminated Glaze V deposits might be considered as belonging to the first quarter of the 17th century. I cannot place them much earlier because I have already brought Glaze II nearly to 1500, and I feel that at least 100 years must be allowed for Glaze III, which is represented by very heavy beds of refuse, and for Glaze IV. And that Glaze IV was in existence during the 16th century seems proved by Stallings' beam readings of 1507-1565 from Puyé, a Pajarito ruin which produces a Glaze closely similar to Pecos IV. . . .

Glaze V had, I am sure, a relatively long life. There are great masses of Glaze V rubbish. There are time-connoting changes in the type itself (*e.g.*, the development of Late Glaze V). However, only one definite chronological landmark is discernible. This was the finding in the adobe bricks of the Pecos Mission of Glaze V, but no later, sherds. The mission, according to Benavides' "Memorial," had been built by 1620.

The above data merely show that Glaze V was being made during the first quarter of the 17th century. How long it persisted is still uncertain. We know that Modern painted (Tewa Polychrome) which ultimately supplanted Glaze at Pecos, had already been developed to the north and northwest by the time of the Pueblo Revolt of 1680, for Mera found it at the ruins of the temporary refuge village of the San Ildefonso Indians on Black Mesa, besieged by De Vargas in 1694, as did Nelson at the Keresan pueblo of Kotyiti on the Potrero Viejo (1683-1684). . . . As Tewa Polychrome was thus apparently uncommon in the Galisteo Basin before the Revolt, it may well not have come into general use at Pecos until 1700. So continuing our tentative time reckoning, we may assign to Glaze V, including both Late Glaze V and the presumably more or less contemporaneous Glaze VI intrusion, the century between 1600 and 1700. Modern painted was the leading decorated ware from 1700 to the final abandonment of Pecos in 1838.

As we are particularly concerned with Glaze periods IV to VI, and the Modern period, in attempting to interpret the ceramic features to be mentioned, it is noteworthy here that the dividing line between III and IV is somewhat arbitrarily drawn at 1550.

In 1933 Mera[2] proposed a revision of the Glaze Paint ceramic sequence. In 1942 Shepard[3] considered and rejected this on the grounds that Mera had drawn his conclusions from surface collections only, and that his styles were based entirely on the single criterion of rim shape. Shepard described two new types: Jornado Late Variant and Socorro Late Variant, from the southern parts of the Glaze Paint area, presumably correlated with Pecos Glaze periods V-VI. In discussing relationships of the southern glazes with those at Pecos, she offers further interesting views on the Pecos sequence. Glaze IV, she says, was "produced at a number of centers in the north," is common in the Galisteo Basin, but is only "poorly represented" at Pecos. However, "the majority of the elongated-thickened rims from the northern half of the Glaze Paint area (with the exception of Pecos) are similar in shape to Kidder's Glaze V." Conversely, Glaze V "is by far the most abundant type in all

[2]Mera, H. P., *A Proposed Revision of the Rio Grande Glaze Paint Sequence.*
[3]Shepard, Anna O., *Rio Grande Glaze Paint Ware*, pp. 249-253.

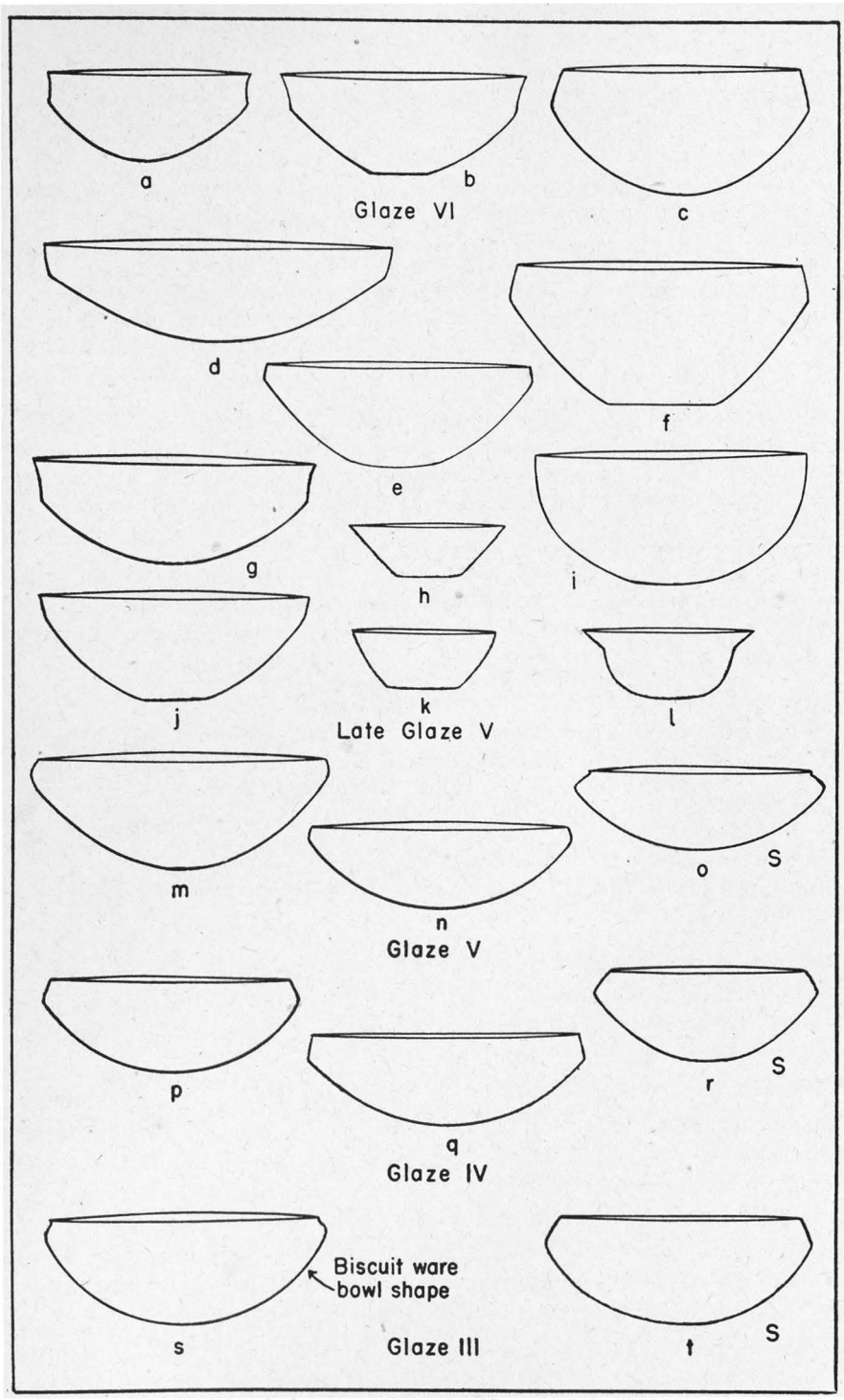


FIG. 20. Principal bowl shapes at Pecos in Glaze periods III–VI. Selected from A. V. Kidder, *The Pottery of Pecos*, Vol. II. The true shouldered bowls are marked S and are more distinct in rim form from the carinated bowls than the figures indicate; this is seen better in the rim profiles of fig. 21. The common bowl form of Glaze III *(s)* was derived from Biscuit ware, the shouldered bowl *(t)* being an innovation at Pecos. Bowls *g-l* are of the type Plain Red, appearing in Late Glaze V. Note flat bases in Late Glaze V and Glaze VI. Size about ⅛.

Pecos stratigraphic tests in the late deposits. . . ." Therefore, on the basis of relative frequency and distribution at Pecos and other northern sites, Shepard believes that Glazes IV and V were contemporaneous at Pecos. This is to say that Pecos was dependent on the northern area for its Glaze IV material, while its Glaze V was "ceramically independent of the remainder of the area." And, Glaze VI, "plainly intrusive in Pecos from the Galisteo Basin, occurs in minor proportions with late Glaze V."

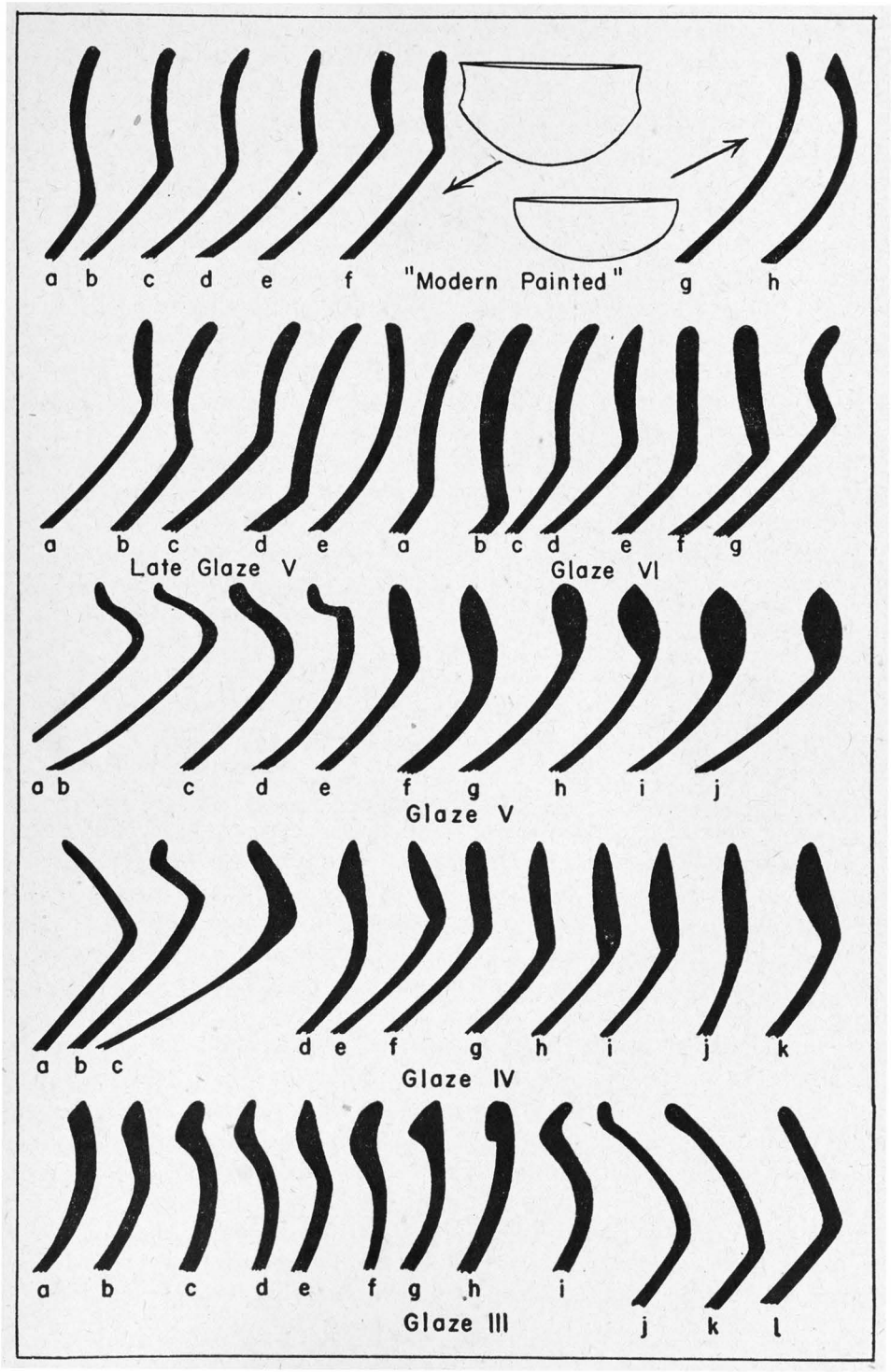
From this it seems that Pecos is not completely representative of Glaze periods IV–VI in their total development in north-central New Mexico. Nonetheless, Pecos Pueblo does provide a long sequence of both decorated and utility types which, through the efforts of Dr. Kidder, have been amply described and illustrated. Thus, in using Pecos as a basis for comparison in the present study, it will be understood that the observations concern the Rio Grande Glaze Paint area as a whole, Pecos providing a convenient point of leverage for the study not only because of its long and continuous occupation, but because it must have been a very important town and one of the first settlements to be reached by travelers contacting the Puebloans from the east. I make no pretense of discussing the Glaze Paint problems with confidence, desiring only to point out certain matters which cast new light on them from a direction which has not heretofore been suspected. This matter revolves around the rather sudden changes that took place in Glaze Paint pottery toward the end of period III. Kidder remarked that these represented some sort of foreign influence in Pecos history which might be better understood when the whole prehistory of the Southwest was more thoroughly examined. To the best of my knowledge, however, the reasons for these changes in the later Glaze periods have not yet been found within the Southwest.

I am not sure how the contemporaneity of Glazes IV and V, suggested by Shepard, affects the dates for these periods as estimated by Kidder. Perhaps it will suffice for the present to assume that they coexisted during most of the 16th century (recalling Stallings' Puyé dates of 1507–1565 for Glaze IV material, and Kidder's estimate of 1550–1600 for Pecos Glaze IV), Late Glaze V then continuing for some time into the 17th century, finally giving way to Modern at about the time of the Revolt.

At Pecos, two bowl forms appeared in Glaze III and IV which have very close counterparts in certain foci of the Fulton Aspect in northeast Texas. One of these corresponds to what is called the "carinated bowl" in the lower

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FIG. 21. Pecos bowl-rim profiles, Glaze III period to "Modern Painted" (Tewa Polychrome). Selected from A. V. Kidder, *The Pottery of Pecos*, Vol. II. Exterior to right. Note appearance of modified form of shouldered bowl in Glaze III profiles *j-l;* of sharp-shouldered bowls in Glaze IV, *b*, and Glaze V, *a-d*. Carinated bowls first appear in Glaze IV, *e-k* with rim vertical or slightly inward-slanting, changing in Late Glaze V, Glaze VI, and Modern to a high, outward-flaring, often concave profile. Shouldered bowls did not survive (apparently) after Glaze V, but in Glazes III–V there is striking similarity in shape to bowls of *Simms Engraved* of Texarkana Focus, and the Glaze IV carinated bowl profiles *(e-h)* are quite like those of *Barkman Engraved*, Texarkana Focus (see fig. 24). Note also that Late Glaze V and Glaze VI carinated bowl rims are very similar to those of *Ripley Engraved*, Titus Focus (figs. 18, 25). Size about ½.


a b c d e f "Modern Painted" g h
a b c d e Late Glaze V
a b c d e f g Glaze VI
a b c d e f g h i j Glaze V
a b c d e f g h i j k Glaze IV
a b c d e f g h i j k l Glaze III

Mississippi Valley and "Caddo area." The name is derived from the Latin *carina* or keel in reference to an angle formed by the junction of body and rim where these are distinct parts of the vessel. The rim may be flat, concave, or convex on its exterior surface, and it may stand vertically or slant either inward or outward slightly. The lip may be simply rounded, slightly flattened, or widened and flattened.

The other form is described by Kidder as "shouldered" and is known by the same name in "Caddo" pottery. It presents a wide, shallow basin, to which a rim was added as in the carinated bowl, but with the difference that the rim was bent sharply inward, constricting the mouth, the lip being either direct and rounded or bent sharply outward again. Occasionally the second bend projects some distance upward or outward, but usually it is short when compared to the shoulder formed by the first bend. Thus the "carinated" and "shouldered" bowl are both featured by a rim which forms an angle with the body, but that of the shouldered bowl is always bent sharply inward and furthermore usually includes a second sharp bend upward or outward.[4]

Bowls which do not present an angle where rim and body meet, but are of even contour from bottom to lip, are here termed "simple bowls."

Some of Kidder's bowl-rim profiles from Pecos have been copied and placed in a vertical sequence in Figure 21. It is thought that this figure illustrates the main trends in rim thickness and slant in the Pecos periods from Glaze III on. Figure 20 includes selections of complete vessel profiles from *The Pottery of Pecos* for the same periods. The reader may consult the original figures in *The Pottery of Pecos* to obtain a fuller range of variations.

It can be seen that the shouldered bowl first appears in Glaze III (profiles *j-l* on bottom row of fig. 21). Here, however, it seems to have been in the minority in comparison to the usual early Glaze bowls, which were similar in shape to those of "Biscuit Ware." These are of more or less constant curvature from base to mouth, the wall thickening as the lip is approached. The thickening takes various forms as shown in the figure. The "rim" in these cases does not present a change in direction of the vessel wall, as it does in shouldered bowls. No indication of a shouldered bowl is seen in the profiles of any period earlier than Glaze III at Pecos.

In Glaze IV the shouldered bowl, to judge from Kidder's figures, became more common relative to the simple bowls with thickened lips or rims. In this period, another bowl form appears at Pecos which was not known before in the Rio Grande Glaze Paint area, nor, I believe, in the entire Southwest. This is the "carinated" bowl (see Glaze IV profiles in figs. 20–21). It will be noted that the rim was fattened in crosssection, flat or very slightly convex on the exterior face, and inclined somewhat toward the interior.

[4]The term "cazuela form" was used by Harrington in his *Certain Caddo Sites in Arkansas* for a wide variety of bowls. It would be less confusing if "cazuela" were limited to a bowl with a high, straight side and a shallow, convex bottom such as shown by Harrington in his plate XXIX a-b. Most of his "cazuela forms" would then be either "carinated" or "shouldered" bowls.

Thus, both the shouldered and carinated bowl occur in Glaze IV, and between them account for most of the Pecos pottery representative of this period. The remainder seems to consist of ollas and a small proportion of simple bowls.

In Glaze V material, which according to Shepard was probably contemporaneous with IV at the Pecos site, the shouldered and carinated bowls also occur together, but with certain distinctions from IV which may or may not be peculiar to Pecos alone. These can readily be seen in Figure 21. The shouldered bowl is deeper than before, the angle of rim to body about 90 degrees or even less, and upon approaching the lip the rim cuts back again very sharply toward the exterior, forming on top of the shoulder what Kidder calls a "gutter-like depression." Carinated bowl rims are low and greatly thickened in Glaze V, in some cases approaching roundness except for the pointed or gabled lip. This extreme fattening of the rim seems peculiar to Glaze V, not appearing in other Pecos material. It may have resulted from greater emphasis on the thickening seen in Glaze IV.

Late Glaze V marks further changes in Pecos pottery. The shouldered bowl seems no longer to be present, or if present is decidedly in the minority. The carinated bowl rim, where before it was greatly thickened and either vertical or inclined inward, is now much thinner and higher, flares outward strongly, and is commonly concave on its exterior face (figs. 20–21). Seemingly of simultaneous occurrence, flat bases appear whereas before the bowl bottoms were entirely convex or rounded in a continuous curve with the side walls. Further, two new types appear and continue until the abandonment of Pecos in 1838. These are Plain Red, which includes carinated bowls quite like those of Late Glaze V, and Plain Black, which is found principally in the form of "ollas" (in this case, jars with widely bulging shoulder and a very high, gently contracting neck).

Turning to the "Caddo" area, the carinated bowl is of common occurrence in several foci of both the Gibson and Fulton aspects. It is, however, only one vessel form in a great variety which marks each focus, as may be seen at a glance in Figures 18–19. There are, however, many distinctive combinations of body and rim form which characterize the carinated bowl in each focus. In Frankston Focus there is no true carinated bowl, although a form which bears a very high, convex rim may be a local modification of this principle.

Figure 22 presents a rather complete series of variations in the rims of carinated bowls in Alto Focus. The rims of *Crockett Curvilinear Incised* may also be taken as representative of bowls in the types *Dunkin Diagonal Incised, Weches Fingernail Impressed,* and *Pennington Punctated-Incised.* In *Holly Fine Engraved*[5] there is greater variety both in rim form and lip treatment than in the other types mentioned. In all types, the rim commonly ranges from a more or less vertical position to flaring, and is straight to concave on the outer surface. Pronounced widening of the lip to a broad, flat surface is an important feature of Alto Focus bowls; the lip was often decorated with engraved and incised designs, as was the rim exterior. In all types, the

[5]Types named by Perry Newell in his analysis of the Davis site, Cherokee County, central east Texas, 1941. Full descriptions will appear in the publication on this site.

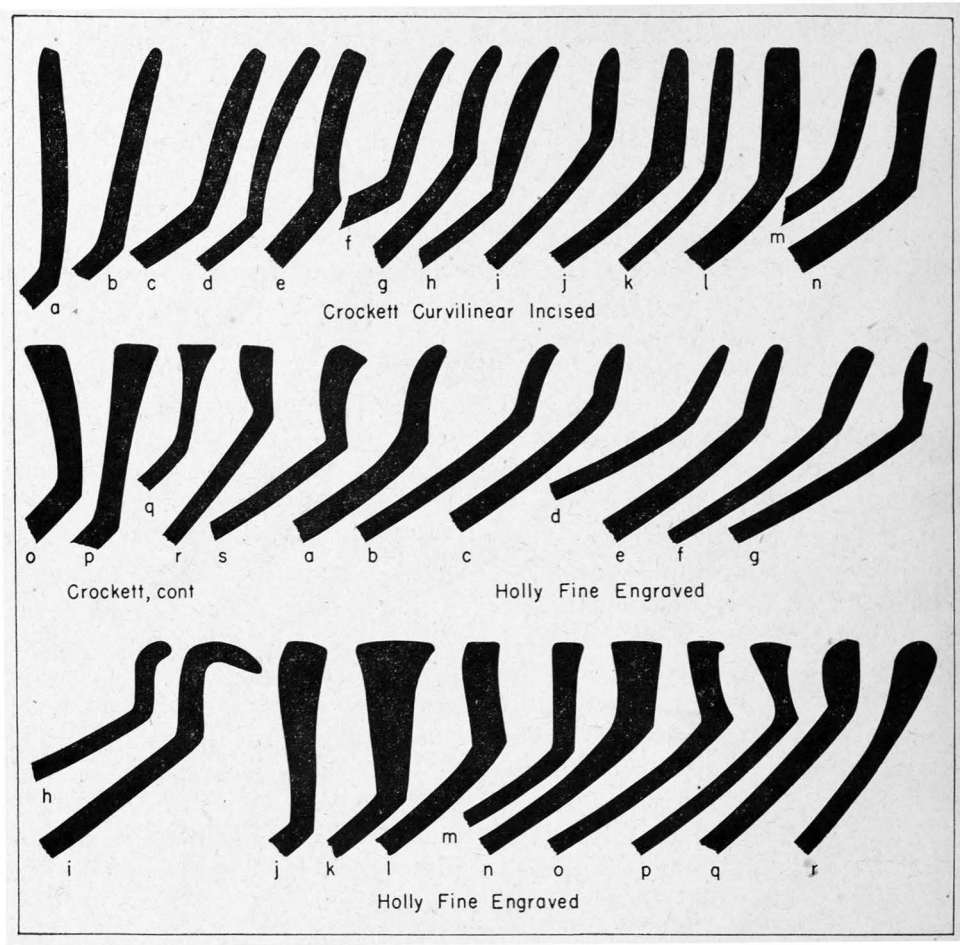


FIG. 22. Rim profiles of carinated bowls typical of Alto Focus. All examples from type site on Davis place, Cherokee County, central east Texas. Exterior to right. Many *Crockett* rims *(a-n)* and *Holly (a-f)* are similar to those of Sanders carinated bowls (fig. 14) and to Pecos Glaze IV–V (fig. 21), but as in Sanders Focus shouldered bowls are not present. Size about ½.

rim only rarely slants inward, and in no case can it be said to approach a "shouldered bowl" form. Restoration of vessels shows that all known bowl bottoms were convex and of even thickness from rim to rim. Flat bases, both round and square, are known to occur in this complex, but only on bottles and cylindrical jars. Alto Focus carinated bowls are somewhat remindful of those at Pecos, but there is far greater variety in rim shape and lip treatment.

Figure 23 presents variations in rim form of carinated bowls in Sanders Focus, where they occur in *Sanders Plain* and *Sanders Engraved.* Here the rim shows considerable range in height and assumes a position from slanting inward slightly to flaring outward; its outer surface is commonly quite straight, but may also be slightly concave or convex. The lip is usually simple and rounded, but may also be flattened (though not thickened) or beveled toward the interior *(Sanders Plain, c, k; Sanders Engraved, a, e).* Unlike Alto Focus carinated bowls, those of Sanders probably always have flat, disk bases on

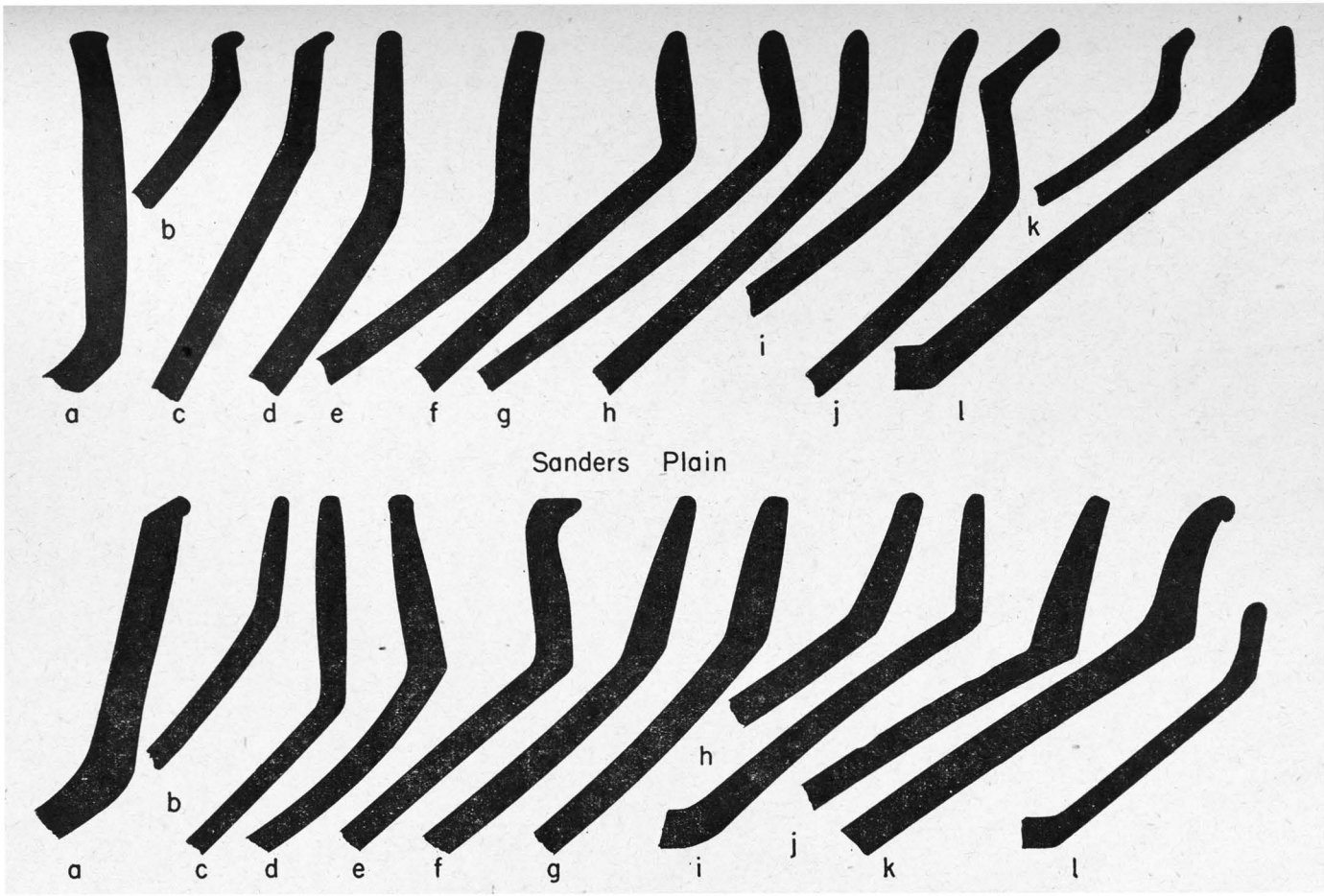


FIG. 23. Rim profiles of carinated bowls typical of Sanders Focus. All samples from type site (see pp. 185–192). Exterior to right. Note variations in rim height, pitch, and thickness. Some compare closely with Pecos Glaze IV–V rims (fig. 21) but note that shouldered bowls are absent in Sanders Focus. All Sanders carinated bowls have flat disk bases (fig. 14 *a, c, d, k, l, m, n, w*). Size about ⅔.

which the vessel rests firmly. The body wall is often quite straight, but may also be slightly concave or convex (pls. 25, 27). As in Alto Focus, there is no sign of the shouldered bowl.

Haley and Spiro Focus pottery includes carinated bowls, but these are probably uncommon. They usually present a rounded bottom and a high straight rim, which is vertical or slants inward.[6] Again, shouldered bowls are lacking.

In the Fulton Aspect, carinated bowls are quite characteristic of Titus and Texarkana pottery, especially the former. They occur also in Bossier and Belcher, but not many complete vessels are known from the former, and in Belcher pottery they belong to a type, *Taylor Engraved,* which is common to both the Belcher and Titus Foci (see fig. 18). In the type *Ripley Engraved* of Titus Focus, the carinated bowl is extremely common[7] and remarkably uniform in shape. Those shown in plate 31 are characteristic. The rim is almost always high and flares outward, its exterior concave to straight. Occasionally the rim slants inward instead of outward, as in plate 31 *d,* but this is true of but one percent or less of *Ripley Engraved* bowls. A typical feature of these vessels is the rounded lip, which was pushed outward and overhangs the rim surface. Bases are invariably flat disks; in this and some other respects Titus and Sanders carinated bowls are similar, yet they are easily distinguished. There is no true shouldered bowl in Titus Focus, although certain vessels of *Taylor Engraved* seem to be a modified form. In this case, the rim bends inward, constricting the mouth, and the bottom is convex (pl. 31 *h*).

In Texarkana Focus, both carinated and shouldered bowls occur in abundance. Carinated bowls occur in the type *Barkman Engraved,* the rim tending to be almost straight on the exterior and to slant inward or outward slightly (fig. 24 *j-s*); bases are usually convex and of even thickness, but occasionally flat. Shouldered bowls occur in the type *Simms Engraved* and bear a rim which bends inward sharply, then often upward or outward again to the lip (fig. 24 *a, f, i*). Again, bases are either convex or flat, the former predominating.[8] Examples of both bowl forms are shown in Plate 30. "Modified" forms of the shouldered bowl also occur in Texarkana Focus (fig. 25 and pl. 30 *b, d, f*).

In Glendora Focus, no shouldered bowls appear, but there is a modification of the carinated bowl. This has a convex bottom, and concave, outflaring rim.

While carinated and shouldered bowls tend to become intergraded in Texarkana and Titus pottery, it is clear that both forms were at home in Texarkana Focus, and it is to be expected that any group of people making

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[6]*E. g.,* Harrington, M. R., *Certain Caddo Sites in Arkansas,* pls. XXV, XXVII-XXIX, XXXVI *b.*

[7]There are over 700 restored bowls of this type in The University of Texas collections, and sherds belonging to several hundred others.

[8]Although the two types were coexistent throughout the life of the Texarkana Focus component at the Hatchel Mound, Bowie County, Texas, *Simms Engraved* was sometimes shell-tempered or red-filmed, or both, while *Barkman Engraved* seems never to have been so treated. Most vessels of both types are of very fine, compact clay without visible temper.

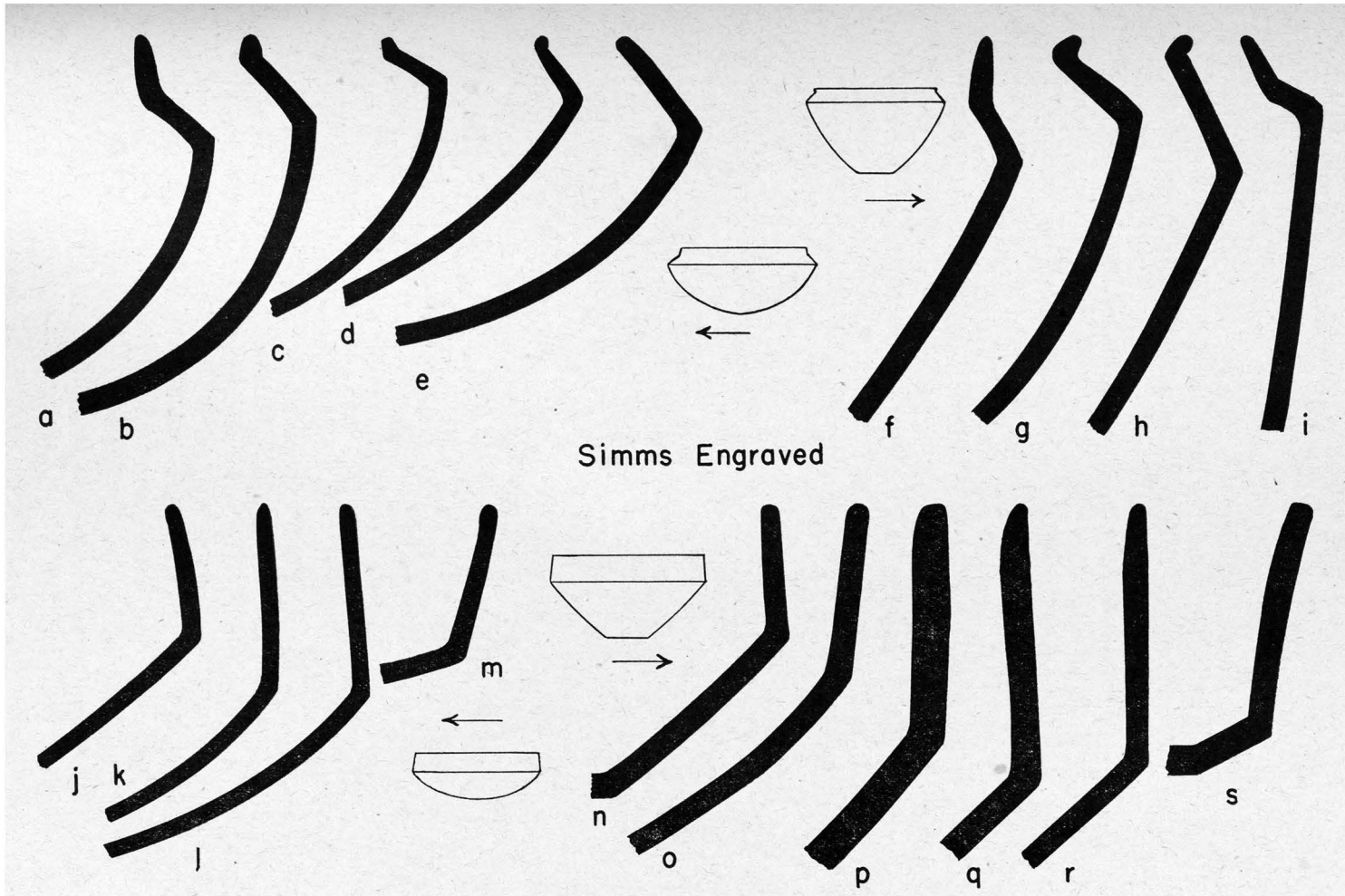


FIG. 24. Rim profiles of shouldered and carinated bowls typical of Texarkana Focus. All examples from A. J. Hatchel site, Bowie County, northeast corner of Texas. Exterior to right. *Simms Engraved* shouldered bowls sometimes shell-tempered and/or red-filmed; *Barkman Engraved* has neither treatment, but types contemporaneous. Compare profiles with Pecos, New Mexico, Glaze III–V bowls (figs. 20, 21). Size about ⅔.

both forms would produce vessels in which their features were confused. In Titus Focus the carinated bowl was plainly the most common form, aside from cooking jars, and in the type *Ripley Engraved* all bowls are carinated with a high, vertical to outward-flaring rim. On the other hand, the type *Taylor Engraved,* found in Titus and Belcher pottery, includes bowls which tend to be intermediate between shouldered and carinated; the rim bends inward, but not sharply, and is often rather high. In these foci there are no resident vessels with the rim turned sharply inward and then upward as in the Texarkana bowls of type *Simms Engraved* (fig. 24). It seems clear enough that two distinct concepts operated in the rims of bowls in the region, and that Texarkana Focus is the only complex in which both were common (fig. 25).

Returning to Pecos pottery, we will recall that a bowl called "shouldered" by Kidder first appeared in Glaze III (see fig. 21, Glaze III rim profiles *j-l*). However, the rim did not bend in as sharply as in shouldered bowls of the next Pecos periods, and rather resembles the intermediate shouldered-carinated rim of Texarkana Focus and of the type *Taylor Engraved* of Titus and Belcher Foci. In Glaze IV the shouldered bowl appeared at Pecos with a much sharper rim angle quite like that of *Simms Engraved* in Texarkana Focus (compare fig. 21, Glaze IV profile *b* with fig. 24, profiles *a-d, g, h*). The carinated bowl with straight rim slightly inclined inward also appeared along with the sharp-shouldered bowl in Glaze IV, comparing very favorably with the carinated bowl of *Barkman Engraved* (compare fig. 21, Glaze IV profiles *e-h* with fig. 24, profiles *j-r*). In Glaze V the sharp-shouldered bowl continued as an important vessel form at Pecos (fig. 21, Glaze V profiles *a-d*) but the carinated bowl rim developed a fatness which has no counterparts in the "Caddo" area. Up to this time, Pecos bowls had no flat bases, only convex bottoms of even contour; this corresponds with the predominance of convex bottoms in Texarkana Focus bowls, although some flat bases were known here.

From Late Glaze V on, the shouldered bowl no longer appears in Pecos pottery,[9] the bowls being either carinated or simple. In Late Glaze V and especially in Glaze VI pottery, the carinated bowl rim became high and either concave and outward flaring or straight and bent inward slightly (fig. 21). This tendency continued into the Modern period at Pecos, most of the rims now being concave on the exterior and standing almost vertically; this applies especially to the type *Plain Red.* The shape of carinated bowls at Pecos from Late Glaze V on, with their high, outward-bending, concave rims, and flat bases, together with the absence of true shouldered bowls, bears close similarity to the situation found both in Sanders Focus and Titus Focus. Indeed, certain *Plain Red* and *Plain Black* bowls (both carinated and simple) from the latest Pecos periods are distinguished from *Sanders Plain* only with difficulty. In both cases, vessels were polished so as to leave regular ripples across the surface, somewhat resembling beaten brass (see *Sanders Plain,* pl. 25 *a*).

[9]It also disappears before the historic Glendora Focus is reached in the Fulton Aspect.

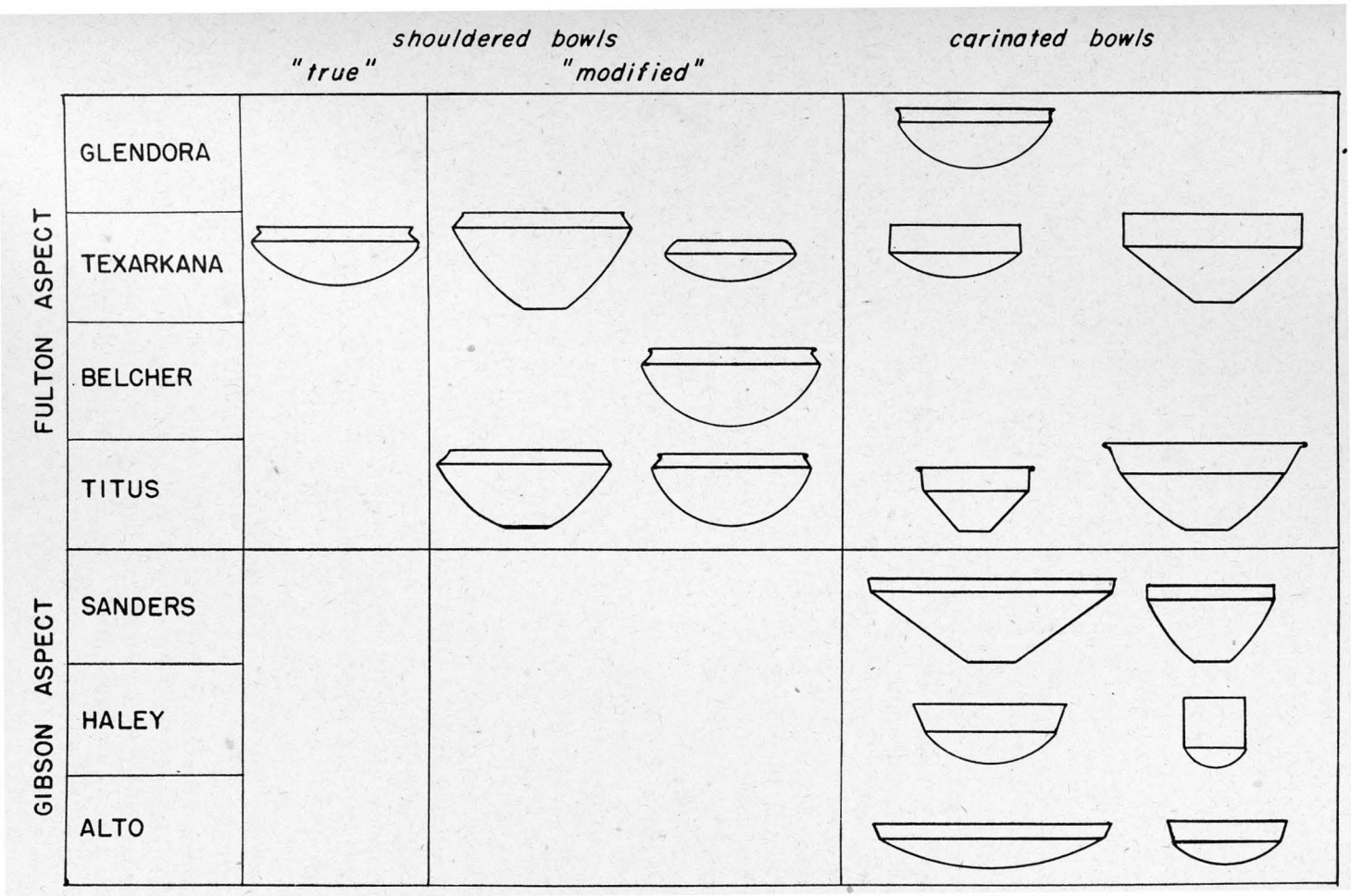


FIG. 25. Characteristic bowl shapes of some Gibson Aspect foci (below) and Fulton Aspect foci (above). Note lack of shouldered bowls in Gibson Aspect, and occurrence of flat bases in Sanders, Titus, and Texarkana Foci. True shouldered bowls especially characteristic of Texarkana, while modified forms occur in Texarkana, Titus, and Belcher. Compare with Pecos Glaze III to Modern bowl sequence and rim profiles (figs. 20, 21). Size about 1/8.

In making comparisons of this sort it is important to be as objective as possible. As any ceramic worker knows, it is often unwise to draw conclusions, no matter how substantial they seem on paper, without opportunity to handle the actual specimens personally. In November, 1944, through the courtesy of Dr. Douglas S. Byers, I was able to examine some of the Pecos pottery stored at Phillips Academy, Andover, Massachusetts. The similarity between carinated and simple bowls of *Plain Red* and *Plain Black* and those of *Sanders Plain* is remarkable and one would be tempted to conclude that Sanders Focus and the Pecos of about 1650 were contemporaneous, with some amalgamation of ceramic techniques. Such a circumstance would have important bearing on the dating of "Southern Cult" materials found in association with this pottery at the Sanders site. However, this possibility may be off-set by certain arguments to the contrary.

For example, some Pecos bowls, both *Plain Red* and *Plain Black,* were finished by scoring or brushing the exterior, perhaps with a handful of grass (Kidder's "striated surface"). Brushing does not occur in Sanders Focus, nor any focus of Gibson Aspect. It is, however, extremely common on utility vessels in the Fulton Aspect, especially in the Titus, Frankston, Bossier, and Texarkana Foci (pl. 33 *a, b, g*). This may be a minor matter and we cannot be at all sure that the Pecos brushing technique was borrowed from the east. More significant is the remarkable agreement in the shapes of sharp-shouldered and carinated bowls with convex bottoms that we have noted in Texarkana Focus and Glaze III to V at Pecos. Texarkana Focus pottery was found in some quantity on the Sanders site surface, above the Sanders Focus component; and at the Hatchel Mound in Bowie County, Texas, the Texarkana Focus component lay stratigraphically over the Haley Focus component, which is shown by trade pieces to have been contemporaneous with Sanders Focus. The lack of shouldered bowls in Sanders and other Gibson Aspect foci is another point in favor of their distinction from the Pecos series. Also, it is inconceivable that, if Sanders Focus existed during Late Glaze V times, Texarkana Focus could have followed it and yet reveal no evidence whatever of contact with Europeans. It has been mentioned that the Texarkana Focus component at the Hatchel site is represented by accumulated midden material 14 feet thick, superimposed upon the Haley component with its flat-topped mound.

These comparisons constitute but a bare introduction to possible material-culture influences operating between the Rio Grande Puebloans and Caddo proper. Tentative conclusions are: (1) carinated and shouldered bowls of Texarkana Focus and Pecos Glaze-paint complexes IV and V are strikingly similar, with the shouldered bowl in incipient form in Glaze III; (2) this likeness was due to borrowing in one direction or the other at about the beginning of the 16th century; (3) since these bowl forms appear rather suddenly at Pecos, when other contacts with the east (e.g., with Plains tribes) are also apparent (see pp. 61–64), and they cannot be accounted for by internal developments in the Southwest, the borrowing was probably made by northern Rio Grande Indians from the Caddo living about the great bend

of Red River and represented by Texarkana Focus; (4) there was no gradual diffusion of ceramic techniques across the 700 miles separating these areas, hence the supposed borrowing resulted from trade contacts, movement of small groups from one area to the other, or from intermarriages, with no visible effect on the material culture of intervening peoples; (5) it was primarily the vessel forms that were borrowed, each area continuing its traditional techniques in respect to tempering and decoration; and (6) brushing of vessel surfaces, common in the Fulton Aspect but of late appearance at Pecos, may also have been borrowed by the latter.[10]

This is a simplified preliminary picture. A more exhaustive study should be made and other considerations brought in before drawing definite conclusions. It may be mentioned that the carinated bowl, for example, is of tremendous distribution in Middle America, and in the southern regions usually bears legs; it is also a common vessel form in the West Indies and the lower Mississippi Valley (e.g., in Coles Creek pottery). It is thus possible that the Pecos bowls were borrowed from somewhere else than the Red River bend area. It is also possible, of course, that the two developments were internal within their areas and the resemblance only accidental. However, other resemblances between Puebloan and Caddoan pottery are discussed below, and the various threads of evidence taken together add up to a rather substantial case of contact with consequent technical modifications during a restricted time period. Finally, it should be noted that this particular case of supposed contact and borrowing involves only very small parts of the Southwest and the "Caddo" area of the Southeast—i.e., the vicinity of Pecos Pueblo and the locality about the great bend of Red River in southwest Arkansas and adjacent Texas. Thus it may be suspected that the modifications mentioned resulted from communication on a direct east-west route utilizing the Red River Valley. The other resemblances to be noted do not involve Pecos nor, directly, the components of Texarkana Focus.

VESSEL FORMS IN TITUS AND BELCHER FOCUS

Plate 32 illustrates a sampling of vessels found in Titus Focus, northeast Texas, which, though not uncommon, represent forms strongly at variance with pottery of the Fulton and Gibson Aspects in general—and, in fact, with the entire Southeastern archaeological province. In their paste, coarse clay temper, light grey-brown color, decoration and general method of manufacture, these vessels agree entirely with the ceramic tradition of Titus Focus. It is positive that they are not trade pieces. Yet their forms are so completely foreign to the eastern United States that we are left with but two explanations: (1) unique local inventions, or (2) borrowing of the shapes alone from

[10]An important point which I have not attempted to discuss in this section is the possible connection between use of red film in Texarkana pottery and at Pecos. In Glaze V, particularly, a bright, hard film was applied to bowl and olla bottoms. I am not sure whether this followed from gradual decrease in use of paint on Pecos vessels, or was an introduction at this time. The brightness and hardness of this film is quite remindful of that on Sanders and Texarkana pottery.

another culture. The Puebloan Southwest immediately comes to mind as a possible source, since a multitude of jar and olla shapes was produced there at various times and places.

In searching for close analogies in shape at a comparable time in Southwestern history, however, one finds no exact counterparts. After studying photographs of such vessels, Dr. Haury commented as follows:[11]

I find it difficult to specifically pin down and relate the jar shape of the Titus Focus vessels with anything we have here. Gila Redware of south central Arizona and dating from about 1200 to 1400, comes the closest to duplicating all of your shapes, but the incised tradition is lacking here. My recent Los Muertos report may give you some clues in this respect but again the resemblance must be recognized as of a very general order.[12]

Mera, examining photographs, wrote that[13]

Probably due to a much less familiarity with "Upper Gila" pottery forms than Dr. Haury, I have not been able to see any definite likeness in those examples shown in the photos with styles in the Gila region, dating as late as the time you mention [i.e., the late 15th century date suggested by trade sherds]. Instead, the two marked [see pl. 32 *a, e*] are very like Pima-Papago storage jars. I am at a loss as to what to say about the remainder. There may be just a hint of Chihuahua, although slight. . . .

Few published papers on upper Gila Valley pottery illustrate the full range of ceramic shapes. Nesbitt's work on Starkweather Ruin, a site on San Francisco River, a branch of the Gila in southwestern New Mexico, provides illustrations of jars from the Pueblo II type *Reserve Black-on-White* and the Pueblo III *Tularosa Black-on-White* which may be taken as representative of late materials from this area.[14] A degree of resemblance to the Titus jars may be seen in some instances, particularly in a few of the *Tularosa Black-on-White* "pitchers" (compare Nesbitt's pl. 33 *a-c* with the present pl. 32 *d, g*). On the whole, however, the Starkweather jars or "pitchers" have proportionately smaller bodies and higher, narrower necks and usually bear a long strap handle on one side which is totally missing on Titus specimens.[15] Jars of *Reserve Red Ware,* as shown by Nesbitt, reveal very little resemblance.[16] A somewhat greater one may be seen in the outlines of certain *Alma Plain* jars shown by Haury, extending through the Mogollon Phases Georgetown, San Francisco, and Three Circle, and into the Pueblo III Mimbres Phase—i.e., to about 1100 A.D.[17]

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[11]Haury, Emil W., letter of June 14, 1945.

[12]Haury, Emil W., *The Excavation of Los Muertos and Neighboring Ruins in the Salt River Valley, Southern Arizona.* Compare his figs. 56 *m-o*, 58 *e, f, h*, 64 *j*, etc. with the present pl. 32 *b, d-g*.

[13]Mera, H. P., letter of December 27, 1945.

[14]Nesbitt, Paul H., *Starkweather Ruin: A Mogollon-Pueblo Site in the Upper Gila Area of New Mexico.* . . . , pp. 93-95, pls. 31, 33.

[15]While the jars shown by Nesbitt in his pl. 33 bear only a general resemblance to some of those from Titus Focus, it is interesting to note that in two cases (his pl. 33 *a, f*) the black-painted spiralling scroll is strikingly like engraved scrolls found on jars and bottles of Titus and Belcher Foci on the type *Taylor Engraved.*

[16]*Idem.*, pl. 38. It should be mentioned that an olla in the collection of Harry J. Lemley, Hope, Arkansas is quite similar to that in Nesbitt's pl. 38, third row, left. It has the same large globular body and a very small, short neck rising vertically.

[17]Haury, Emil W., *Some Southwestern Pottery Types, Series IV,* fig. 8, outlines 4-6, 11-13, 18-19, 24.

A cursory examination of Southwestern literature does not reveal any clues more concrete than those just mentioned. Nonetheless, I believe that most eastern archaeologists will agree that the odd Titus Focus jars are decidedly out of place and suggest Southwestern tradition rather than eastern. A more extensive search should be made. Meanwhile, the presence in Titus Focus of Puebloan trade sherds referrable to upper Gila basin types of the 15th century (see pp. 207–208) lends credence to our suspicion that the jar shapes may also have been derived from that direction. Interestingly, this problem appears to involve Pecos and the northern Rio Grande Puebloans not at all.

The jar shown in plate 32 *a* is of the type *Belcher Ridged,*[18] common in Belcher Focus, but also occurring in eastern components of Titus Focus near the Louisiana-Texas border, and in Bossier Focus. This shape appears to be the only one in *Belcher Ridged,* and since it was well established in the ceramics of three foci, it was not merely a freak in this area. The large olla form shown in Plate 32 *f* was also present in Belcher Focus in the type *Belcher Plain,*[19] the only difference being that the Belcher ollas were not decorated, while those of Titus Focus bore engraved spirals quite like other jars and bottles. The remaining vessels on plate 32 represent forms not as common as the two just mentioned, each being represented by only two or three examples. That is to say, the contracted-mouth jar of *Belcher Ridged,* and the large olla with vertical neck, were well-established vessel forms in an area on both sides of the northeast Texas-northwest Louisiana border, whereas the others shown on the plate have more the appearance of unstandardized forms.

One further item is of interest. This is the common occurrence of miniature vessels in Titus Focus graves. They are exact copies of full-sized bowls, bottles, and jars, and were usually, if not always, placed with child burials. Under the circumstances pointing to a certain amount of Southwestern influence in Titus Focus, it appears not unlikely that the making of miniature vessels as child offerings was in this case also of Puebloan derivation.

NECK-BANDING IN NORTHEAST TEXAS POTTERY

A technique of decoration known in Southwestern archaeology as "neck banding" was in common use in three foci of the Fulton Aspect: Frankston, Titus, and Texarkana. Sherds revealing this technique are sometimes found in Bossier Focus components, but are identical to those of Frankston. Neck banding has never been identified in any Glendora Focus association and may be said to be absent from historic Caddo material. It seems also to be absent from the Gibson Aspect as a whole, with the possible exception of Alto

[18]Webb, C. H., and Monroe Dodd, Jr., *Pottery Types from the Belcher Mound Site,* pp. 101-102, pl. 17—No. 7.
[19]*Idem.*, pp. 98-101, pl. 17—No. 6.

Focus.[20] The technique never passed eastward into Louisiana (except for occasional trade pieces), nor did it enter more than a few miles into the southwest corner of Arkansas. The writer has not seen any examples from Oklahoma outside the Red River drainage, but one has been noted from Ozark Bluff shelters in northern Arkansas.[21] Therefore, as an established ceramic technique, neck banding was limited to the western extremes of the Southeastern province; here it was confined to a fairly large area in northeast Texas, and the Red River Valley in southwest Arkansas and extreme southeast Oklahoma.

Neck banding involves nothing more complicated than allowing the final coils of a vessel to overlap on the exterior with a shingle effect, rather than smoothing them over in the usual manner. Corrugation may be produced by pinching or crimping each coil regularly as it is attached to the preceding coil.

In Frankston Focus (type *LaRue Neck Banded*) neck banding was affected in the simplest possible manner, as may be seen in plate 33 *a-f*. The coils overlapped but were not crimped, except in a seemingly incidental way as each coil was pressed down on the preceding. A rough smoothing sometimes occurred, as in plate 33 *f*, yet the coil seams are still visible. Five or six seems to be the usual number of bands, but we have few vessels by which to judge. The jar shape shown in plate 33 *b* is the usual one in this type.

In Titus Focus (type *Leesburg Neck Banded*), many neck coils were left crudely overlapping and unmodified as in *LaRue Neck Banded* (pl. 34 *a*), but in other cases each coil was regularly pinched or pushed downward, as in plate 34 *b*. The effect sometimes approaches a corrugation, but was seldom done carefully. Occasionally the coils were lined off by dragging a pointed implement along each coil seam, or punctating the lip of each coil (pl. 34 *c*). The jars of this focus have well rounded bodies which sometimes taper toward the bottom (pl. 34 *a, c*) and a flat, disk base; the rim always flares outward and may be straight to concave.

The type *Nash Neck Banded* of Texarkana Focus presents the best examples of this technique, although in many cases there is little to choose between these and the Titus Focus treatment. Jar shapes, however, are much more variable, as may be seen in plate 35. We may note cases of neck banding on rims drawn up into four or five peaks (pl. 35 *b-c*) and some in which the

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[20]At the Davis site there are many sherds of neck-banded jars and two restored vessels. However, it is not clear that they were part of the Alto Focus complex, and in practically every case correspond closely to Frankston Focus ware. Should this technique prove to have been present in the Alto Focus complex, its age in northeast Texas would probably extend considerably farther back than is now known; as a guess, this might prove to be about 1300 A.D.

[21]Dellinger, S. C., and S. D. Dickinson, *Pottery from the Ozark Bluff Shelters*. The sherd shown in pl. XXVI *a* appears to be a crimped or corrugated piece, possibly from a vessel neck, similar to the Texarkana Focus technique. In October, 1944, I observed a very small jar on display in the Milwaukee Public Museum, labeled "Arkansas." This jar, of reddish color (possibly red-filmed) and well polished, has a neatly corrugated neck, five of the neck coils being crimped somewhat as in the present pl. 35 *b*, although the neck itself is much smaller than the body.

corrugated effect was accomplished with fair success (pl. 35 *a, b, g, h*). Possibly twenty percent of *Nash Neck Banded* specimens are shell-tempered, a feature not found in the other foci.

Several facts are of significance in all neck banding in this area. First, the technique, without exception, was confined to the neck or rim of the vessel; second, only jars were so treated, never bowls or other vessels; third, the paste, temper, and general manufacture of these vessels agrees with that of other pottery in the same complexes and they are not trade pieces; fourth, so far as can be determined from 75 restored vessels, the banding was done with unit coils rather than continuous spirals; and fifth, a conscious effort to produce neck banding was evidently made which required a change in traditional construction. The last point requires a brief explanation.

So far as my experience with pottery in the four-state "Caddo" area permits a general statement, all of it, in both Gibson and Fulton Aspects, was coiled with seams slanting slightly downward toward the interior. Neck-banded jars of the latter Aspect *were also coiled in this manner from the base to the rim-body junction.* From this point on the rim coils were made to slant *in the opposite direction* so as to overlap on the outside. In the Southwest, on the other hand, I believe (though unable to find statements on the subject) that coiling very generally proceeded with seams slanting toward the exterior; a shingle effect thus resulted automatically before the vessel was smoothed. Therefore, while a neck-banding idea could have resulted in Southwestern pottery merely by omitting the usual smoothing, in northeast Texas it seems to have been done by consciously reversing the traditional coil pitch.

This of course does not prove a Southwestern inspiration, for the reversal would not have been much of an invention in itself. However, three of the five Puebloan trade sherds discussed on pp. 207–208 are corrugated and this suggests that northeast Texas Indians had opportunity to see actual vessels so treated. With such a stimulus, it is altogether likely that they began to produce the same decorative principle in their traditional ware. One of the trade pieces was from a finely corrugated vessel *body,* but so far as we know, this idea was not copied.

In Southwestern archaeology, neck banding and neck corrugation seem to have been produced at two different times: Basketmaker III–Pueblo I, and Pueblo IV. During Pueblo II–III times, corrugation was extended over the entire vessel body, with very thin coils crimped or indented in various ways so as to produce pleasing geometric patterns. Several Fulton Aspect vessels, especially those of Titus Focus (pl. 34), oddly enough resemble Basketmaker III–Pueblo I jars in shape, rim-body proportions, width and number of neck coils more closely than other Southwestern vessels.[22] A similar resemblance in shape and number and width of neck coils may be

[22]For examples, see Morris, Earl H., *Archaeological Studies in the La Plata District,* pl. 183 for Basketmaker III, pls. 215-220 and figs. 41 *e, f, i, h, l* for Pueblo I. Note crimped coils in pls. 218 *b, c, f,* 219 *e.* Also Roberts, Frank H. H., Jr., *Early Pueblo Ruins in the Piedra District, Southwestern Colorado,* fig. 15 and pls. 13-14.

seen in some jars of *Alma Neck Banded,* as the type occurs in the Mogollon Georgetown and San Francisco Phases, but not later in the Mogollon area.[23] On the other hand, both *Alma Neck Banded* and Basketmaker III–Pueblo I neck-banded vessels include forms not to be found in northeast Texas; among these are the pitcher-like vessels with narrow, high neck and a large handle. At present, it appears that a gap of no less than 500 years separates the early Southwestern cultures mentioned from the Fulton Aspect, and the resemblances cited must be regarded as fortuitous. Nonetheless, this matter will bear much further attention. Another puzzling circumstance is that the northeast Texas specimens do not reveal any clear case of spiral coiling at the neck, but on the other hand, several dozen in The University of Texas collections appear quite certainly to have been constructed with unit coils at the neck, usually five or six in number, in the Pueblo I manner. Haury has kindly offered the following opinions:[24]

> Your neck-coiled pottery . . . reminds me to a certain extent of the neck-corrugated vessels we get in the Upper Gila country after nine or ten hundred A.D. The vessel shapes, of course, are not duplicated but there is some resemblance. If your material is unit-coiled as you indicate this would be one departure from the class of pottery I mentioned, which was spirally built up. In all of our earlier forms of neck-coiling, as Pueblo I, I do not think that anyone has ever had a chance really to determine whether the lower part of the vessel was spirally coiled or not. This section is usually pretty well smoothed over inside and out.
>
> There are two more details indicated in the pictures you sent which remind me further of the Upper Gila. These are the scored surfaces and the occasional incising of lines between the coils. Rarely, too, we find some applique decoration but not in form shown in your photos. However tempting it may be to find some relationship between your material and ours, the stumbling blocks of space and time would have to be overcome if any satisfactory conclusion can be reached.

Bradfield illustrates several sherds, neck-banded, pinched, and punctated, from Cameron Creek village in southwestern New Mexico which are strongly remindful of Titus and Texarkana Focus treatments.[25] He concluded that

> "The small scraped corrugated pots [were] . . . associated with the later development and occupation of the deep pit rooms, or with the very beginning of surface house construction."[26]

In north-bound New Mexico, in the upper Rio Grande Valley region, Mera has recognized a developmental series of pottery types. Several utility types reveal unmodified, overlapping neck coils comparable to those of Frankston Focus, *Cordova Micaceous-ribbed* of an Early Pueblo IV period perhaps showing the closest resemblance.[27] Kidder notes that with the opening

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[23]Haury, Emil W., *Some Southwestern Pottery Types, Series IV*, p. 35, fig. 8, outlines 7, 15, and pl. IV *l-m*, p.

[24]Letter of June 14, 1945.

[25]Bradfield, Wesley, *Cameron Creek Village*, pl. XXV.

[26]*Idem.*, p. 53.

[27]Mera, H. P., *Ceramic Clues to the Prehistory of North Central New Mexico*, pl. X; top row.

of the Glaze V period at Pecos, ". . . there disappeared all signs of corrugation, and the exterior surface began to bear the striations of a finishing tool. . . ."[28] We have already noted that utility jars of Frankston, Titus, and Texarkana Foci often combine striated or brushed finish with neck-banding. Some relationship with the northern Rio Grande area during the time when neck banding and corrugation were disappearing and giving way to striated surfaces on utility ware (as seen at Pecos) would provide a more reasonable prospect, in our present knowledge, than one with early Anasazi and Mogollon.

Neck corrugation was also practiced in the Hopi area of northeastern Arizona in Early Pueblo IV times[29] and may enter into the problem. In this connection it is interesting that engraving, universal in Gibson and Fulton Aspect polished wares, appeared as "a new variation in decorative technique" between 1350 and 1600 A.D. in the Hopi Reservation area, "later than some other types in the Jeddito Series."[30]

DISCUSSION

The present comparative study has been limited to ceramics, and is far from complete at that. A most promising field of inquiry is that of decorative *motifs* (as distinct from *techniques*) on pottery of the Southwest and Chihuahua, and that of the "Caddo" area and other eastern regions. For example, design lay-outs featured by curvilinear inter-locking scrolls in a quadrated field, common enough in Pueblo III painted pottery, is in many cases very closely matched in design conception on engraved vessels of Fulton Aspect, reaching a climax in the historic Glendora Focus. This motif appears to have been of somewhat later appearance in the east than in the Southwest, but a detailed study is certainly to be desired. Use of scrolls in bands is also found widely in Pueblo and Hohokam pottery and in many eastern cultures. Other fruitful studies could be made in the fields of tempering material and their sequence in the two provinces, and in the developments of red filming. Non-ceramic artifacts, burial methods, and house patterns provide further fields of inquiry. It is thus to be stressed that the present work has but introduced potential comparative studies and provided a chronological framework to act as a guide and which will certainly be improved. The pressing need for such investigations is known to all archaeologists.

This section has also been limited to the Southwest and Southeast. Ceramic and other comparisons between each of these provinces and Middle America offer another great and fruitful field for inquiry. The well-known work of Vaillant on resemblances in the ceramics of Central and North America

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[28]Kidder, A. V., *The Pottery of Pecos*, vol. II, p. 326.

[29]Type *Jeddito Corrugated*, described in Hargrave, Lyndon L., *Guide to Forty Pottery Types from the Hopi Country*. . . . McGregor, John C., *Southwestern Archaeology*, fig. 136, upper right, presents a vessel outline showing corrugated neck coils and plain body, belonging to this type; see also his p. 301. A date of 1350 to about 1600 is indicated for the type.

[30]Colton, Harold Sellers, and Lyndon Lane Hargrave, *Handbook of Northern Arizona Pottery Wares*, type *Jeddito Engraved*, pp. 154–155.

was but an introduction to this problem and suffered from absence of chronology in the Mississippi basin at that time (1932). Most of the vessel forms which he chose for comparison with Mexico and Central America were taken from the central Mississippi basin; some, however, were from southwest Arkansas and belong to what we now call the Haley and Texarkana Foci. Certain of his statements regarding possible derivation of Mississippi Valley effigy forms from Middle America by way of Chihuahua are especially interesting in view of the arguments presented in this section.

> . . . Squat bowls with heads and limbs attached, from the West Mississippi drainage, find parallels at Salcaja, an apparently early site in Guatemala excavated by Doctor Gamio, and such forms occur sporadically through the Highlands of Mexico as far north as Casas Grandes.
>
> Human effigy vessels, which cover the whole Middle and Western Mississippi region, find their closest resemblances in Casas Grandes pottery specifically, although the distribution of these vessels extends along the east coast of Mexico, as well as southward into the Maya country and Costa Rica. But they are also found in the Tarascan area where, as in the animal effigies, the idea of sculpture is emphasized at the expense of the idea of a container.[31]

"Squat bowls with heads and limbs attached" are found in most Fulton Aspect foci and also widely in the Southeastern states, whereas human effigy vessels are not found in the "Caddo" area but rather in the central basin and Tennessee-Cumberland culture. The possibility that either or both of these traits may have reached the eastern states by way of Chihuahua provides an interesting supplement to the ceramic modifications which, we have seen, must have resulted from communication between Fulton Aspect Caddo and Puebloans in the 15th to 17th centuries. It will be apparent that *no single one of these resemblances* between the Southwest and Chihuahua on the one hand, and the "Caddo" area and central Mississippi basin on the other, would mean much in itself, and each could be explained as a fortuitous circumstance. However, *when the several examples are taken together* and their temporal positions are seen to be consistent, it appears to me that contacts between east and west across the plains of Texas and Oklahoma are shown about as strongly as the archaeologist can hope to show them. Since the intervening peoples were not notably affected and in historic times were described as extremely unfriendly to all strangers, a whole new set of problems arises in the social field. Their discussion is beyond the purposes of this paper, but it may be said that here archaeology can contribute materially to studies of culture contact and acculturation without the necessity of geographically continuous trait distributions.

Lastly, we may consider the establishment of the "Caddoan Root" concept by archaeologists of Gila Pueblo, Arizona. Gladwin[32] has recently reviewed the circumstances under which this concept took form as he and others attempted to classify the then newly-discovered Mogollon culture in terms of Gila Pueblo nomenclature. Mogollon pottery was recognized as radically

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[31]Vaillant, George C., *Some Resemblances in the Ceramics of Central and North America*, p. 16.

[32]Gladwin, Harold S., *Excavations at Snaketown, III: Revisions*, pp. 9-11.

different from Anasazi and was believed to have had a separate history. The Gladwins also found certain similarities with "Caddo" pottery from Arkansas (nearly all Arkansas pottery was "Caddo" then). Some non-ceramic Mogollon traits were found to resemble those of Plains cultures. A "Caddoan Root" was then established as one of four "roots" in the Southwestern United States, the others being Yuman, Hohokam, and Basket-maker. In stating that the choice of an ethnological label was perhaps unfortunate, Gladwin adds that "Nevertheless there may have been something to the idea, as you will see, and the mistake may have lain chiefly in the choice of names." It must be stressed that this "Root" refers to a purely hypothetical ancestral culture which may account for certain archaeological complexes over a wide territory:

> It is, as yet, too soon to describe this [Mogollon] group in detail, but our report on the survey of Texas shows that there were related groups of people who stretched from the Rio Grande eastward through Texas to the Mississippi; through southern New Mexico and down into Sonora and Chihuahua, touching the southeastern corner of the Pueblo area. General similarities with the comparatively recent Caddo have led us to believe that their roots were identical, and we have therefore used this designation to describe the root for the whole group.[33]

And again, quoting from Haury:[34]

> The term Caddoan Root refers to a generalized horizon of hunting-agriculturalists of the Middle West, out of which it is believed the later groups of the Caddoan family developed on the one hand, and the Mogollon Culture on the other.

In another paper, Gladwin went so far as to say that "In general appearance Mogollon red and incised wares are indistinguishable from those of the Red River Caddo."[35]

I do not propose to argue the theoretical merits of such a hypothetical ancestral culture as that proposed by the "Caddoan Root." If it could be identified archaeologically, it would be of vast importance in the synthesis of American archaeology. However, archaeologists are rather well agreed that this concept takes in far too much territory, implies ancient relationships which are extremely difficult, if not impossible, to prove, and in any case, while challenging, is so far beyond archaeological facts as they can be marshalled today that it gets us nowhere in determining relations. Nesbitt[36] has considered this matter in respect to Mogollon culture, with the conclusion that:

> I am inclined to place little stock in the similarities between the Mogollon and the Caddoan groups to the east. Those existing are so slight as to border on coincidence and not the result of any culture contact. It is quite possible, although at present there is little evidence to substantiate it, that both Mogol-

[33]Gladwin, Winifred and Harold S., *A Method for the Designation of Cultures and Their Variations*, chart, and p. 6.
[34]Gladwin, Harold S., *Excavations at Snaketown, III: Revisions*, p. 11.
[35]Gladwin, Harold S., *The Archaeology of the Southwest and its Relation to the Cultures of Texas*, p. 34.
[36]Nesbitt, Paul H., *Starkweather Ruin*, . . . , p. 126.

lon and Caddoan wares are early offshoots of a basic pottery and eventually with their spread in opposite directions and through time, isolation, and being subject to different influences have come to be expressed differently. If there be any truth in this assumption the farther back in time we go the more closely related should be the Caddoan and Mogollon wares. It is significant that the Georgetown pottery bears a closer resemblance to the Caddoan than does the later San Francisco pottery. Particularly needed is data from sites, contemporary with Mogollon, in Nebraska, Arkansas, and Texas. But as the evidence now stands it appears that the painted wares of the Mogollon are a Southwestern development, evolved by a distinctive color combination plus vessel forms and design elements borrowed from the northern Basketmaker-Pueblo.

Since connecting links, either in time or space, which might aid in determing whether there ever was any relationship between pottery of Mogollon and "Caddo," have not appeared, and there is certain evidence that at least 500 years separate them, we must conclude for the time being that any resemblances were fortuitous. The problem is by no means closed, for we may recall the curious agreement in some neck-banded jars of Titus Focus with *Alma Neck Banded* of Mogollon, and Basketmaker-Pueblo. However, the bulk of the evidence points to very different sorts of relationships between the two areas. Gladwin and his associates, moreover, did not have in mind this neck banding at all, and I confess to being unable to visualize the resemblances so often stressed.

It should also be apparent through the many sections of this paper that archaeological complexes which can be rather surely identified with known Caddoan tribes—Caddo proper, Wichita, and Pawnee—in each case belong to the latest horizon. Where an earlier agricultural, pottery-bearing culture horizon can be identified as preceding that of a Caddoan-speaking division, the traits and general circumstances make it unfeasible to assume that these were "ancestral" to the known Caddo. Thus, Upper Republican, Henrietta Focus, and Gibson Aspect all existed before the known historic tribes—Pawnee, Wichita, and Caddo proper, respectively—can be positively identified in their areas. In each case, the earlier culture *may* represent the ancestors of these tribes, but in each case this matter is quite debatable. It is thus improbable that any one "root" will be found to account for the beginnings of all these lines of development, including Mogollon, and in any event (as Gladwin has said himself), "Caddoan" is an unfortunate label.

CONCLUSIONS

In a preceding section (pp. 205–211) certain historical matters were discussed, among them the following of greatest significance:

1. The followers of De Soto under Moscoso are believed to have visited Caddo-speaking tribes of the Hasinai division in the upper Neches Valley of central east Texas, after already encountering Caddo groups in the Red River Valley in present northwestern Louisiana, in 1542.

2. The Hasinai and/or closely related Caddo groups were said by the Spaniards to be already in possession of turquoise and cotton blankets obtained

from the west, hence that communication with Puebloans was in effect by 1542 can scarcely be doubted.

3. Archaeologically, Frankston Focus components correspond with the location of Hasinai tribes or villages. Most are without evidence of European contact, but others yield glass and iron objects with only slight change in the native artifact complex; European materials may have reached these villages as early as 1600 through a purely native trade conducted between the Hasinai and Spanish sources in northern Mexico and New Mexico. Thus, omitting Moscoso's explorations, which probably left few or no European objects in the hands of Caddo tribes, an "historic" horizon may nevertheless have appeared in the Neches Valley many years in advance of the prolonged French and Spanish contacts begun in 1686 by La Salle.

4. Other Fulton Aspect foci more or less coexisted with Frankston; namely, Titus, Texarkana, Belcher, and Bossier, and perhaps Fort Coffee in eastern Oklahoma. Glendora Focus overlies these foci in the Red River Valley and to the east, most of its components yielding European trade articles probably assignable to post-1686 French and Spanish contacts. Specific identification of all European materials is badly needed.

5. In support of documentary reference to Caddo-Puebloan communication by 1542, five Puebloan trade sherds have been recognized in northeast Texas collections from Titus Focus components and sites bearing quantities of Titus Focus artifacts. Four of these sherds compare most favorably with Upper Gila wares of the 15th century; the fifth is Chupadero Black-on-White, made in southern New Mexico from the 12th into the 15th century.

6. These matters collectively indicate that the western Caddo groups represented by Texarkana, Titus, and Frankston Foci were in communication with Puebloans well in advance of 1542, probably for at least a century.

With this framework as a guide, a number of comparisons were then made in ceramics of the Gibson and Fulton Aspects and the Southwest, with the following results:

1. Beginning in Glaze III and IV, important changes in vessel form took place in the northern Rio Grande area of New Mexico, reflected in the ceramic history of Pecos Pueblo. "Shouldered" and "carinated" bowls became dominant forms of open vessels, with ollas continuing in use. "Shouldered" bowls disappeared from use in Late Glaze V, but "carinated" bowls continued with certain modifications until the end of occupation, 1838.

2. Innovations in vessel shapes at Pecos have not been accounted for by internal developments in the Southwest; on the other hand, the new forms correspond very closely to common bowl forms of Texarkana Focus, an archaeological complex representing Caddo groups about the great bend of Red River in the 15th to 17th centuries (and possibly earlier).

3. It is suggested that the new bowl forms of the northern Rio Grande were borrowed from these particular Caddo groups at about the beginning of the 16th century as the result of culture contact. Physical anthropologists may be able to determine whether population mixtures occurred.

4. Brushing of vessel surfaces (striated surface), appearing first in Glaze V material at Pecos, may also have been borrowed from the east, for it occurs in all Fulton Aspect foci.

5. Certain jar and olla forms found in Titus and Belcher Foci are quite foreign to ceramic traditions of the eastern United States and suggest Southwestern influences. No exact counterparts have been recognized, but the most closely comparable forms seem to have been made in the Gila River basin of southwest New Mexico and east central Arizona from about 1200 to 1400 A.D.

6. The manufacture of miniature vessels for placement with child burials, a common trait of Titus Focus, may also have been borrowed from the Puebloan Southwest.

7. The techniques of neck banding and neck corrugation, common on utility jars of Texarkana, Titus, and Frankston Foci, reveal in some cases a curious resemblance to Basketmaker III–Pueblo I and Mogollon utility jars revealing the same techniques and also employing wide neck coils applied as units rather than by spiralling. These Southwestern cultures existed at least 500 years earlier than the earliest date which it seems possible to set at present (about 1400 A.D.) for the beginnings of Fulton Aspect ceramic types, and influence from that quarter seems ruled out. However, simple neck banding may prove to have been present at a somewhat earlier time in Alto Focus of the Gibson Aspect and the gap thereby partially narrowed. In north-central New Mexico and the Hopi country of northeastern Arizona, neck banding and corrugation was practiced in Early Pueblo IV times and may provide a more reasonable source for the northeast Texas traits. At any rate, there are reasons to believe that neck banding of utility vessels was borrowed from somewhere in the Southwest by peoples of northeast Texas or about the great bend of Red River.

8. The appearance of engraved pottery decoration in the Hopi area during Early Pueblo IV times suggests some possibility that this trait was borrowed from the "Caddo" area, where it was universally used in both Aspects; this provides an interesting correlative to the above-mentioned neck corrugation in this area at the same time.

9. The above resemblances, should any or all prove to have resulted from culture contacts rather than fortuitous parallelisms, point to a more intimate communication between Southwestern and Southeastern Indians than one of trade relations. If women were the pottery makers in the past as well as present, technological modifications of the kinds mentioned would seem to require that some women in each region had opportunity to learn certain techniques of the other. Although trade pieces might have furnished the necessary suggestions, the other side of the problem should not be overlooked. The archaeological data cited indicate that communication across 700 miles and more of intervening territory might have been so extensive that small groups, perhaps families, made the trip from time to time. This possibility, while probably incapable of conclusive proof, may at least be borne in mind by ethnologists and physical anthropologists in seeking origins for extraneous elements in either or both regions.

10. Whatever the extent of mutual borrowing in vessel shapes and finishing techniques between Caddo proper and Puebloans, there appears to have been little or no accompanying modification in the principle *techniques* of affecting designs in the two regions (with the possible exception of engraving in the Hopi area). Thus, Southwestern painting does not appear in any resident pottery of the "Caddo" area;[37] and conversely, engraving is practically absent in the Southwest.

11. The resemblances cited point to more than one route of communication between the two regions. Thus, comparable vessel forms in the upper Rio Grande area (as seen at Pecos) and Texarkana Focus are one problem; those of Titus Focus and upper Gila quite another; and neck banding in several foci of northeast Texas and several possible sources in the Southwest still another. Despite indications of diffuse relationships, these seem to have occurred within a rather restricted period; namely, the 15th to 17th centuries.[38] We do not yet possess enough data for more precise solution of these intriguing questions and it will be well not to press them too far.

12. So far as may be determined at present, Puebloan influences had no effect on the Southeastern province as a whole beyond its western borders. Strictly comparable ceramic elements occur in northeast Texas and the Red River Valley in the adjoining corners of Louisiana, Arkansas, and Oklahoma in a relatively late horizon—the Fulton Aspect—but apparently no farther east at this or any other time.

13. With exception of an uncertain status of neck banding in Alto Focus, there is no evidence of contact between the peoples of Gibson Aspect and the Southwest. The Sanders Focus-Pecos Late Glaze V ceramic resemblances are believed to be less strong than those of earlier glaze periods and Texarkana Focus.

14. The "Caddoan Root" concept of an early basic culture which may account for certain similarities in pottery of the Mogollon and Caddoan areas, as well as other similarities between Mogollon and the Plains, is believed to be untenable. Certain ceramic resemblances between the Southwest and Caddoan area proper are seen to have been due to late contacts and modifications due to influence, rather than to the presence of a former basic culture. The principal members of the Caddoan linguistic stock—Caddo proper, Wichita, and Pawnee—cannot be traced far back in time by archaeological remains, and in each case there are prehistoric cultures of no great age whose connection with the known Caddo-speaking tribes in the same area is tenuous. Any "basic culture" which may underlie these various developments remains a hypothetical one for which there is, as yet, no concrete evidence.

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[38]In the 18th and 19th centuries, travel of Caddo Indians, Spanish and French traders and diplomats, etc., between the lower Red River country and New Mexico, became a fairly common matter.

[37]Painting, both positive and negative, is of course found in the central Mississippi basin and Tennessee-Cumberland Aspect at about the same time, but appears only rarely in the "Caddo" area on occasional trade pieces. Eastern painting is readily distinguished from any Southwestern treatment.

PART V

CORRELATIONS AND CONCLUSIONS

Correlations

WHILE IT MIGHT be desirable to fit the cultures represented by the Fulton and Gibson Aspects into a larger scheme of classification such as the "Mississippi Pattern," this is more difficult than it may seem. For the present, nothing concrete would be gained by this operation except a taxonomic label of debatable meaning. The Fulton block, with shell-tempered pottery in its more northerly foci, might be referred to the "Late Middle Mississippi Phase" in the usual terminology; and the Gibson to "Early Middle Mississippi Phase." They might equally well be given places in a "Lower Mississippi Phase" along with the later cultures of Louisiana and the Florida coast. However, there is confusion enough about these terms in eastern archaeology without increasing it, and the two Aspects reveal so many distinctions between themselves and other late cultures in the east that classification—while not impossible—is merely pointless at this time.

A correlation with the terminological scheme of Ford and Willey[1] has distinct possibilities, and has been used in the accompanying chart, figure 26. In a general way, the whole Fulton Aspect and its historic representative, Glendora Focus, appear to correlate in time with the "Temple Mound II" stage, while the preceding Gibson should agree with "Temple Mound I." This, however, entails a serious difficulty in that "Temple Mound II" is generally taken to be that stage throughout the southeastern states in which elements of the Southern Cult, and shell-tempered pottery, are commonly found.[2] West of the Mississippi, especially at the Spiro and Sanders sites, "Cult" material falls into a horizon which is not only without shell temper but stratigraphically underlies another horizon in which it does occur. This could be taken to mean that the shell-tempering principle spread from east to west, not crossing the Mississippi until after it was well established farther east; thus a culture lacking this idea in Oklahoma might have been coexistent with one in Tennessee or Alabama in which it was common. Certainly this interpretation has possibilities and must be borne in mind. Nonetheless, another line of reasoning will apply as well. We have seen that Henrietta Focus in north Texas and Paint Creek ("Quivira") in Kansas, both of which

[1] Ford, J. A., and Gordon R. Willey, *An Interpretation of the Prehistory of the Eastern United States.*

[2] *Idem.*, p. 358; Waring, A. J., Jr., and Preston Holder, *A Prehistoric Ceremonial Complex in the Southeastern United States*, fig. VII, pp. 22-27.

occur well to the west of Spiro and Sanders, yield shell-tempered pottery and furthermore can be fairly well dated from no later than 1500 to perhaps 1600 or 1650. Those culture complexes which overlie Spiro and Sanders bear shell temper and may be correlated both in content and time with the shell-temper-bearing Plains cultures.

This circumstance shows, I think, that we are not yet ready to decide whether the shell-tempering principle was of earlier appearance east of the Mississippi than to the west, at least in the southern States. It appears undeniable, however, that in both east and west this principle is a reliable indicator of the latest archaeological horizon. Correspondingly, we are not ready to decide whether the appearances of Southern Cult elements at Spiro and Sanders were coeval with those east of the Mississippi; if the "Cult" was actually of post-De Soto date at Etowah, Moundville, and in Tennessee-Cumberland culture, as many have held,[3] this is not in agreement with the facts from the northern part of the "Caddo" area. Here it seems inescapable that the first evidences of the "Cult" appeared no later than 1400 A.D. and probably closer to 1300. Much depends on the real nature of the "Cult" itself and whether it actually spread very rapidly through the Southeastern area, or developed more slowly out of a previous base (Hopewellian) with several distinct but inter-related local expressions.[4] It is certainly possible that the Spiro-Sanders "Cult" material was of appreciably earlier date than that east of the Mississippi. Definite conclusions will not be forthcoming without open discussion.

The tentative chronology reached in the "Caddo" area is of far-reaching implication from the eastern Puebloan cultures through the southern and central Plains to the later cultures of the Mississippi Valley, and possibly still farther into the eastern states. Briefly summarized, the latest archaeological complexes in this vast territory divide into two very general horizons. The approximate dateline dividing them is by no means constant or rigid but subject to many considerations locally.

The arguments for dating each of the pottery-bearing cultures across the northern half of Texas have been presented in preceding sections. Puebloan sherds have appeared in very small numbers but with highly significant results in each of these complexes, from the Panhandle plains of western Texas almost to the Louisiana border. These sherds, taken together with certain lines of reasoning based on historical documents and ceramic resemblances between northeast Texas foci and datable Puebloan cultures, provide a rather definite beginning date for the later of these two horizons. The term "beginning date" naturally does not imply that the cultures involved came into existence in any particular year. Nonetheless, the time at which

[3]*E. g.*, Ford and Willey, *op. cit.*; Griffin, James B., *The De Luna Expedition and the "buzzard cult" in the Southeast;* Bennett, John W., *Middle American Influences on Cultures of the Southeastern United States.*

[4]Krieger, Alex D., *An Inquiry into Supposed Mexican Influence on a Prehistoric "Cult" in the Southern United States.* It is my opinion that the archaeological materials represent much more than the operation of a single rapidly spreading "cult"; we are probably dealing with the remains of a host of religious and magical ideas fostered by Southeastern tribes over a period of some centuries.

they had become discrete entities and their material traits patternized to a recognizable extent may be determined. The approximate dateline separating the two horizons has been reckoned at not later than 1450 A.D. In the chronological chart, Figure 26, the cultural units have been adjusted about a dateline of about 1450; this I regard as conservative and representing the latest possible time at which cultures of the earlier horizon could have completely disappeared or given way to those of the later.

The later horizon, then, may be taken as generally equivalent to Ford and Willey's Temple Mound II period. In the "Caddo" area the entire Fulton Aspect falls within this period. Within it, developments occurred which terminated in the historic Glendora Focus; and this may be correlated with historic Natchez[5] on the one hand, and on the other with historic Wichita in the upper Red River Valley, and historic Osage and Pawnee in the central Plains.

On a late prehistoric level, the Texarkana, Titus, and Belcher Foci were contemporaneous (for trade sherds from each occur in the others) and all must have been in existence before 1500. Puebloan trade sherds of the 15th century in Titus Focus, and ceramic resemblances between the Texarkana and Titus Foci and the Southwest, both support this dating. The Frankston and Bossier Foci must also belong in this period, but for some reason do not appear to reflect much trade with the other cultures. Frankston is believed to represent the Hasinai Caddo encountered by Moscoso in 1542, and we have cited a possibility that the Hasinai were receiving Spanish articles from northern Mexico by 1600 in a purely aboriginal trade.

In the lower Mississippi Valley a Plaquemine period has been recognized by Ford and Willey[6] and Quimby[7] as a development from Coles Creek which in turn led to historic Natchez. Plaquemine was contemporaneous with Titus and Belcher and held much in common with them in the ceramic field (as did historic Caddo of Glendora Focus and historic Natchez). In eastern Oklahoma, Orr's Late Component of Spiro Focus, and the following Fort Coffee Focus also probably coexisted with the Texarkana-Titus-Belcher block. With the exception of Titus, Bossier, and Frankston, which it never reached, the use of shell temper is a marker for all these complexes (fig. 26), although it varies greatly in frequency. In Fort Coffee Focus practically all pottery was shell tempered; in Belcher practically none.

Certain Plains cultures may also be correlated with the Fulton Aspect. In the case of Henrietta Focus in north-central Texas, 15th century Puebloan trade sherds helped to determine its age, and there is no indication that this culture lasted beyond 1650 at the latest. Moreover, there are instances of vessels of *Nocona Plain* (the characteristic Henrietta Focus pottery) having been found in Titus Focus graves, providing a check on the contemporaneity of these two foci. We have also seen that the so-called Paint Creek culture of central Kansas coexisted with Henrietta and the Fulton Aspect, for it too may be dated with Puebloan sherds falling between 1525 and 1650. Com-

[5]Quimby, George I., Jr., *The Natchezan Culture Type.*
[6]Ford and Willey, *op. cit.* (The spelling here is Placquemine).
[7]Quimby, *op. cit.*

parisons between Henrietta and Paint Creek revealed many similarities as well as important differences (pp. 150–153). Further, the protohistoric Pawnee of Lower Loup Focus in Nebraska, may be generally equated in time with Paint Creek and hence with Henrietta. The Coronado references to "Harahey" and archaeology together indicate that "the Pawnee were firmly established in the Platte and Republican valleys by the opening of the sixteenth century, and quite possibly long before that time."[8]

Ford and Willey, in their several charts illustrating cultural alignment in the eastern states,[9] have drawn a line between Temple Mound I and Temple Mound II which seems to be at about 1550 in some figures, 1600 in others. Referring especially to their Figure 2, I offer to suggest that this line is drawn at least one century too late. This judgment is based on chronology west of the Mississippi and not necessarily applicable to Temple Mound II throughout the east; however, this line is horizontal (unlike their Burial Mound horizons, which favor the lower Mississippi cultures in time) and it is suggested as a thesis to be investigated that the beginning of Temple Mound II should be set back to about 1400 or 1450 A.D. as a general guide. Local considerations may, of course, alter its applicability.

Turning to the earlier horizon in Texas and the "Caddo area," this may be generally equated with Temple Mound I. That Southern Cult elements appear in this period, rather than in Temple Mound II as in cultures east of the Mississippi basin, indicates that some factor not well understood partially disrupts such an alignment. In this horizon, as in Temple Mound II, some temporal distinctions between the various cultures occur and they are not to be thought of as all strictly contemporaneous; however, we can be reasonably sure that all overlapped in time of existence. We have shown, for example, that Antelope Creek Focus in the Texas Panhandle can rather certainly be dated at about 1300 to 1450 A.D. Upper Republican probably overlapped this in time, but may also have been in existence for an appreciable time (perhaps to be measured in centuries) before 1300. Both Upper Republican and Nebraska Aspects have revealed slight influences of the Southern Cult movement (see pp. 58–59), and the houses of these cultures were closely similar to those of Spiro Focus. Sanders Focus also reveals engraved gorgets and "dippers" referrable to the "Cult" material. Haley Focus, although stratigraphically underlying Texarkana Focus in the Hatchel and Crenshaw mounds, lacks evidence of the Southern Cult and may prove to have been slightly later than the Spiro Middle Component. Alto and Gahagan, on the other hand, may have taken form at a substantially earlier time than Haley, Spiro, and Sanders Foci.[10]

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[8]Wedel, W. R., *An Introduction to Pawnee Archaeology*, p. 96.

[9]Ford and Willey, *op. cit.*, figs. 2-6.

[10]The reasons will be discussed in the publication on the Davis site, Cherokee County, Texas. Briefly, the position here of the Alto Focus is a profound puzzle, since we have associated with beautifully polished and engraved bowls and bottles a series of sand-tempered sherds suggestive of *Alexander Incised* and *O'Neal Plain* in the Pickwick Basin, and other trade sherds including incised and rocker-stamped which may belong to Marksville and Troyville types. Much of the resident pottery is comparable to *Coles Creek Incised* but there is only one definite trade piece actually of this type. The Coles Creek culture had a peculiar distribution and is not known in eastern Texas at all.

Some connection in time between Coles Creek and Spiro is seen in the occurrence of vessels of *French Fork Incised, Coles Creek Incised,* and *Chase Incised* in the Spiro Early Component.[11] The great graves under the Crenshaw mounds in southwest Arkansas[12] contained pottery of Troyville and Coles Creek types, while later graves in the same mounds, dug through the earlier ones, contained Haley Focus pottery; however, the burial method was the same in both cases. This consisted of the aforementioned very large rectangular pits with several skeletons placed neatly parallel in a row, with offerings piled about the walls. Sherds probably of Coles Creek types are also found in Haley Focus components, including that at the Hatchel Mound. We may tentatively conclude that the Coles Creek period in Louisiana was contemporaneous with Spiro and Haley (and by inference with Sanders). Coles Creek pottery does not appear in association with any focus of Fulton Aspect. However, statements on Coles Creek will remain precarious until this culture (or period) has been fully defined. The terms "Early" and "Late" Coles Creek have come into the literature without explanation of how they are to be determined, and we need especially to know what Coles Creek represents in terms of transition from the Troyville period on the one hand, and into Plaquemine on the other.[13]

As to the possible time at which the cultures of this earlier horizon first took form, one may only guess at present. So far, with the exception of Antelope Creek Focus in the Texas Panhandle, no Puebloan trade sherds have been found to aid in dating. All indications are that previous to the 15th century Puebloan trade or influences did not extend much farther east than the eastern New Mexico-Texas border—but during this century they for some reason began to be felt for hundreds of miles to the east, finally reaching almost to Louisiana. Conversely, the western frontier cultures of the Southeastern province, as seen in Sanders and Spiro material, seem not to have engaged in trade with peoples any great distance to the west, or otherwise influenced them. The Red River Valley, however, provided a natural east-west artery for trade or other movements between Southwest and Southeast. Doubtlessly significant discoveries are yet to be made in northern Texas and Oklahoma, and sites may be found in which trade sherds from both east and west will help to date the earlier of these two horizons more accurately.

For the present, the general richness of Gibson Aspect and Coles Creek material indicates that the period in which they fall was not of brief duration.

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[11]Orr, Kenneth G., *The Archaeological Situation at Spiro, Oklahoma: A Preliminary Report*, fig. 32 *a, d.* Howard, Lynn E., *Preliminary Report on Cherokee County, Oklahoma, Archaeology*, pl. 1, illustrates a bowl which appears to be *French Fork Incised.*

[12]Lemley, H. J., *Discoveries Indicating a Pre-Caddo Culture on Red River in Arkansas.*

[13]The only outline of Coles Creek to date was given by J. A. Ford in 1936 in his *Analysis of Indian Village Site Collections from Louisiana and Mississippi.* This analysis was almost entirely ceramic. In 1941 Ford and Willey (*op. cit.*, pp. 345-348, 352) incorporated the Coles Creek material into their correlations and stated that this period in Louisiana "probably lasted until the middle of the sixteenth century, and developed into the historic groups of that region. . . ." George I. Quimby, Jr., has informed me in correspondence that these observations were made before the extent of the Plaquemine period was recognized, and therefore the transitions from Coles Creek to Plaquemine may have taken place before (or by) De Soto's time. Should this prove to be the case, Coles Creek may have reached its most characteristic development during the 15th century.

The Troyville period, which initiated the Temple Mound I stage in the lower Mississippi Valley, was estimated by Ford and Willey[14] to have begun at about 1150 A.D. If this were true, we could suppose that Troyville existed some 150 years or until about 1300 A.D., and Coles Creek another 150 years, up to about 1450. It seems impossible to postulate any later beginning dates for these two periods, and my feeling (incapable of proof) is that these estimates are somewhat too conservative. I think that Coles Creek, including its "Early" and "Late" phases, represents no less time than the 300 years that the Fulton Aspect horizon endured, which would place its beginning back to about 1150 A.D. Troyville would then fall somewhere between 1000 and 1150 A.D., and Marksville before that. Whether the Troyville date applies to the beginning of "Early Middle Mississippi" or Temple Mound I as a whole is most difficult to say.

In the central Plains, the Upper Republican and Nebraska Aspects may be correlated with these estimates. That is, "Mississippian" influences have been noted in these Aspects[15] and may have been felt in eastern Nebraska from at least as early as 1300 A.D. onward.

All of this is vastly complicated by a general belief that the "Mississippi Pattern" or the Temple Mound stage represents something which appeared suddenly throughout the eastern states. Evidence is gathering that, despite the entrance of many new institutions which mark this horizon, there was also considerable continuity of growth from the Burial Mound cultures. In another paper,[16] certain possibilities for continuity in ceremonial concepts from Hopewellian culture into the "Southeastern ceremonial complex" or "Southern Cult" have been discussed. Almost simultaneously, Webb and Snow[17] issued a complete analysis of Adena culture which is of tremendous interest and importance. Their conclusions, based upon far greater personal knowledge of the original materials, point to a similar circumstance, and are much more comprehensive in that Adena and Copena were combined with Hopewell in their studies. They state:

> The gap between Hopewellian and late Middle Mississippi ceremonials may be wide, but it certainly has been growing less and less as a result of excavation in the last decade. . . .
>
> How far extended and how potent Adena influences by way of Hopewell and Copena may have been on later peoples of Middle Mississippi times in the Southeastern United States, particularly the possessors of the ceremonial cult complex so well described recently by Waring and Holder, cannot in the present state of our knowledge or lack of knowledge be evaluated. One may be tempted to wonder if Adena influence may not have been far greater than heretofore suspected. It should be remembered that at Spiro, the great wealth of ceremonial material came from a series of vaults having log roofs all in a conical earth mound. . . .

These authors list seven elements, among them concepts of the raptorial bird, serpent, and hand-eye design, which are striking features of the "South-

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[14]Ford and Willey, *op. cit.*, fig. 2.
[15]Wedel, W. R., *Culture Sequence in the Central Great Plains*, pp. 318-321.
[16]Krieger, Alex D., *op. cit.*, pp. 503-507.
[17]Webb, William S., and Charles E. Snow, *The Adena People*, pp. 338-343.

ern Cult" and appear in Hopewellian and/or Adena. The common occurrence of "Copena points" (stemless blades with recurved edges) in the Alto, Gahagan, Haley, and Spiro Foci is also of considerable interest in this respect. Copper masks and hands from Gahagan burials suggest that there was a ceremonial connection with Hopewell rather than with the "Southern Cult." The great rectangular graves with extended skeletons in a row and offerings about the walls, do not suggest "Mississippian" burials at all, but rather Hopewellian. Construction of conical burial mounds, use of pearls, and cylindrical jars with square bases, also found in most foci of Gibson Aspect, provide further examples of culture elements continued from Burial Mound times.

Considerations such as these indicate the futility of attempting at this time to set even an approximate date for the "beginning" of the Temple Mound I horizon as a whole. A score of factors enter, and cultures are not to be moved about like chessmen. The suggestion that 1200–1300 A.D. is a reasonable "beginning date" for Coles Creek and the Gibson Aspect foci Spiro, Haley, and Sanders will probably apply to much of Temple Mound I or "Early Middle Mississippi" in the eastern states. In the case of the Troyville period in Louisiana, and the Alto and Gahagan Foci of Gibson Aspect this estimate may prove too conservative, and something like 1000–1100 A.D. probably closer to the truth. My purpose is not to attempt any settlement, but merely to point out that a certain amount of helpful information has been gained from Puebloan datings through northern Texas and the "Caddo" area, and it may be supposed that the results have wider significance in eastern chronology.[18] More such evidence should be forthcoming with careful searching. A word on the Southwestern side: is it not possible that eastern sherds, however few, have been found (but not recognized) or will be found in datable associations there?

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[18]I cannot help but feel that such a chronological table as that given recently by Jennings (Jennings, Jesse D., *The Archaeological Survey of the Natchez Trace*, Table I) constricts Southeastern dates far too greatly. He places Tchefuncte at 1200, Troyville 1500, Coles Creek 1600, and Natchez 1700. This is to say that the entire history of pottery-bearing cultures in Louisiana covered but five hundred years! One need only to trace the intricacies of culture development in the eastern states as outlined by Ford and Willey (*op. cit.*) to realize that the problems are fully comparable to those of the Southwest in the scope of developments, and the time which might logically be allowed for them. At any rate, until some reason is given for such extreme constriction of dates, one may suspect that Jennings' five hundred years could well be doubled.

General Conclusions

PROCEEDING FROM WEST to east across the northern half of Texas, a series of pottery-bearing cultures whose economic basis lay in agriculture combined with hunting has been described. In each case we dealt first with the principal excavations from which important information has been gained, then made a survey of sites and collections yielding closely related materials, drew up a tentative list of traits for a culture unit (focus), cited evidence for dating it, and finally drew comparisons with other culture complexes in order to determine (so far as feasible) the direction and strength of influences on the culture.

This procedure was not held to uniformly, for conditions of collection, nature of materials, and the length to which interpretations could be carried varied with circumstances. Documentation has been far from complete, and—primarily for lack of specific information—many questions have not been adequately answered. However, the total result, while unsatisfying in some ways, should provide future workers with many concrete problems to be investigated and improved upon.

We will first review the principal results of each sectional study, then outline certain major results following from the whole conceptual scheme set forth. As each of the foregoing sections contains interpretations and summary, only the more important conclusions will be summarized here.

The first area investigated was the northern Panhandle of Texas. Here we found a most interesting situation regarding masonry structures in the narrow corridor of the Canadian Valley. After reviewing and drawing together various sources of information, an Antelope Creek Focus was defined and related materials traced through other parts of the Panhandle, principally on its eastern side, and in northeastern New Mexico, southeastern Colorado, and the Oklahoma Panhandle. A southern and western boundary for cord-marked utility pottery with various associated Plains artifacts was drawn (Map 1) and the term Panhandle Aspect proposed to include these remains; it was suggested that other foci in addition to Antelope Creek would be defined in the southern High Plains region. Comparisons were then made in the artifacts of Antelope Creek Focus, Upper Republican Aspect in the central Plains, and Pecos Pueblo in New Mexico, followed by a brief survey of Southwestern architecture made in order to discover the possible origins of Panhandle masonry. The principal results were that Antelope Creek Focus was a Plains culture rather closely akin to Upper Republican in economic life based jointly on maize agriculture and hunting of bison, etc., and in many of the bone and flint implements used; that its architecture, on the other

hand, showed certain resemblances to that of north-central New Mexico in Pueblo III times (Largo-Gallina Phase) and Early Pueblo IV times (northern Rio Grande and Jemez area). This circumstance, together with occasional appearance of Puebloan trade sherds datable at *circa* 1300 to 1450 A.D., in Antelope Creek components, indicated that the latter existed during that period and possibly for a time before trade contacts began. The similarities with Upper Republican, combined with certain lines of reasoning about the age of Upper Republican by Plains archaeologists, made it seem that Antelope Creek Focus was at least partly contemporaneous with this culture. Upper Republican may, however, have been in existence for some time previously, enjoying a longer life than Antelope Creek. The latter seems to have been not only geographically intermediate between Upper Republican and eastern Puebloan cultures, but also to have been a cultural agent through which typical Plains traits reached Pecos Pueblo in early Glaze periods. It was also shown that the Canadian Valley of Texas was abandoned by this agricultural population at about 1450, that there are reasons to believe a protracted drought caused or contributed to this abandonment, and that the Panhandle was inhabited only by nomadic bison hunters, probably Apache, by the time of Coronado's entrada.

Following this, a survey was made of the barren high plain in Texas which is part of the Llano Estacado. It was shown that considerable parts of this plain are suitable, under present conditions, for pursuit of native agriculture because of large tracts of sand hills which retain moisture and support shin-oak growths or a tall-grass vegetation. The archaeological remains found in association with pottery show little resemblance to those of Antelope Creek Focus and are much more like peripheral Puebloan materials in southeastern New Mexico. No pottery occurs in the Llano Estacado which is not of well recognized Puebloan types: Chupadero Black-on-White, El Paso Polychrome, Lincoln Black-on-Red, and glaze-paints. The date of these remains is uncertain for these potteries were made over a rather long period, but actual occupation of this plain by Puebloans during the 15th century (if not before) is strongly indicated. At this time, Mera has shown that widespread disruptions took place among Puebloans of eastern New Mexico, probably due to inroads of warlike tribes, and it may be that refugee Puebloans were forced to take up life farther east. The eastward distribution of Puebloan pottery in quantity corresponds in general to the eastern escarpment of the Llano Estacado; the "break of the Plains" may be said to mark an eastern boundary to Puebloan culture as a whole (Map 1). Beyond this escarpment Puebloan trade sherds occur sporadically for a great distance across Texas but do not suggest any actual occupation by these peoples, or peoples heavily influenced by Puebloan culture. It may also be noted that east of the Puebloan boundary in Texas, Chupadero trade pottery is not accompanied by El Paso Polychrome, whereas to the west of it the two types usually occur together.

Still farther south, a brief survey showed similarly strong Puebloan influence or actual occupation reaching into Texas beyond the corner of New

Mexico, and southward into Trans-Pecos Texas as far as Presidio on the Rio Grande. Exclusive of the Rio Grande Valley, Puebloan remains in Texas are found in caves, on sandhill tracts, about springs and temporary lakes, etc., but are not accompanied by any known Puebloan buildings. So far as may be said at present, all Puebloan materials in Texas east of the Rio Grande fall into an early Pueblo IV period.

Following the studies in the Panhandle and western plains of Texas, attention was shifted to the well-watered and wooded prairies of north-central Texas east of the Llano Estacado. In this region, discussions began with a description of WPA-The University of Texas excavations in the M. D. Harrell site. This important site at the confluence of Brazos River and Clear Fork forms a basis for the establishment of Henrietta Focus, decidedly a Plains culture, but also revealing certain limited influences from the Puebloan Southwest and from the "Caddo area" to the east. Artifacts, including shell-tempered plain pottery, burials, and stone-lined hearths were found in a large midden, and most of the artifact types extended downward to a depth of ten feet in compact red clay underlying the midden. The whole site had accumulated while the present third terrace of the Brazos was still being incremented by periodic overflow, and had continued to accumulate when overflows no longer reached the third terrace top. We also noted that at the Harrell site flint dart points and hearths lined with limestone slabs, highly characteristic of the non-pottery "Edwards Plateau culture" (which probably includes Ray's Clear Fork Culture in the Abilene region) were found in the same levels as shell-tempered pottery and other Henrietta Focus material. The focus thus seems to have derived a few traits from a somewhat older central Texas culture horizon.[19]

[19]It may come as a surprise to many archaeologists that the Clear Fork Culture, discovered and described in many papers by Dr. Cyrus N. Ray of Abilene, Texas, can be said to have continued in existence until as late as the time of Henrietta Focus, or until about 1450 A.D. This matter is somewhat beside the problems of this paper and is discussed but briefly on p. 117. Recent excavations by the WPA-University of Texas in central Texas have provided a great deal of data not yet available to Dr. Ray and which helps to clarify the age of Clear Fork Culture. The rate of accumulation of alluvial deposits in which artifacts of this culture are sometimes found is an all-important consideration. Thus, in the case of the Harrell site, Henrietta Focus artifacts, including shell-tempered pottery, had become buried in alluvium to depths of eight feet during a time perhaps not exceeding two centuries. Other things being equal, alluvium would have accumulated more rapidly at greater depths below the present surface, due to more frequent (perhaps annual) overflow, and less rapidly as the alluvial fills grew higher. Hearths and artifacts found at depths as great as 30 feet in the stream banks of central Texas would not *require* an explanation in terms of more than a few centuries under certain conditions of alluviation. This is not to say that some of these remains may not be quite old if conditions were otherwise in the past. It means, though, that thorough study of all the factors involved will be necessary before we will know the approximate age of cultural remains in this area. Many of the typical Clear Fork dart points, on the other hand, have been found elsewhere in Texas where they can be dated with some accuracy, and in these cases they fall within the few centuries preceding our projected date for Henrietta Focus. Thus they occur in association with sand-tempered pottery under and in the flat-topped mound at the Davis site in Cherokee County, central east Texas, where their age is roughly that of the Marksville period in the lower Mississippi region or possibly about 1000 A.D. At the opposite end of the state, they occur in caves of the Big Bend Aspect in association with Pecos River Focus material which may be dated at about 700 to 800 A.D. This was pointed out by Kelley, Campbell, and Lehmer in *The Association of Archaeological Materials with Geological Deposits in the Big Bend Region of Texas*, esp. pp. 145-146. The reader interested in the Clear Fork Culture is urged to read the valuable discussion of the whole correlation problem involving central Texas and relatively well dated cultures in west Texas which these authors present, pp. 133-163. More studies of this sort will eventually take much of the guess-work out of dating our older cultures.

A survey of north-central Texas, including Lake Buchanan basin on the Colorado, the Abilene region, upper Brazos basin, upper Red River basin (on the Texas side), and tributaries of Trinity River north of Dallas, revealed the occurrence of Henrietta Focus traits in hundreds of small sites in sandy tracts and along small streams. Excavations by Witte at the mouth of Little Wichita River (a branch of the Red) yielded pottery, flint, and bone artifacts closely similar to the Harrell site, plus a few elements not found to the south. Considering all these materials, a tentative list of Henrietta Focus traits was assembled, and it was pointed out that future research may result in recognition of two foci, one centered in the upper Brazos Valley, the other centered in the upper Red. A few Puebloan trade sherds found in each subarea indicate approximately the same dates, namely, the latter half of the 15th and early 16th century. It is therefore believed that Henrietta Focus was in existence at least by 1450, and since it is not known to have extended into association with European trade material, it is probable but not proved that it did not continue long after 1600. It has already been mentioned that a Puebloan frontier was evidently attained farther west during the 15th century. Henrietta Focus trade sherds are of the same types found in quantity west of this frontier, and it is thought that western trade contacts of this focus were established at about the time that Puebloans were farming in the sandhills and shinnery tracts of the Llano Estacado. Probably at this time too (if not earlier) a typically Puebloan method of corn grinding consisting of a shaped, rectangular mano used on a flat rectangular metate with back-and-forth motion, was adopted by Henrietta Focus peoples. A Puebloan origin for this implement is strongly indicated by (1) a continuous distribution of such manos and metates from New Mexico to the eastern boundary of Henrietta Focus near present Dallas (but no farther east); (2) an obvious contrast between this implement and the common unshaped slab with oval basin in which an oval mano or stream pebble was used with rotary motion—the latter practically universal in Texas and used along with back-and-forth grinding (but in a lesser capacity) in Henrietta Focus; and (3) general agreement in date with early Pueblo IV times in the Southwest, when a flat metate had replaced the troughed form over large areas. This focus thus presents a combination of Plains economy based on bone-hoe agriculture and hunting, and a grinding technique probably borrowed from Puebloans not far west.

Attention was then turned to documentary records in an effort to determine the possible ethnic affiliations of Henrietta Focus to known Plains tribes. It was concluded that their identity is unknown because (1) the culture cannot be satisfactorily connected with that of Wichita tribes, the only typical Plains agriculturalists known in historic times in Texas; (2) previous to about 1700, early maps and records place the Paniassa or Wichita proper in the central Plains from the Arkansas to Missouri River in the same general territory as their linguistic relatives, the Pawnee, but we can find no definite record of any Wichita-speaking tribe as far south as the Red; (3) in the middle 18th century, when they became well known to Europeans, the

Wichita-speaking Taovayas, Yscanis, and Tawakoni inhabited the Red and Brazos valleys of north Texas; (4) the archaeological remains which can be associated with these 18th century Wichita groups in Texas differ in specific details from those of Henrietta Focus, as may be seen by comparing the latter with remains from Spanish Fort, an historic Taovayas Wichita site on Red River; and (5) the so-called Paint Creek culture of central Kansas, which Wedel has shown to be dated in whole or in part by glaze-paint trade sherds made between about 1525 and 1650, almost beyond doubt represents the Wichita "Quivirans" found by Coronado, and it too differs from Henrietta in about the same degree as does Spanish Fort. In other words, prehistoric Wichita may be traced archaeologically in central Kansas, but not in north Texas; and documentary records agree in that Wichita do not appear in Texas until after 1700, when an historic culture differing from the prehistoric Henrietta Focus can be associated with them.

We must be careful to note, however, that all these late prehistoric and early historic Plains groups had much in common—their general economy, wide use of many artifacts of bone and antler, flint knives, scrapers, drills, stone pipes, shell ornaments, etc. It is therefore possible to point out traits in common between, say, Henrietta and Paint Creek, Spanish Fort and Pawnee, or Antelope Creek and Henrietta. What we are looking for, I think, is the specialized traits which serve to distinguish the archaeological cultures from one another, and which may serve to relate these to known historic tribes. There is little question that archaeologists in the central Plains have done this successfully and have shown that Pawnee and Wichita (to name but two examples) can be identified through certain specific combinations of archaeological traits. In the central Plains, older remains such as those of Upper Republican and Nebraska Aspects, occur in the same general region but cannot be said positively to have belonged to the ancestors of the known historic tribes. Much the same circumstance arises in north Texas. Here the Henrietta Focus bears many generalized Plains traits and some which belong specifically to this culture alone, but it cannot be said in our present knowledge that it is directly ancestral to Wichita or any other known Plains agricultural population; it may have been, but only more data will reveal such continuity in development as may have led from one complex to another.

Meanwhile, Henrietta Focus is believed to have stood somewhat closer to Upper Republican and Nebraska Aspects than to Paint Creek, Pawnee (Lower Loup Focus), and historic Plains tribes. This applies to many of the bone artifacts, size and location of villages, and taking of fish, the pottery being totally different and very similar to that of Paint Creek. However, Henrietta was almost certainly appreciably later than Upper Republican, being closer in time to Paint Creek and protohistoric Pawnee. The time may not be far off when we can get sufficient chronological perspective to state rather surely that these cultures of the central and southern Plains stood in such and such relationship, that specific traits were diffused in certain directions, and the time and rate at which they spread.

Finally, it was noted that, archaeologically speaking, there were almost no similarities between central and southern Plains artifacts and the great "Caddo area"—i.e., the forest lands of eastern Oklahoma, western Arkansas, northwestern Louisiana, and northeast Texas where dwelt the tribes known as "Caddo proper" in distinction to Plains Caddo. It is true that on the margins facing the open Plains, in Oklahoma and Texas, there appears to have been some common possession of material traits by these linguistic relatives, but considering their proximity and contemporaneity, one is more impressed by their lack of agreement. There is as great disparity between archaeological cultures of the "Caddo area" and Plains as between the Puebloan Southwest and Plains, if not more. In both cases, strong social barriers to culture borrowing are indicated. Archaeology may here provide food for thought for the social anthropologist: historical studies show two contemporaneous and adjacent cultural blocks, one based on agriculture supplemented by hunting of a roving animal (bison), the other dependent almost wholly on agriculture; despite evidence of trade relations between them, there seems to have been almost no culture borrowing.

Brief reference was then made to the Austin Focus, covering a wide territory in central Texas and apparently representing protohistoric and historic Tonkawan tribes. Here we noted a few traits such as beveled flint knives, snub-nosed scrapers of a crude form, flint awls or drills with unshaped bases, and notched bone "rasps," all of which may point toward the Plains for their origin. The pottery, projectile points, and trade objects, however, rather definitely do not point that way. Instead, some affiliation with Jumano, Coahuiltecan, and Hasinai Caddo is apparent, these peoples forming a block of late cultures in the southern half of Texas which contrasts strongly with the Puebloan- and Plains-influenced northern half. The line of x's drawn on Map 1 is intended to bring out this contrast between north and south in Texas. It will be noted that this line runs diagonally, more or less conforming to the difference between open plains with numerous bison herds, and broken, hilly, brush-covered lands to the south. It is true that Tonkawan tribes possessed many Plains features in historic times, such as tailored skin clothing, leggings, moccasins, bison-horn headdresses, the lance, shield, etc., but to judge from archaeological evidence alone, these peoples were not greatly affected by Plains influences until historic times. Linguistically as well as archaeologically, their affiliations appear to have lain more to the south with peoples of the Gulf coast plains. On the other hand, their remains appear to overlap those of Henrietta Focus in the southern part of the latter's territory and it is possible that some continuity of development will be traced from the Plains Henrietta Focus to historic Tonkawan culture.

At this point we took up a strikingly different phase of archaeology in Texas and adjacent states on the east. This deals with the "Caddo area," in which most archaeological materials belong to what is generally called the "Mississippi Pattern" in the Eastern United States. That part of the Pattern which applies to the "Caddo area" may also be said to form the western extremes of the Southeastern culture province. Sanders Focus is an archaeological

complex representing a culture on the western frontier of the Southeastern area, and as such occupies a very strategic position in respect to the meeting of Mississippian and Plains cultures, as well as in projection of Southwestern datings toward the Mississippi Valley cultures. Sanders Focus is one of twelve or more foci which can be recognized in the "Caddo area" as a whole, and the only one treated at length is this study; the others were discussed in summary here for the detailed information is to be presented in another work.

The description of Sanders Focus is based primarily upon a single site on the T. M. Sanders farm near Red River in Lamar County, Texas. Other components are found in a narrow north-south belt along the "Mississippian" frontier in Texas, and at least one in Oklahoma. At the Sanders site two so-called mounds and a midden area between them were excavated in 1931. The "mounds" appear, however, to have been natural knolls capped by two to four feet of midden accumulation. Twenty-one graves containing 60 individuals were found in the top and eastern slope of "mound 1," and a few incomplete post-hole patterns found in both "mounds." There was some evidence of physical stratigraphy, but artifacts were not recorded in regard to this; however, the artifacts found in situ in graves were of very different character from those recovered from the surface of the entire site. That the site contained cultural stratification is made quite clear by the fact that the surface materials can be readily assigned to several distinct archaeological complexes in northern Texas, whereas the grave complex shows affiliations with another set of complexes, and its traits do not mix elsewhere with those of the Sanders surface cultures.

It is the Sanders site graves that provide the main basis for the focus; miscellaneous midden remains from below the surface also supplement the record to some extent. Beginning with the graves, it was found that the bodies were all extended, nearly all with head to east, and up to eight bodies were buried in a grave. The grave was not enlarged in proportion to the number of bodies, the multiple interments being very crowded. Usually offerings of pottery, pipes, arrow-points, shell beads and gorgets, pearl beads, etc., were placed quite close to the body, but in one or two cases the grave was enlarged at the head and offerings placed against the pit wall at the head end. Ash in several graves indicated a fire ritual of some kind, but the skeletons were not scorched. It was also noted that adults of both sexes, as well as children, were placed in multiple interments; the adults were sometimes of two generations. Strong frontal deformation characterizes all adult skulls.

Artifacts of shell, bone, polished stone, chipped stone, and pottery were described in some detail. Especially noteworthy were those of carved and engraved shell. Four "dippers" of conch shell with columnellae removed were found with adult males, and 21 circular conch-shell gorgets were described, 17 of them from burials of both sexes and all ages, the other four being plowed-up specimens. Some of these gorgets were plain, or had only scalloped edges for decoration, but others a central cross formed by cutting out semicircles, and others had interesting engraved motifs consisting of human face

in full relief, five human heads in profile with diamond-shaped eyes, earspool, and beaded forelock, turkey cocks in fours placed in two different postures with their necks forming the central cross, a single strutting turkey cock, a central cross with feather (?) symbols radiating about the perimeter, and a cut-out cross with engraved diamond-shaped eye (?) symbols in two concentric circles. The only apparent use of copper was in the covering of a pair of reddish sandstone earspools, in green stains on the spire of a conch-shell dipper, and stains about the necks of several bison-scapula hoe blades. The shell gorgets and dippers clearly point to the presence of the widespread Southeastern religious phenomenon known as the "Southern Cult"; the gorget designs, notably those dealing with the human head and turkey, are very much like some of those found at the famous Spiro site (Craig Mound) in east-central Oklahoma. A thin spatulate celt of steatite, though not in a grave, is also probably to be associated with this ceremonial complex.

Sanders Focus pottery, represented by some 80 grave vessels and fragments of several hundred other vessels, presents an interesting and unique complex. Though including a number of different shapes, its decorations are extremely simple, consisting of incised, engraved, and noded elements in various straight-line combinations such as triangles and hachurings. A large proportion is polished but undecorated, a feature of note in the "Caddo area" because all other known complexes include but minute amounts of undecorated pottery, and curvilinear as well as straight-line motifs.

A miscellany of artifacts found in midden trenches and probably to be associated with the grave complex was mentioned, as were a number of post-hole patterns which outlined small rectangular structures with walls on three sides but possibly left open on the fourth.

The varied Sanders surface remains were then listed. It was found that these represent Henrietta Focus to the west, and the Texarkana, Titus, and Frankston Foci of Fulton Aspect in the "Caddo area" to the east and south. Since all these materials were scattered on the site surface and not found beneath it, this locality may have been a favored stopping place for expeditions traveling from the eastern forests into the plains; at least, we have no evidence yet that a resident group occupied this place and traded with the others.

In order to ascertain the probable age of Sanders Focus it was necessary first to consider the problems of dating Fulton Aspect, the later of two general horizons in the "Caddo area." This was accomplished through consideration of which Caddo tribes were met by De Soto's followers in east Texas (probably Hasinai of Frankston Focus; possibly also Caddo of Titus and Belcher Focus); through 15th century dates indicated for Puebloan trade sherds associated with Titus Focus; and the nature of certain ceramic changes in northeast Texas which appear to have been due to Puebloan influence. These matters, combined with the recorded fact that tribes almost undoubtedly Hasinai Caddo were engaged in trade with peoples to the west from whom they obtained cotton blankets and turquoise, in 1542, made it seem extremely probable that Frankston Focus was in existence by 1500 if not before. Titus

Focus, on the basis of Puebloan trade sherds as well as ceramic forms whose closest counterparts appear in the Southwest in about the 15th century, would seem to have been in existence well before 1500, possibly as early as 1400. Cross-intrusions of sherds between Titus, Texarkana, Belcher, Bossier and Frankston suggests that all these (as well as Fort Coffee Focus, recently recognized by Orr in east-central Oklahoma) were coexistent within the same general period. It is very strongly indicated, then, that the whole Fulton Aspect horizon, with its shell-tempered pottery in Texarkana, Belcher, and Fort Coffee Focus can be dated as beginning no later than 1450 A.D. A check on this is seen in the occasional appearance of shell-tempered Henrietta Focus vessels in Titus graves. Glendora Focus, which nearly always contains European articles, stratigraphically overlies the other Fulton foci and may safely be said to represent protohistoric and historic Caddo groups from about 1650 onward almost throughout the four-state "Caddo area."

We then considered the Gibson Aspect, including Sanders, Spiro, Haley, Gahagan, and Alto Focus. Here many non-ceramic traits differ widely from those of Fulton Aspect, being considerably richer and associated with building of burial and temple mounds. In the Fulton horizon there was very little building but mounds erected by Gibson peoples were used for dwellings and burials. In all foci except Alto (for which we have no burials) the Gibson Aspect peoples made both single and multiple interments, whereas in Fulton foci they are almost always single. Ceramic traditions of the two aspects were basically similar; general vessel shapes were common to both (simple bowls, carinated bowls, bottles, jars), and the decorative techniques of engraving, incising, punctating, and fingernail gouging and pinching were likewise common to both. Nonetheless, there were many changes in specific details of vessel form, design motif, surface finish, and temper from one horizon to the other, so that in most cases there is little difficulty in recognizing them (see figs. 18–19). Considering all this, it is debatable whether Gibson Aspect peoples were Caddoan: are we dealing with cultural evolution of Caddoans through two distinct periods, or were the Caddo a new people who entered this territory with what we call Fulton Aspect culture and took over certain Gibson Aspect traits—chiefly their ceramic tradition—and modified them to some extent? The question is much like that posed by Pawnee-Upper Republican relationships. Perhaps physical anthropology is the only concrete way of settling it.

The Sanders Focus was seen to be affiliated with other Gibson Aspect foci in some ways, with Fulton almost not at all, and yet bears features not found in either Gibson or Fulton. It had the socketed bison-scapula hoe blade and polished stone elbow pipe found in Henrietta, Paint Creek, and Fort Coffee Focus, reflecting a slight connection with Plains tribes, and some features of the ceramic complex are remindful of the central Mississippi basin. Moreover, Sanders pottery, according to Orr, occurs in the Late-Middle Component of Spiro Focus, the period in which the "Southern Cult" was on the decline at Spiro. Because of the cultural differences between Gibson and Fulton Aspect in general, and the superimposition of Fulton materials over the

Sanders Focus component at the Sanders site, it is very probable that Spiro, Sanders, and Haley all fall well before the 1450 date which we have postulated for the approximate latest beginning time for the Fulton Aspect cultures. Various other aspects of the chronology, discussed in other sections, support this position. Sanders Focus with its "Southern Cult" complex can therefore be dated at somewhere between 1300 and 1400 A.D.

After setting up this chronology from the Rio Grande to the lower Mississippi Valley region, a number of ceramic resemblances between the "Caddo area" and the Southwest were described. This forms but an introduction to the subject, but presents sufficient evidence, I believe, to indicate that prehistoric contacts between these regions were of sufficient strength to result in a number of modifications in the ceramic traditions in several localities. It was found, for example, that fairly abrupt changes in vessel forms took place at Pecos Pueblo, New Mexico (or in that vicinity) in Glaze III, IV, and V times which are not explicable in known developments in the Southwest. Aside from decorative techniques, shouldered and carinated bowls at Pecos in these periods are close duplicates of those common in Texarkana and Titus Focus. Since it had already been calculated that these Fulton Aspect foci were in existence by 1450 or thereabouts, a very close temporal agreement with Glaze III and IV is apparent. Again, globular small-mouthed ollas appear in Titus Focus and to a lesser degree in Belcher Focus which are quite at variance with any known eastern pottery, and which appear to agree most closely with Upper Gila vessels of about 1400; it is admitted, however, that a thorough search of Southwestern potteries may reveal more specific resemblance elsewhere. We also found a technique of neck-banding and neck-corrugation applied to jars in Frankston, Titus, Texarkana, and perhaps Bossier Focus which is remindful in certain ways (including some jar shapes and use of unit neck-coils) of Mogollon Alma ware and of Basketmaker III–Pueblo I. Since, however, there is considerable disparity in dates in this direction, and neck-corrugation again appears in Early Pueblo IV times in northeastern Arizona, some connection with the latter is more likely. An engraving technique, unique in the Southwest, appears in Early Pueblo IV in northeastern Arizona and may possibly form a correlative borrowing.

Needless to say, each of these matters requires further attention. Each would mean little in itself, but taken together with their general temporal agreements, they form a rather substantial case for relationships between Puebloans and Fulton Aspect Caddo which transcended that of trade alone. In each case, the vessel forms and techniques constitute but a partial modification of traditional methods: Southwestern painting was never adopted by Caddoans, nor, with the possible exception of the engraving mentioned, were the usual decorative techniques of the "Caddo area" adopted in the Southwest. Red filming, incising, pinching, and applique may provide other exceptions, but a thorough study of their history in the Southwest and Eastern States will be needed.

It was concluded that the "Caddoan Root" concept is not tenable on ceramic grounds because of the slight (and perhaps superficial) resemblances between

pottery which may safely be referred to the Caddo proper, and that of Mogollon; and because of a gap of some six or seven centuries in the dates of these cultures according to present reckonings. Such mutual borrowing as may be seen between the Southwest and "Caddo area" seems to have been confined to Pueblo IV times after about 1400 on the one hand and to Fulton Aspect on the other. It is quite possible, of course, that evidence is forthcoming that the Southwest and Southeast were in contact before this time, but so far as I know there is little to show that peoples of Gibson Aspect (or any coexistent eastern culture) were in contact with the Southwest. This is not to deny that there may have been some widespread traits in common between say, eastern Archaic and Basketmaker, and the non-pottery cultures of central Texas, but this is another matter which must be worked out carefully.

The last step was to attempt to draw together all the foregoing arguments into a temporal correlation of culture units. I cannot emphasize too strongly that what has been accomplished is tentative and suggestive; there may be evidence which will refute or change it—if so, so much the better for our ultimate understanding. The pottery-bearing cultures which stretch from eastern Pueblo territory to the Mississippi Valley and from northern Texas to the central Plains (the limits of the present investigation) appear to fall generally into two horizons. No exact point in time divides them. However, during and after the 15th century various new cultural expressions, or marked changes in older patterns, appear to have taken place over a very wide territory. One can only guess at the reasons for this: stimulation due to entrance of new peoples; climatic changes serious enough to have caused displacements and consequent readjustments of agricultural populations; perhaps—as Professor Linton has pointed out in *The Maya and Their Neighbors*—cultivation of new crops which brought about increased population and stimulated cultural activity; the fulfillment of trade contacts between widely separated peoples, possibly leading to greater degrees of cultural borrowing; perhaps various combinations of these factors and still others which may come to mind. It is of utmost importance that studies in physical anthropology be brought to bear on these problems, and that the closest watch be kept for possible recovery of food remains in each culture.

Whatever the reasons may have been, the considerations which have been given to dating in this study show a *general* correlation in time of the later Glaze periods (IV, V, VI, probably also the end of III), protohistoric Pawnee of Lower Loup Focus, protohistoric Wichita of central Kansas Paint Creek culture, Henrietta Focus in north Texas, the entire Fulton Aspect in the "Caddo area," "Late Middle Mississippi" of the central Mississippi basin (including St. Francis area) and perhaps Tennessee-Cumberland as well, Plaquemine and historic Natchez in the lower Mississippi basin. For the most part, the eastern cultures bear shell-tempered pottery and belong to Ford and Willey's Temple Mound II stage. West of the Mississippi, Temple Mound II cultures seem to have been developed during the 15th century, and this may also apply to those east of the Mississippi—but this is a matter requiring much discussion.

On an earlier horizon, there appears a general temporal agreement between early Pueblo IV (including a short Black-on-White period and Glazes I, II, *i.e.,* about 1300 to 1450), Puebloan expansions as far east as the eastern margins of the Llano Estacado and into Trans-Pecos Texas, Antelope Creek Focus in the northern Panhandle, Upper Republican and Nebraska Aspects in the central Plains, Gibson Aspect in the "Caddo area," Coles Creek in the lower Mississippi basin, and possibly some "Early Middle Mississippi" cultures (*e.g.*, Cahokia "Old Village Focus"). The more eastern of these cultures probably belong to the Temple Mound I stage, although there are many difficulties to be explained; the "Southern Cult" material at Spiro thus belongs to Temple Mound I there, but to Temple Mound II east of the Mississippi basin. This tentative correlation is reached by the position, locally, of each of these cultures beneath those listed in the previous paragraph, and by the presence of trade pieces from one to another. In this horizon, however, trade was considerably more restricted and did not pass across the southern Plains, so far as known.

We have, as yet, no means of determining the time at which cultures of the earlier horizon took form, except in the Southwest. There was no general beginning time, but in no case could this have been much later than 1200. If this be accepted as the latest reasonable beginning time for "Early Middle Mississippi" or "Temple Mound I," it must be admitted that in some cases (*e.g.,* Upper Republican, Troyville, Alto and Gahagan Foci) the actual time of cultural patternization must have been considerably earlier; as a guess, these had taken form by 1100 A.D. This would set Burial Mound stages still farther back.

This sums up the principal points made in this paper. A few others of general nature involving the whole scheme follow:

1. Contemporaneity of adjacent cultures is ordinarily reflected in the number and nature of traits they hold in common. I have tried to keep this matter secondary by concentrating on independent reckonings through approximately datable trade sherds and ethnohistorical records. This has borne interesting results in some cases, namely, in the negative aspects of culture borrowing. Thus, when we find Plains peoples existing in proximity to contemporaneous Puebloans or Caddo, there appears to have been social barriers to borrowing or borrowing of a very selective nature. For example, Antelope Creek Focus architecture suggests strong influence from early Pueblo IV peoples of north-central New Mexico, but few if any ceremonial artifacts were acquired, very little pottery, and on the other hand, implements connected with hunting and skin preparation by Plains tribes were made in quantity at Pecos Pueblo. It has been suggested that such a situation may be explicable in terms of Puebloan social structure and occasional intermarriage with peoples of Antelope Creek Focus. Thus, houses were commonly women's property in Pueblo life, while hunting and ceremonial activity were mainly men's prerogatives. Regarding southern Caddo and southern Plains contacts, very little borrowing of any kind is evident from archaeological

remains. Though much depends, of course, on the limitations of preservation which the archaeologist faces on every hand, there is at least some common ground on which social anthropologists and archaeologists may combine their efforts.

2. Agricultural practices were pursued in favorable localities over most of the territory between the Southwest and Southeast during the 15th century if not before and continued until historic times, when horses encouraged greater concentration on the bison. Whether this circumstance aids in understanding the diffusion of agriculture from west to east or *vice versa* is doubtful, for it was known for many centuries on either side before the intermediate gap was bridged. When the gap was bridged, the associated remains are Plains rather than Southwestern or Southeastern, with the bone hoe blade a common implement. Henrietta Focus had, however, adopted a Puebloan method of grinding.

3. Charred corn cobs are the only evidence of cultivated plants so far found in Henrietta, Sanders, and Antelope Creek Focus. Two species of charred beans, as well as corn, have been found in a Texarkana Focus component (E. H. Moores place) in extreme northeast Texas, which places them in a later horizon. Probably not much can be made of this point without fuller positive and negative evidence. It is important to note that all corn cobs found in Texas, whether in the Panhandle ruins, west Texas caves, Henrietta Focus sites, or the "Caddo area," are very small and crooked, usually no larger than one's little finger, and do not resemble the large even-rowed Puebloan cobs. This is a problem for specialists and data on it are being gathered.

4. Eastern archaeologists have, I believe, been slightly too conservative in their estimates of Mississippian or Temple Mound dates. There is no reason to think that those reached here for cultures west of the Mississippi are of uniform application in the Eastern United States—this could hardly be the case as it takes time for cultural influences to spread. The conclusions reached should be of aid, however. The alignment shown in the chart, Figure 26, seems to me to be conservative, and it may be that the dates indicated, especially in the earlier horizon, will be set back somewhat eventually. They can hardly be set forward. The scheme does not help much with earlier eastern culture periods, such as Burial Mound I and II and Archaic, except to set these back somewhat farther than recent estimates have done. Thus something like 800 to 1100 A.D. may be indicated for Burial Mound II, with transitions into Temple Mound I taking place at perhaps 1100, although of course not uniformly throughout the east. There has been a tendency to compact eastern periods so greatly that each represents but two or three generations; this is not only unreasonable in itself but there is now a limited amount of help from the direction of the Southwest to show that major eastern periods were no shorter than those of the Southwest.

5. The "Caddoan Root" concept, involving a hypothetical base from which Plains cultures, those of the southern Caddo territory, and Mogollon in south-

western New Mexico were believed to have evolved, is of no help in determining archaeological relationships in this vast area. These relationships must be much better understood before we will even know what sort of basic culture to look for. The term has lead to much confusion in the expression "Caddoan culture."[20] At one time this appears to apply to the southern Caddo linguistic family, at another to all linguistic relatives within the Caddoan stock; it should be used as little as possible and more specific terms substituted.

6. There is little chronological depth in connection with known Caddoan divisions, and as yet no preference between those of the Plains and Southeastern frontiers in respect to age or time of development. It is impossible to say, for example, that the roots of Pawnee culture are to be found to the south in the lower Mississippi basin or eastern Texas Gulf plain. There is no single archaeological trait to support this, but if it be supported by social and ceremonial traits, linguistics, or mythology that is another matter. Some other factor, such as a very rapid adaptation of the Pawnee to an established Plains material life, might then possibly account for the archaeological disparity. Much the same circumstance holds for the relationships between Upper Republican and Gibson Aspect in the "Caddo area"; it may be argued in each case that the culture was ancestral to that of a later, known Caddoan-speaking division. Even if this proved to be the case, there is as yet no choice between them as to age, and we are in no position to speculate that either was derived from the other. This, of course, does not preclude some amount of borrowing or common possession of traits: witness the strong agreement in houses of Upper Republican Aspect and Spiro Focus.

7. A chronological framework, even if imperfect, is a prerequisite to the establishment of an adequate artifact typology. One needs to know whether different cultural complexes in which similar artifacts occur are historically related before it can be stated with relative certainty that these artifacts are of the same *type*. It is hoped that the present study will provide a basis for the delineation of true types (rather than visually classified groups) in the areas covered.

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[20]*E.g.*, "The suggestive evidence that Caddo was later in central Louisiana than were Coles Creek and Marksville. . . is a splendid contribution to study of Caddo; and receives corroborative evidence in the suggestion *that late Caddoan culture may have extended from the Mississippi Valley westward at least to the Rio Grande.*" (Weer, Paul, *Preliminary Notes on the Caddoan Family*, p. 123) Italics mine. It does not seem possible to speak of a "culture" (not to mention an undefined *Caddoan* culture) extending across this vast territory. The statement is without support in linguistic, ethnic, or archaeological terms.

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Plates 1 to 35

PLATE 1

The Harrell site, Young County, Texas. Type site for Henrietta Focus.

a View of the Brazos River in flood, looking northwest from Excavation 1.

b WPA crew working in Excavation 1; Brazos in distance.

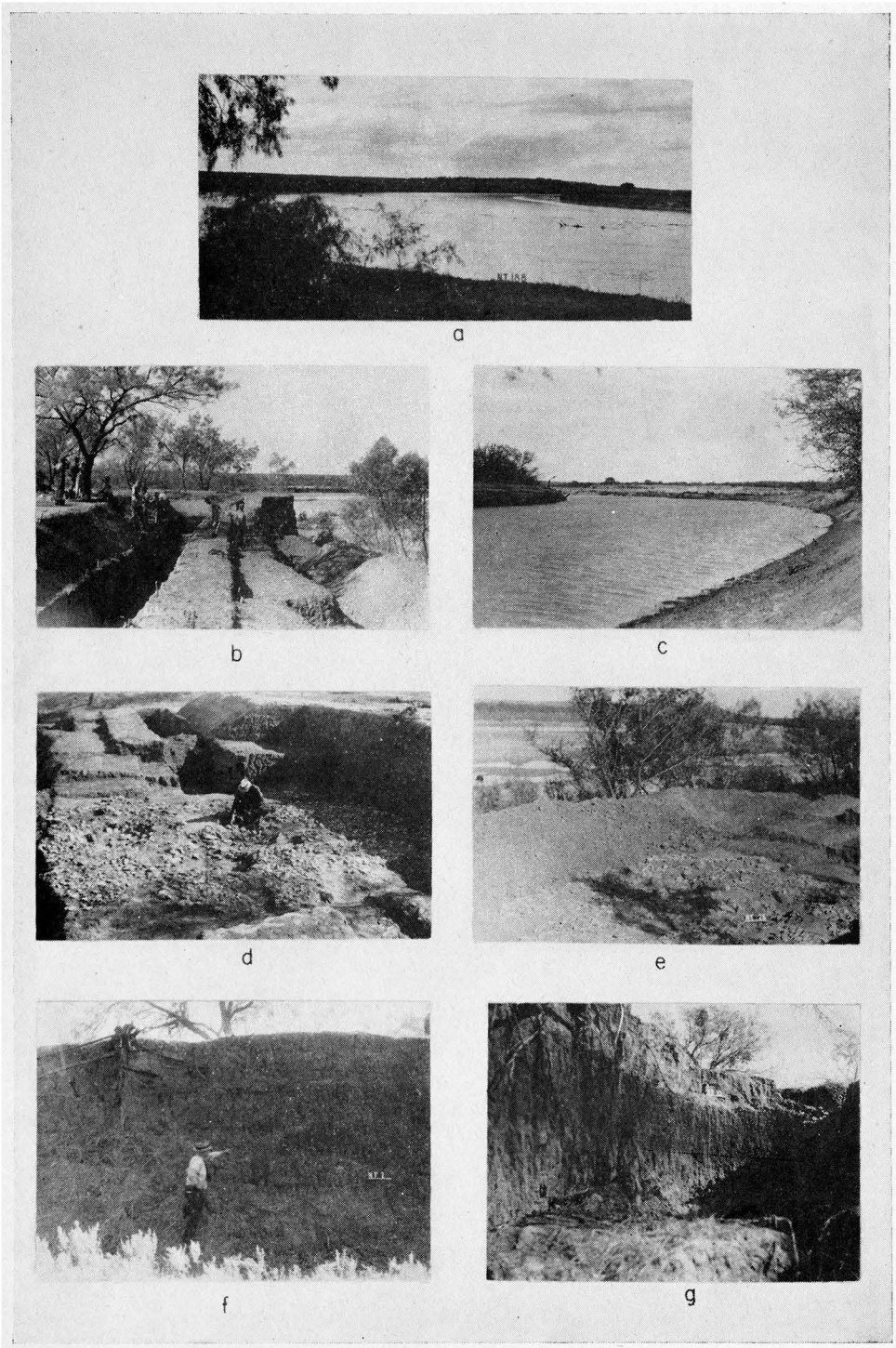
c Clear Fork of Brazos river, looking north toward junction; Harrell site on terrace to right.

d Excavation 1, looking toward east; Brazos down terrace slope to left. Note three basin-shaped, stone-lined hearth pits before kneeling figure. The picture illustrates how burned and discarded hearth rocks accumulate about the pits.

e Excavation 1, looking northeast over the same hearth pits shown in *d*. Brazos River bed in distance.

f Thin line of hearth stones exposed in Brazos River bank before excavation. This is the edge of the hearth area shown in *d* and *e*.

g Erosion gulley in third terrace, dark stratum to left illustrating a buried occupation zone, not excavated.



a

b

c

d

e

f

g

PLATE 2

Burnt-rock hearths at the Harrell site, Young County, Texas, Excavation 3.

a Large hearth, No. 131, showing irregular arrangement over flat area.

b Two superimposed hearth areas (No. 133 over No. 138) with many broken and burned stones over large, flat areas.

c Hearth No. 51, circular, with small broken stones of even size, slight depression in center.

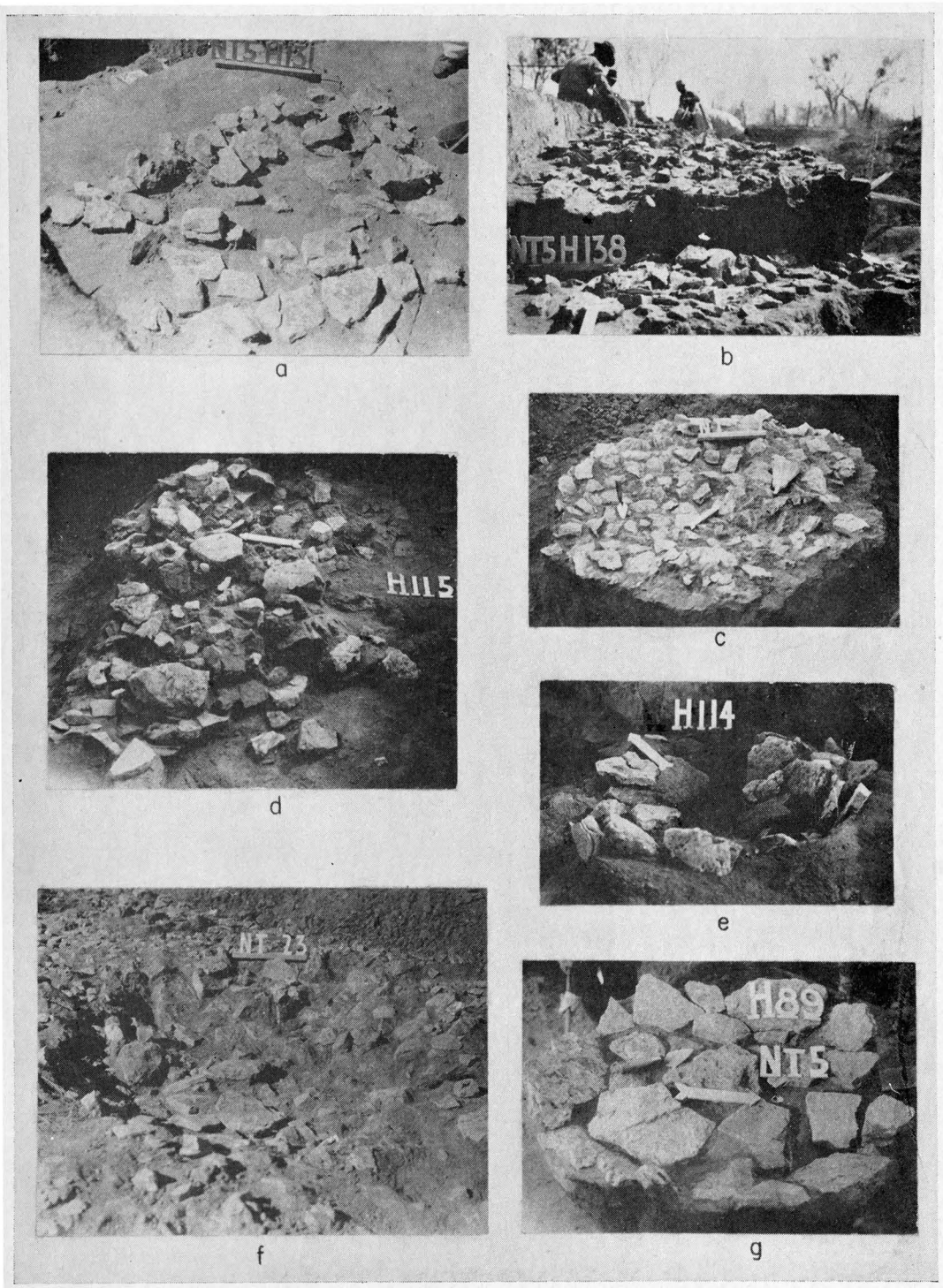
d Hearth No. 115, irregular, with heaped stones of different sizes.

e Hearth No. 114, small, with slabs laid against sides of shallow pit.

f Hearth in edge of cliff, showing large basin with slabs on bottom and sides, and numerous small fragments around perimeter.

g Hearth No. 89, with slabs of approximately equal size laid flat on bottom of pit and tilted upward around sides.

All stones in these hearths are limestone and show exposure to fire. Where fragments are smallest they have been exposed to more prolonged heat.



a b c d e f g

PLATE 3

Burials at the Harrell site, Young County, Texas, Excavation 3.

a Large limestone slabs over Burials 19–24 (group burial).

b Large limestone slabs over Burial 26.

c Burials 19–24 exposed. Note semiflexed position and interlocked knees of two burials at left.

d Burial 26 exposed. Note large slabs on edge at right side, forming part of a crude "box."

e Burial 25 exposed. Note tightly flexed position.

f Large limestone slabs covering Burial 25. Slabs were originally placed on edge around three sides of a "box" and over the top.

g Burial 17, bundle burial. Note long bones laid parallel to skull.

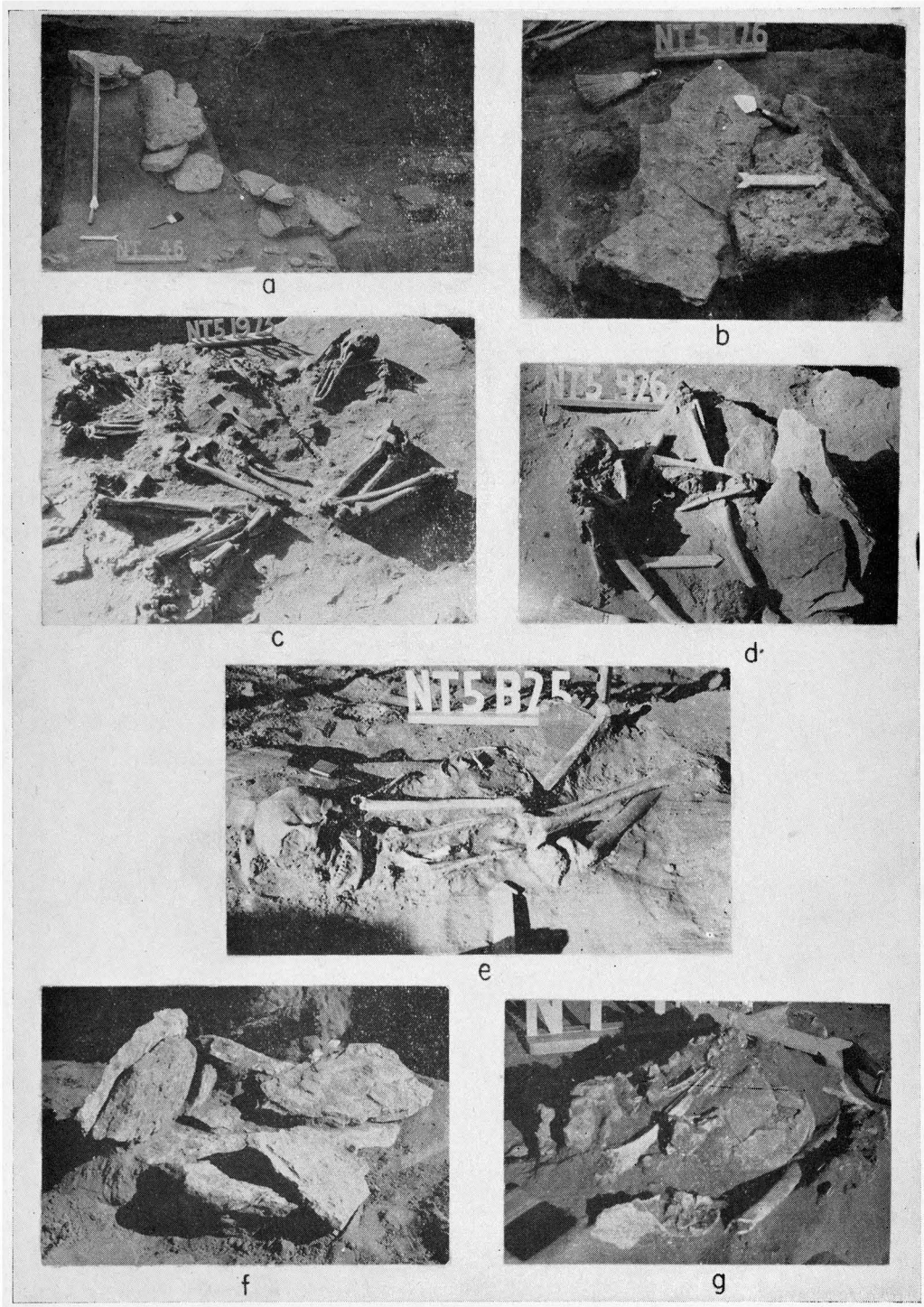

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e
f
g

PLATE 4

Shell-tempered potsherds, type *Nocona Plain*, from Harrell site, Young County, Texas, Excavation 3. This type is diagnostic of Henrietta Focus. All are rim sherds except *h*, *l*. Note use of evenly spaced nodes around base of rim on *b*, *h*, *k*, *l* (*k*, *l* are from same vessel). *f*, *h*, *i* show a fine brushing of the surface, while *b'* shows the rough, bumpy interior characteristic of the type. For profiles see fig. 8. Size ½.

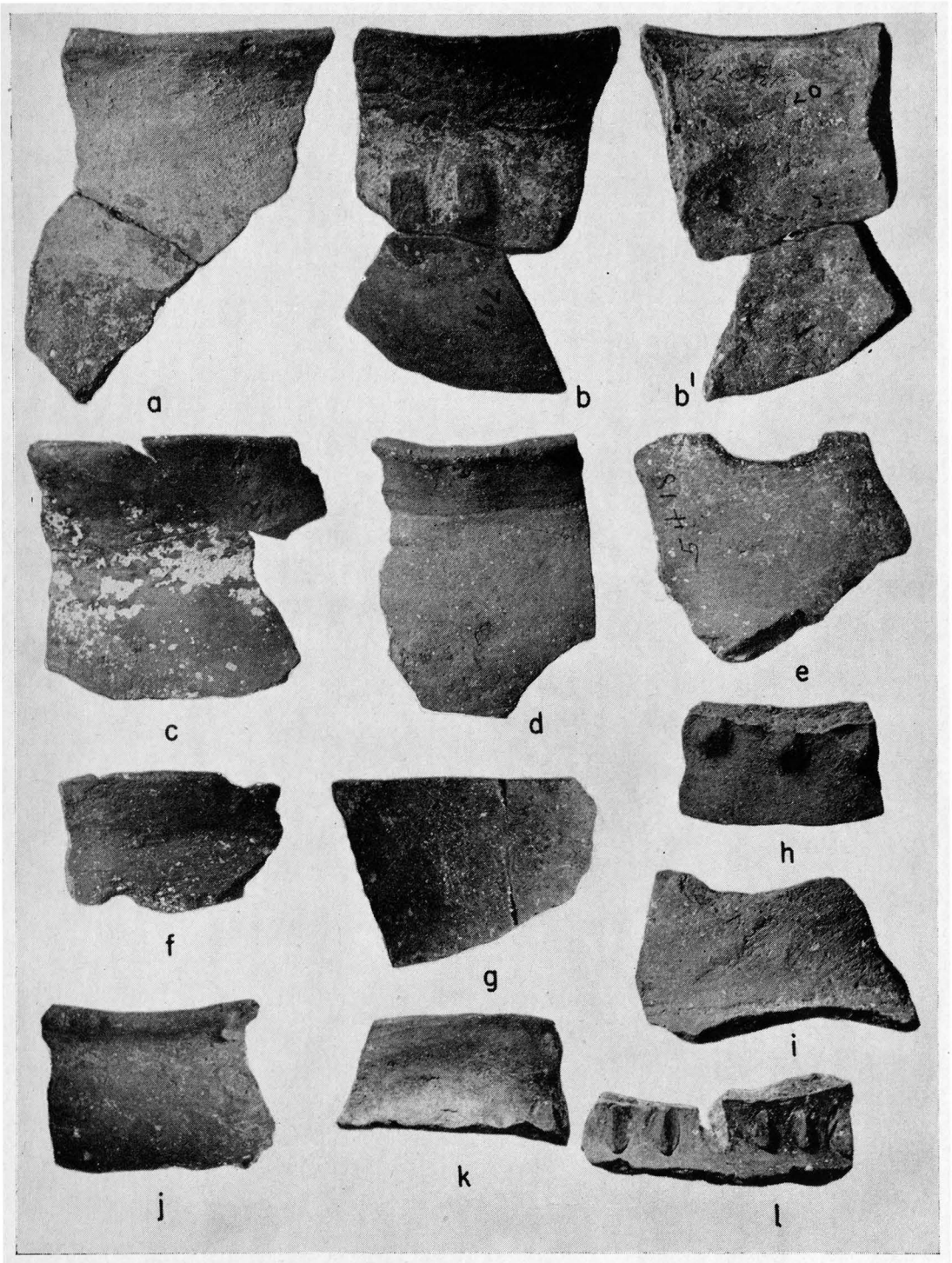

a
b
b'
c
d
e
f
g
h
i
j
k
l

PLATE 5

Vessels of *Nocona Plain* found as trade ware in graves of east-central Oklahoma and Titus Focus, northeast Texas, and miscellaneous pottery from the Harrell site, Young County, Texas.

a Jar with flat extended base from J. B. Kern farm near Poteau, Leflore County, Okla., collected by W. V. Huskey. Cultural association unknown.

b Oval bowl from Kern farm, Leflore County, Okla., collected by W. V. Huskey.

c Deep bowl with applied nodes below lip, from Goss farm, Fannin County, Texas, a Henrietta Focus component near Red River.

d Jar with flat extended base found in a Titus Focus burial on the William Farrar site, Titus County, Texas.

(*a-d* ⅓ actual size. Note abundant tempering of coarse shell flakes.)

e-i Miscellaneous sherds from the Harrell site, Young County, Texas, all shell-tempered and possibly variants of the type *Nocona Plain;* note fingernail punctates, scoring, deep incisions, and impressions of a blunt-nosed tool.

j-k Figurine (?) fragment and part of pottery bead, Harrell site.

(*e-k* about ¾ actual size.)

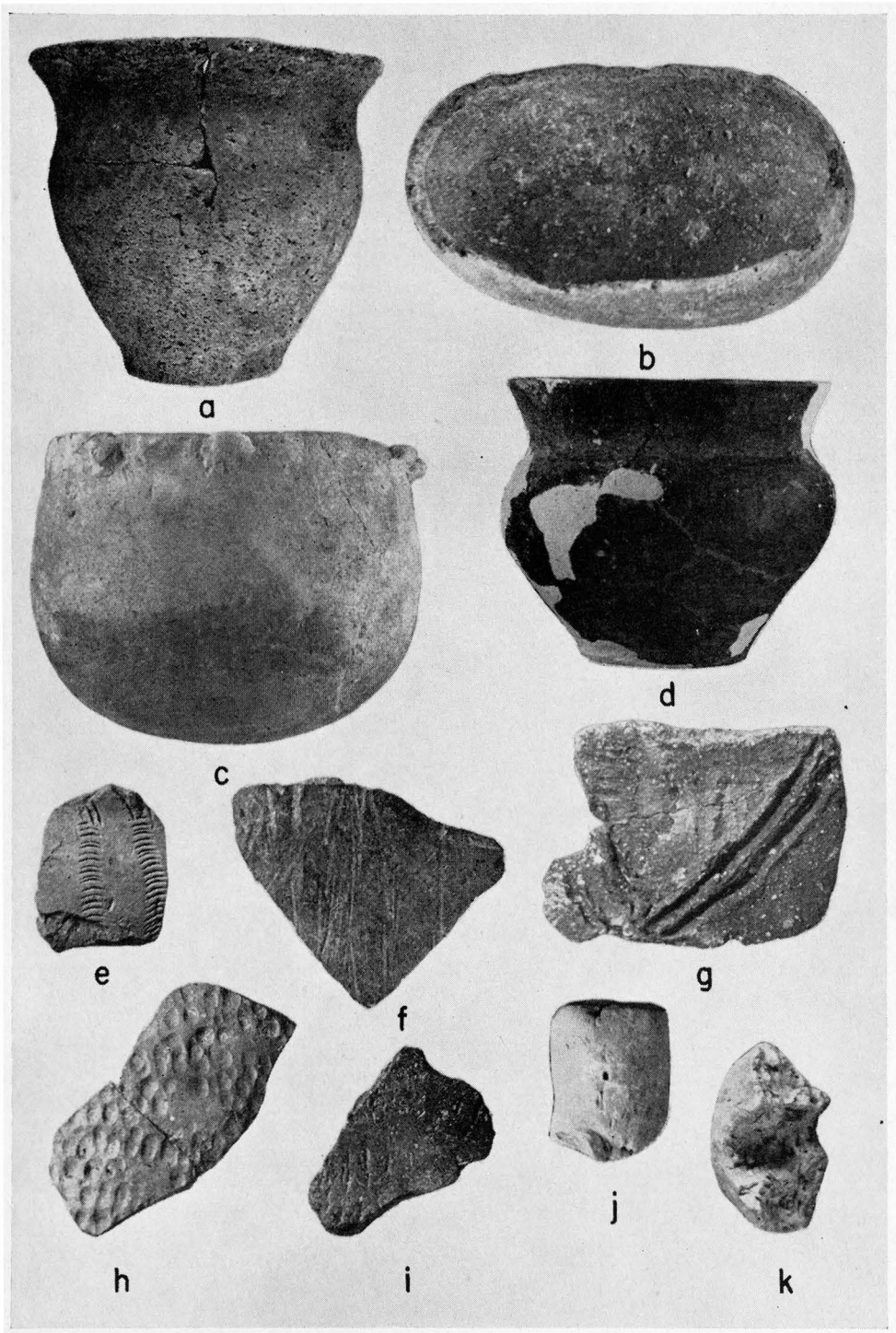

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h
i
j
k

PLATE 6

Puebloan and miscellaneous sherds from northern and northeastern Texas. *a-i* found with materials exclusively or predominantly Henrietta Focus; *j-n* with Titus Focus materials.

a "Brownware" of southeastern New Mexico from Young County, possibly from Harrell site. Note small strap handle at right edge, attached to shoulder and middle of rim.

b "Brownware" sherd from Harrell site. Note strap handle, nearly black color.

c Glaze-paint sherd (Glaze III or IV) from Buffalo Springs site, Clay County.

d "Brownware" sherd from Buffalo Springs site. Note scraped surface.

e Textile (?) marked sherd from Harrell site, Young County. Nearly one inch thick; no temper.

f Heavily scored sherd from Harrell site. Hard-baked, pale red film on interior; very thick.

g-h Thick, contorted, probably hand-molded sherds from Harrell site. Pale red film on exterior of *h*, which is from rim of small-mouthed, bottle-like vessel.

i Glaze-paint rim sherd collected by Powell Goodwin on South Fork, Little Wichita River.

j Chupadero Black-on-White sherd collected by Jack T. Hughes on Shelby County site, east Texas.

k Highly polished brown sherd with smudged interior, from surface of Sanders site, Lamar County. Said to be similar to Upper Gila smudged brown ware, southwestern New Mexico.

l-n Puebloan corrugated sherds from sites in Red River, Cass, and Franklin counties, northeast Texas. *n* is body sherd from pure Titus Focus component on J. E. Galt farm, Franklin County.

(Size about ¾.)

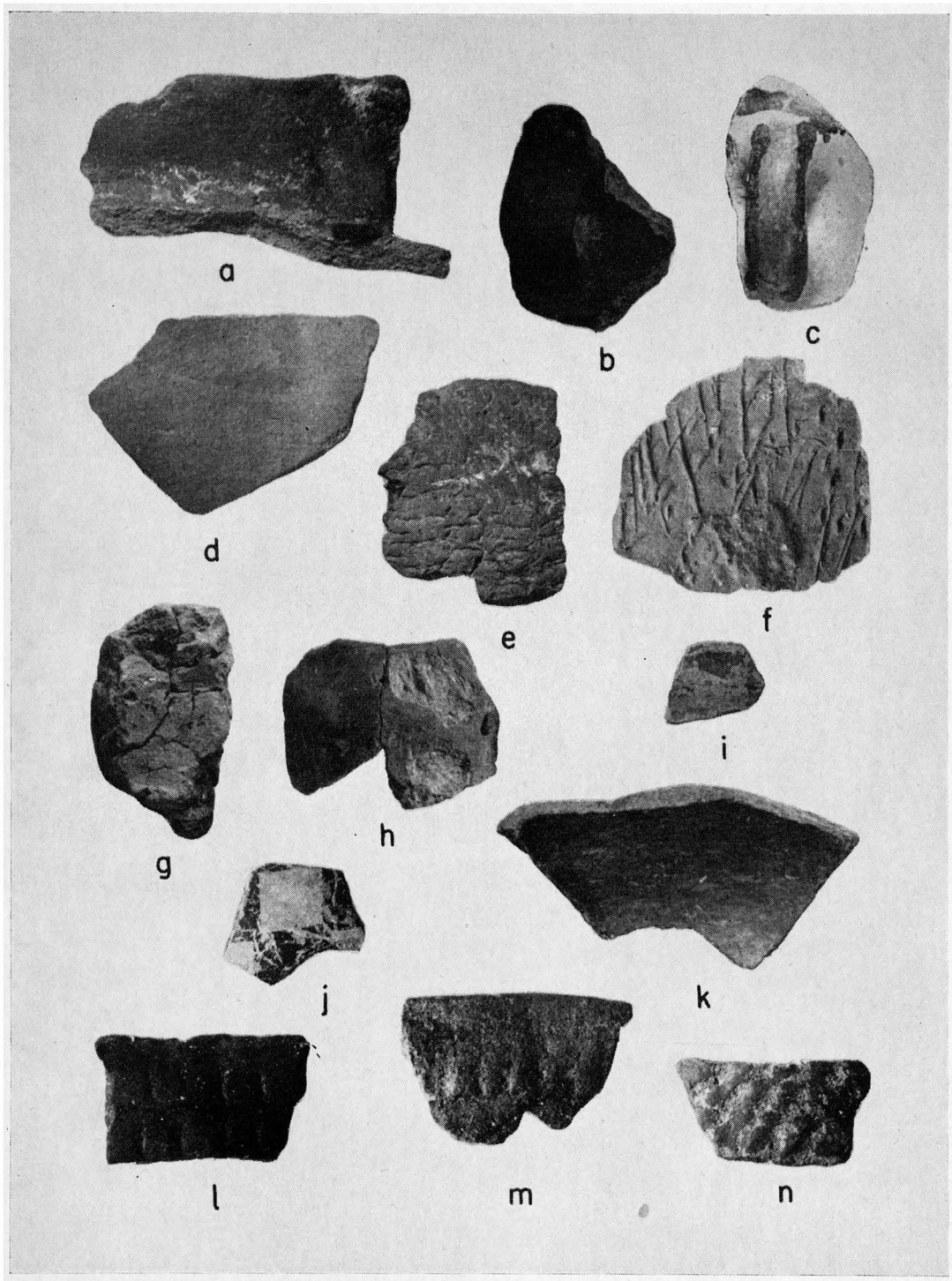

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m
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PLATE 7

Bone and antler artifacts from Harrell site, Young County, Texas.

a Hoe blade made from base of deer antler.

b, *c*, *e*, *g* Fragments of hoe blades made from bison scapula. *b* seems to have had a socket in the proximal end (compare Sanders hoe blades, pl. 23 *a*, *a''*), while *c*, *e* show beveled and polished cutting edges.

d Hoe blade made from base of bison horn.

f Piece of deer antler whittled to a sharp beak.

h Cylindrical antler "tapping tool," both ends cut across and rounded.

These implements are typical of Henrietta Focus. (Size about ½.)

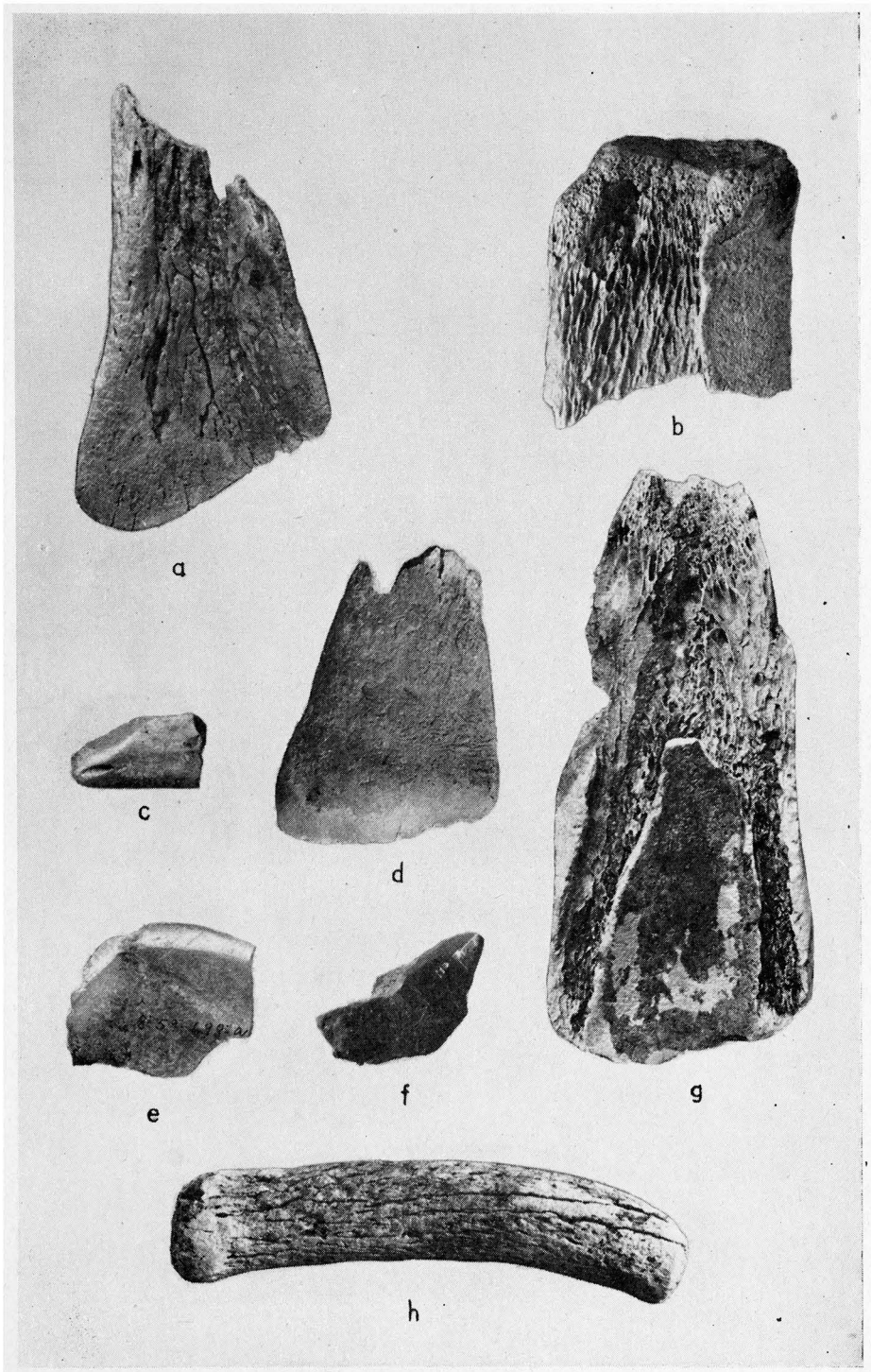

a
b
c
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e
f
g
h

PLATE 8

Bone artifacts from Harrell site, Young County, Texas.

a-b Incised tubes (*a* animal leg bone, *b* bird leg bone).

c-e Notched bone "rasps" (*c* bison rib notched along inner edge; *d*, *e* deer leg bone).

f Fish-hook cut from side of large bird leg bone.

g Awl, made from fish bone.

h-l Various awls, all deer (?) leg bone except *i*, from bison leg bone.

m Plain bone tubes or beads.

n Flaking tool or punch of deer ulna.

o-p "Spatulate" objects cut from deer or bison rib, thinned, and beveled to sharp edge at right; *o* cut square across, *p* rounded.

All these implements are typical of Henrietta Focus. (Size about ½.)

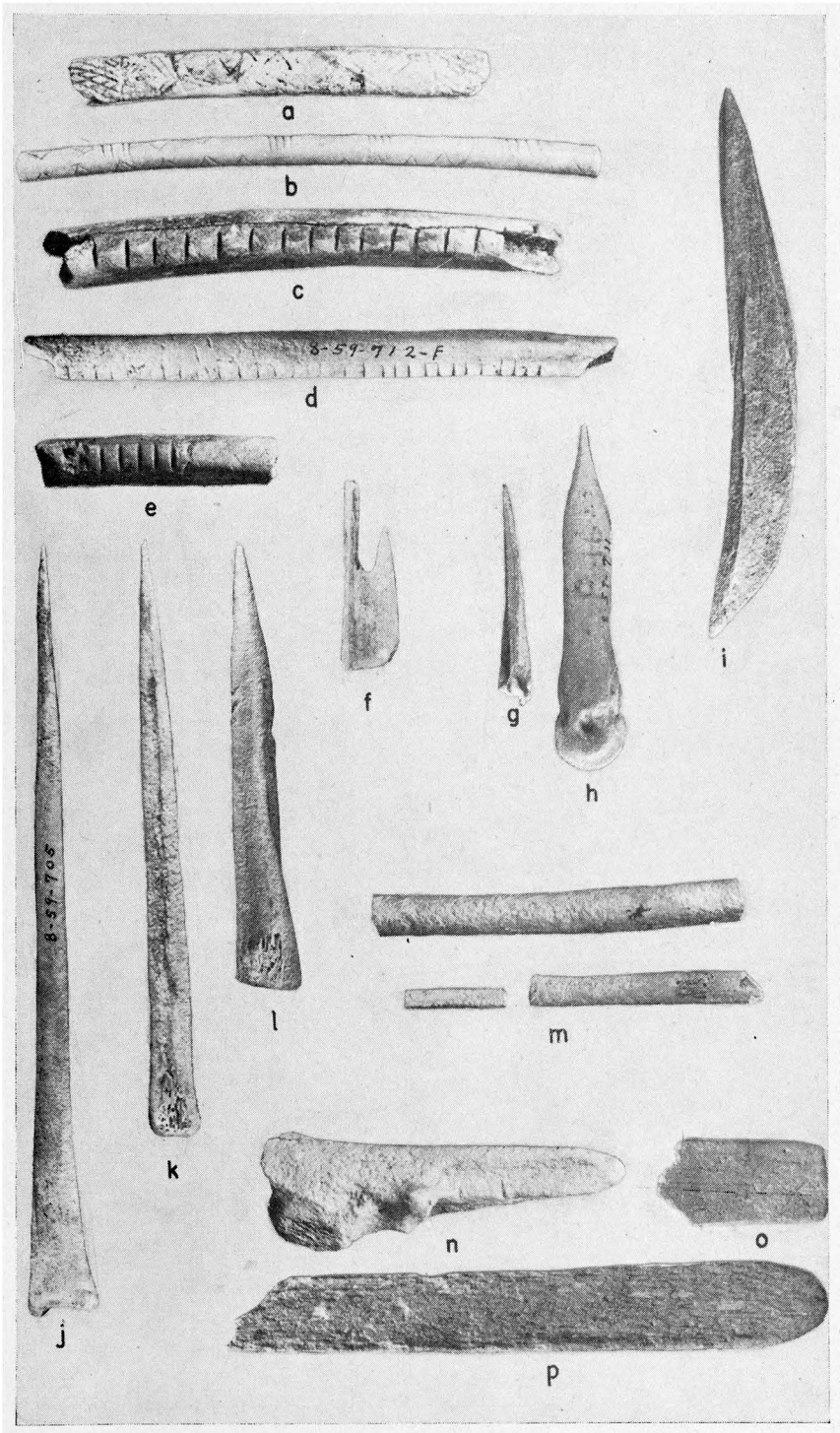

a
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8-59-712-F
d
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f
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h
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8-59-706
j
k
l
m
n
o
p

PLATE 9

Stone and shell artifacts from Harrell site, Young County, Texas.

a-b Elbow pipes of grey-brown sandstone. Note incised line around bowl rim of *a* and stem end of *b* (bowl and part of stem arm of *b* are missing).

c, e Polished hematite celts.

d Scraped and polished block of hematite.

f Sandstone hone with grooves on all sides.

g Longitudinally-grooved sandstone shaft smoother.

h Small bi-pointed artifact of chipped obsidian.

i Unperforated disk cut from potsherd.

j Sandstone ball made from concretion.

k Bead made from freshwater mussel shell.

l Disk beads cut from shell, and (right) bead of fossil crinoid stem.

m *Olivella* shell bead, species indeterminate.

n Oblong object and disks cut from heavy mussel shells.

o Mussel shell with finely serrated edge.

p Perforated mussel shell, probably a bead or discard from which disk such as *n* was cut.

All these artifacts are typical of Henrietta Focus. (Size about ½.)

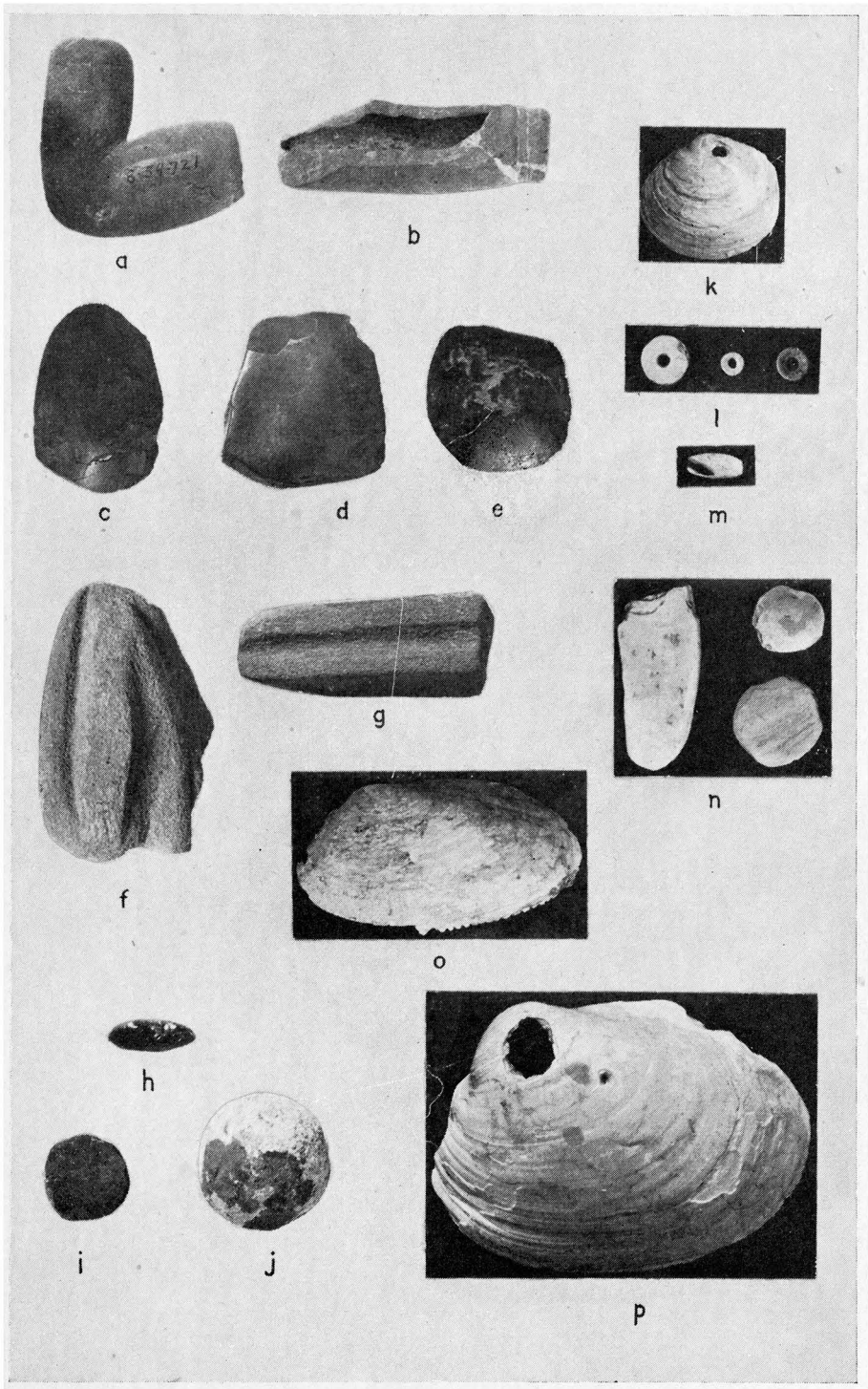

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i
j
p

PLATE 10

Flint artifacts from Harrell site, Young County, Texas

a-c Snub-nosed scrapers, small, well made, of Ray's "P. scraper C." type. Note even sides and angled corners at bit end.

d-f Snub-nosed scrapers with stems. *e* may have been a large perforator with base shaped like an end scraper.

g-j Snub-nosed scrapers, crudely fashioned from thick spalls, of Ray's "P. scraper A" and "P. scraper B" types.

k Gouge, with thick body and slightly hollowed bit.

l-m Gravers.

n Oval side scraper of "Alibates flint" (red-banded dolomite).

These artifacts, with exception of *k*, *n*, are typical of Henrietta Focus. (Size about 2/3.)

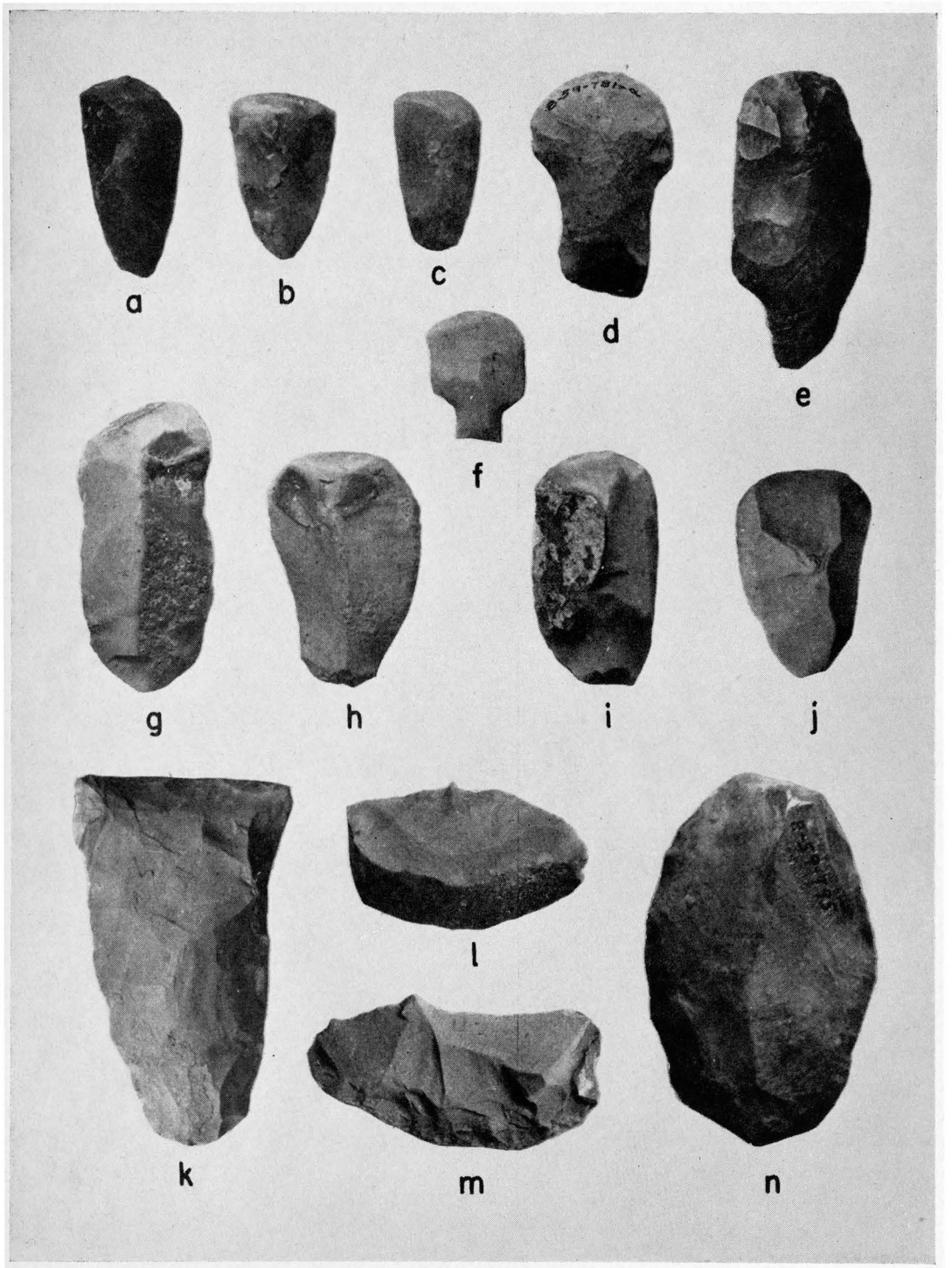

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n

PLATE 11

Grinding implements from Harrell and neighboring sites, Young County, Texas.

a Milling slab with oval basin in which mano was used with rotary motion; sill around basin unused. Basin deep on one face, shallow on other. Harrell site.

b Thin milling slab with shallow oval basin on one face, rotary motion. Harrell site.

c Flat metate on which mano was used with back-and-forth motion over whole face and extending slightly over edges. Collected in Brazos River basin below Harrell site, but gives close approximation of common Harrell form represented by fragments.

d Metate with shallow rectangular basin in which mano was used with back-and-forth motion on both faces. From Allen Ritchie site, Young County, but illustrates a form represented by some Harrell site fragments. No true troughed metates are known from this area. Metates used on both sides are pecked to different degrees of roughness on each side.

Both the rotary-motion milling slab and the metate used with back-and-forth motion, shown here, are typical of Henrietta Focus throughout its extent, with the latter form most common. (Size about ⅙.)

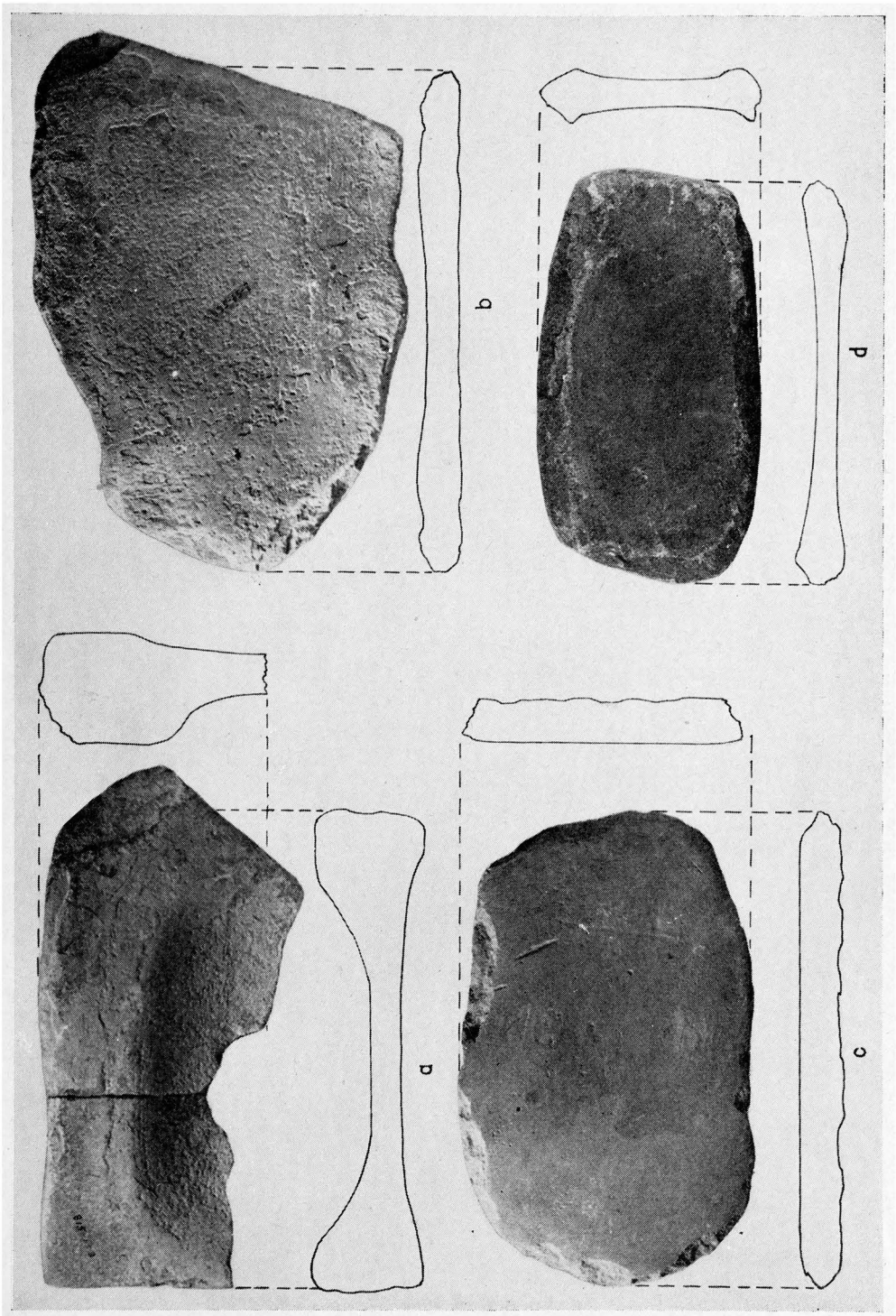

b
d
a
c

PLATE 12

Manos and miscellaneous stone artifacts from Harrell site, Young County, Texas.

a-d Manos, subrectangular, with two parallel, nearly flat faces. Shaped over-all by pecking, the two faces usually showing different degrees of roughness. Used with back-and-forth motion.

e Large oval mano, oval in cross-section. Shaped over-all by pecking but probably not used sufficiently to wear faces flat.

f Small unshaped sandstone pebble used as mano with rotary motion.

g Chipped hematite blade. (See also hematite implements in pl. 9 *c-e*.)

h Scraped and polished cylinder of fine-grained sandstone, ends squared.

i Fragment of sandstone "tablet" with beveled edge. Two faces are quite flat; one bevel slightly higher and longer than other. In other cases the beveled edge is more rounded, or the bevels steeper.

The manos are characteristic of Henrietta Focus; hematite blades are occasionally found in association with it; the cylinder and "tablets" are so far unique for the Harrell site. (*a-f* ½; *g-i* about actual size.)

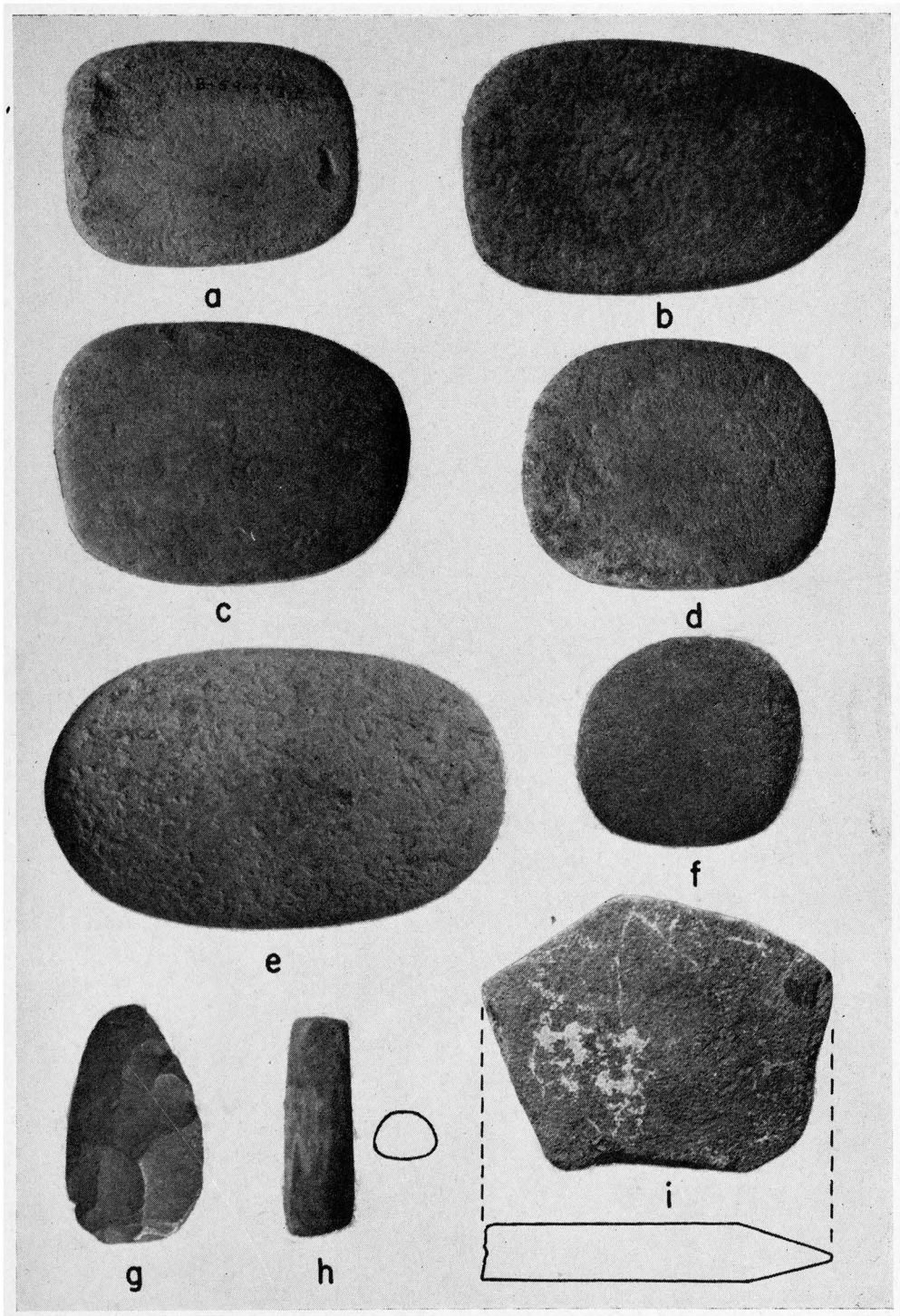

a
b
c
d
e
f
g
h
i

PLATE 13

Two-hand manos from the upper Red River Valley.

a-a' Two views of a mano from the vicinity of Vernon, Texas, collected by Mr. and Mrs. John Henry Ray. Note depression running across back, said to be common to both one- and two-hand manos in this area.

b Long mano in Ray collections from vicinity of Vernon. Well shaped, oval in cross-section except that both faces are slightly flattened. Scratches are plow marks.

c-c' From collections of Mr. Joe Benton, Nocona, Texas. The flat grinding surface *(c')* is damaged by a long plow mark; the upper side *(c)* was unused and bears a longitudinal ridge sloping steeply toward one edge (bottom), gently toward the other, which probably made the mano easier to grip with both hands.

d Perfectly shaped mano from Ray collections, Vernon. The ends and sides are equally rounded, the two faces flat but of different roughness.

Two-hand manos are found rarely in Henrietta Focus components on or near the upper Red River, but not farther south in the Brazos valley. Size about ½.)

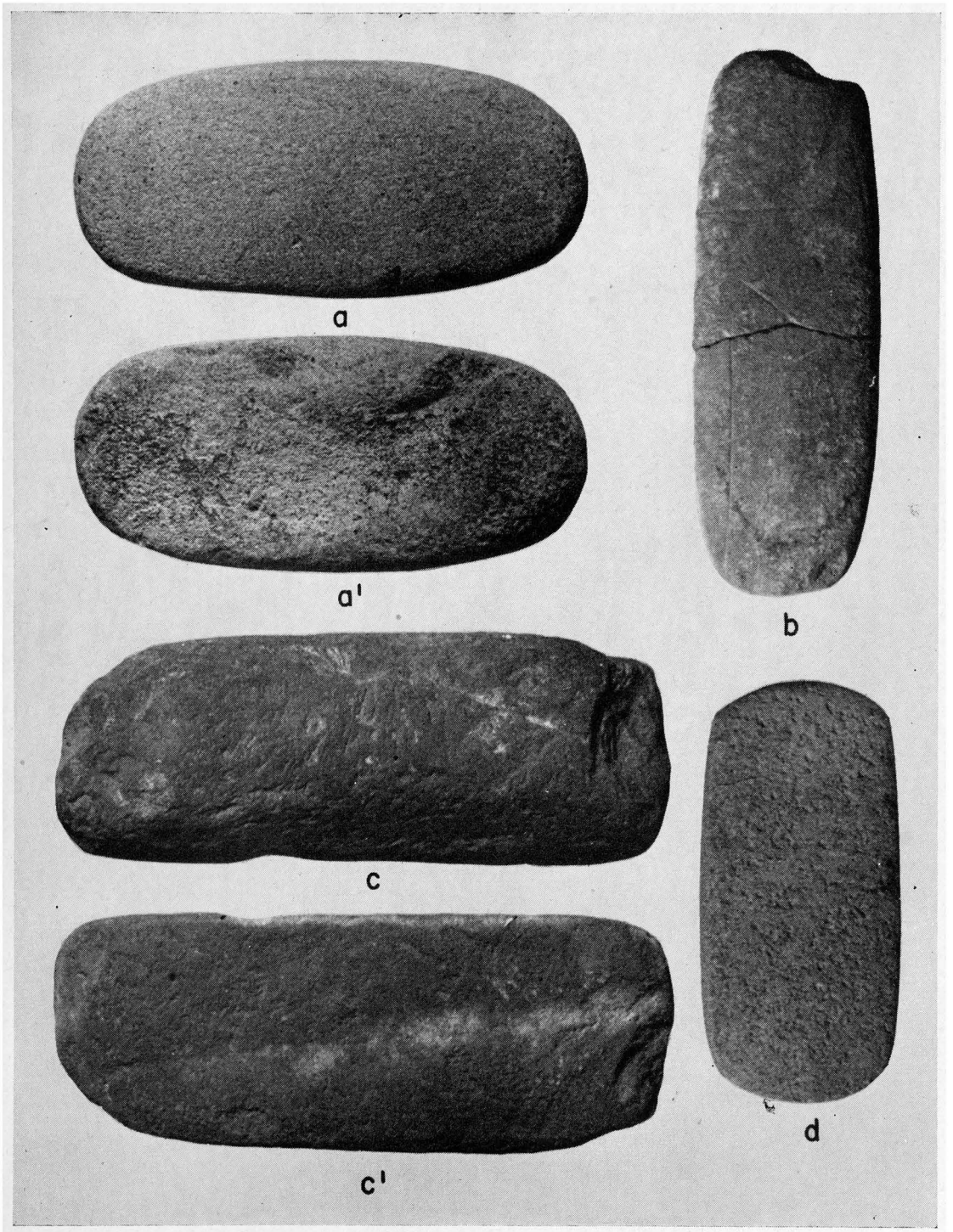

a
a'
b
c
d
c'

PLATE 14

Wedge-shaped and circular manos from the upper Red River Valley.

a, *c-f* Manos with two flat faces meeting in a sharp edge (at bottom except in *e'*), probably so worn from use with back-and-forth motion.

b, *g* Circular manos, used only on face shown. *b* made from dark greenish-brown concretion, *g* from grey sandstone.

All specimens from collections of Mr. and Mrs. John Henry Ray in vicinity of lower Pease River and junction with Red River. Various sandstones. Wedge-shaped manos are sometimes found in Henrietta Focus association; the association of circular manos is uncertain. (Size about ½.)

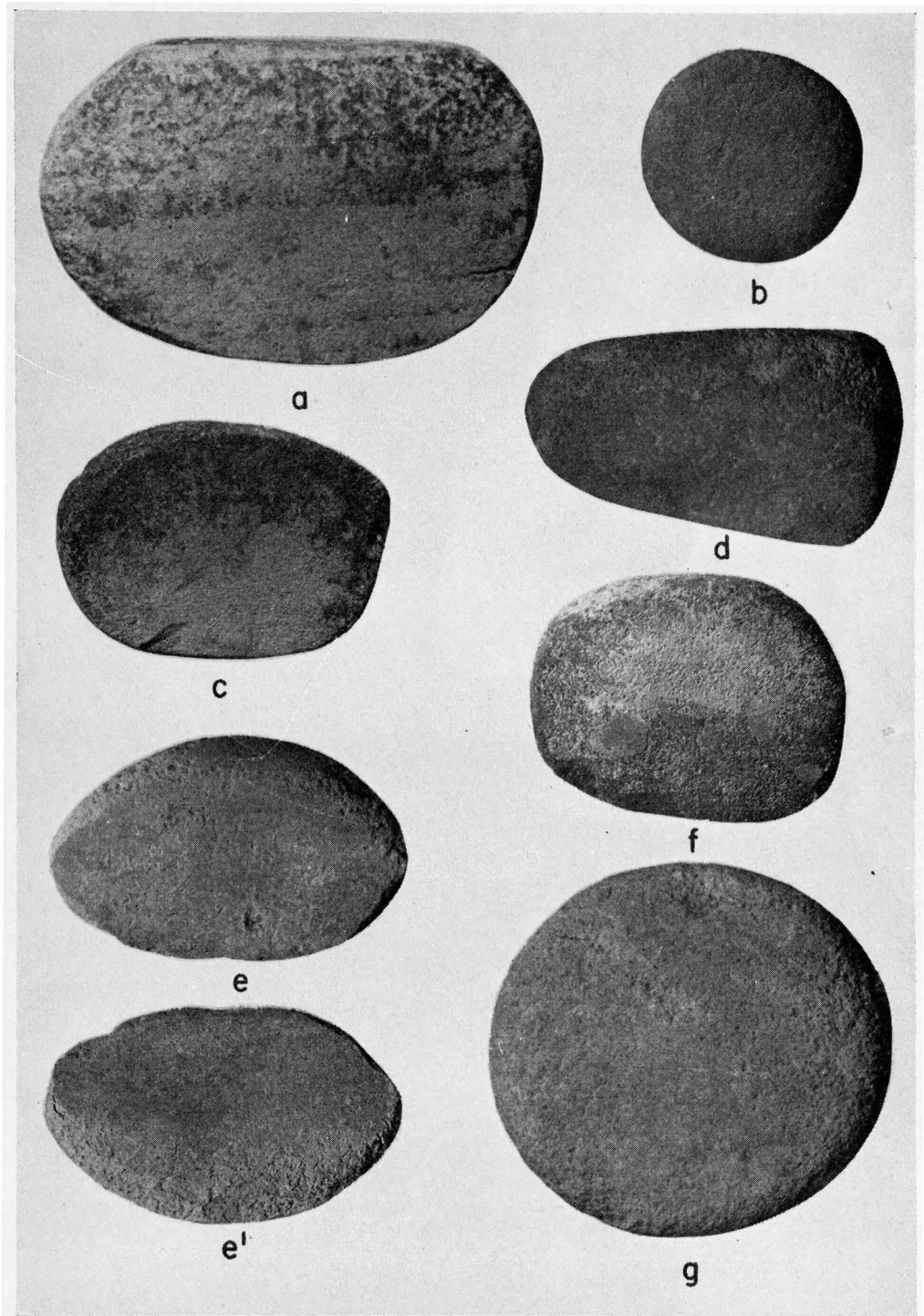

a
b
c
d
e
e'
f
g

PLATE 15

Various manos from upper Red River Valley.

a-a' Quartzite pebble, unshaped, used on one face until highly polished.

b Thin, subrectangular, well shaped, two faces identical with low "gable" or ridge running length of each face. Dark green sandstone.

c Oval. with oval cross section, flattened slightly on both faces. Sandstone.

d Unshaped pebble, thick, used on one face. Reddish granite.

e Subrectangular, thick, oval crosssection. Reddish granite.

f-f' Subrectangular, worn to high polish on one face and pecked but concave on other. Banded reddish sandstone.

All specimens from collections of Mr. and Mrs. John Henry Ray in vicinity of Vernon, Texas. The various forms are found commonly in Henrietta Focus association. *b, c, f* used with back-and-forth motion; others indeterminate. (Size about ½.)

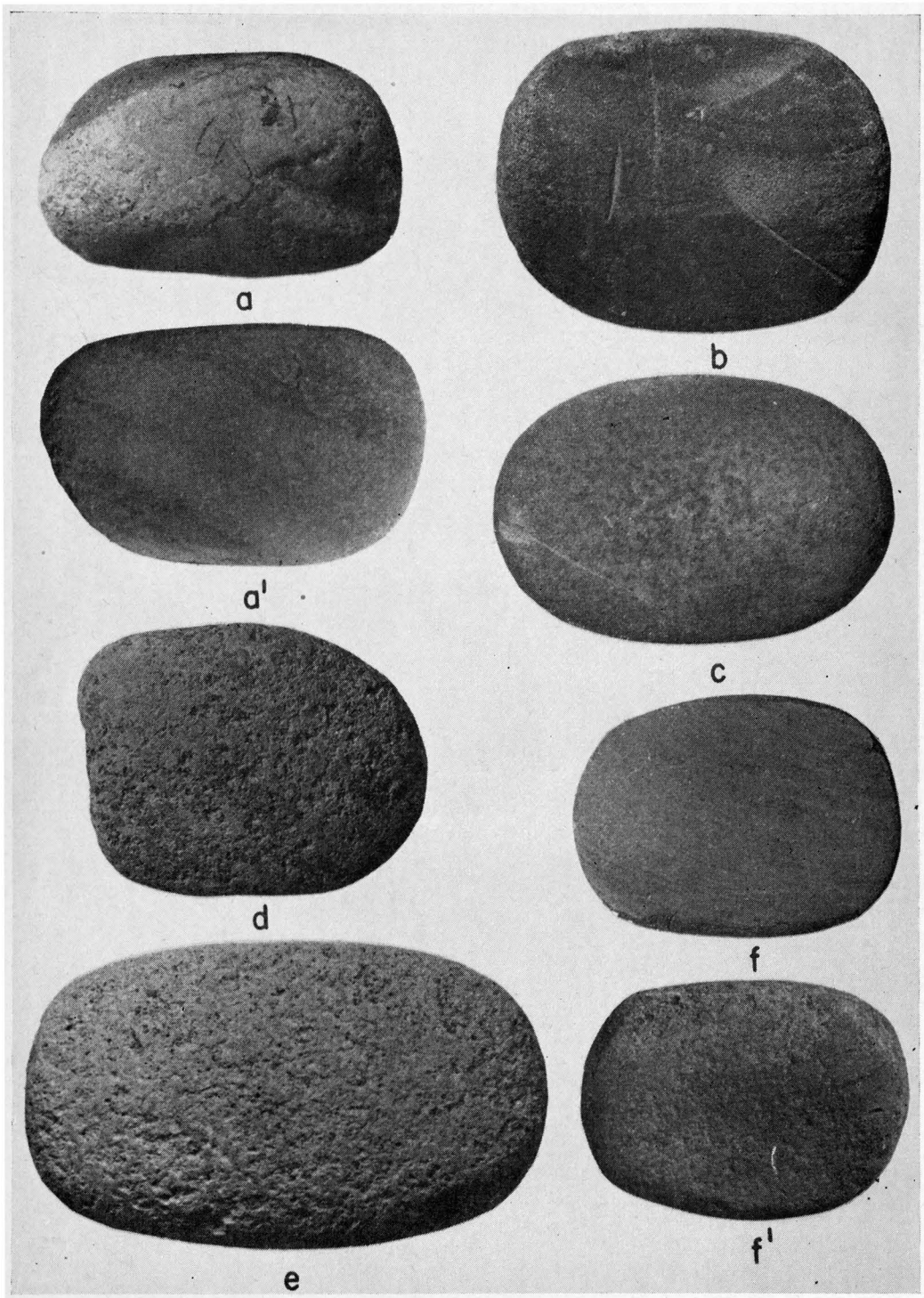

a
b
a'
c
d
f
e
f'

PLATE 16

The Sanders site, Lamar County, Texas.

a "Mound 2" from Bois D'Arc Creek bottomland. Height of "mound" exaggerated because it here conforms to a terrace sloping toward creek (see *b*).

b "Mound 2," looking toward Bois D'Arc Creek from plain to south.

c "Mound 1," looking up from Bois D'Arc Creek bottomland.

d Postholes in "mound 2," outlining three sides of a square structure. Upon removing bank at rear, no postholes were found on fourth side.

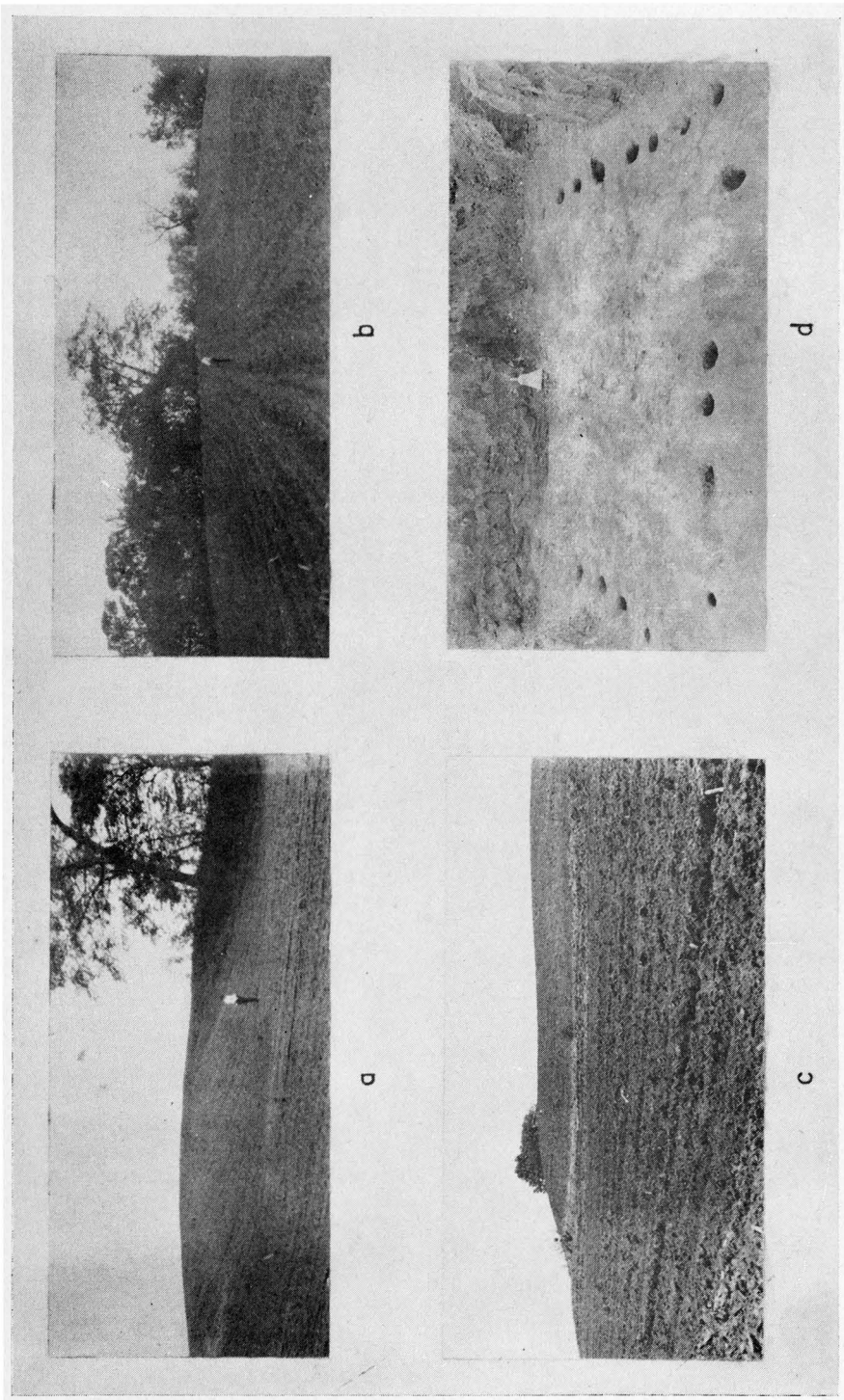

b
d
a
c

PLATE 17

Multiple burials in "mound 1," Sanders site, Lamar County, Texas.

a Burial 15, containing six skeletons. Note vessels at head end only.

b Burial 18, containing four skeletons, no pottery.

c Burial 5, containing seven skeletons. Two vessels at head, one bottle at hip of skeleton at left.

d Burial 12, containing five skeletons. Bowls and tri-chambered bottle at head.

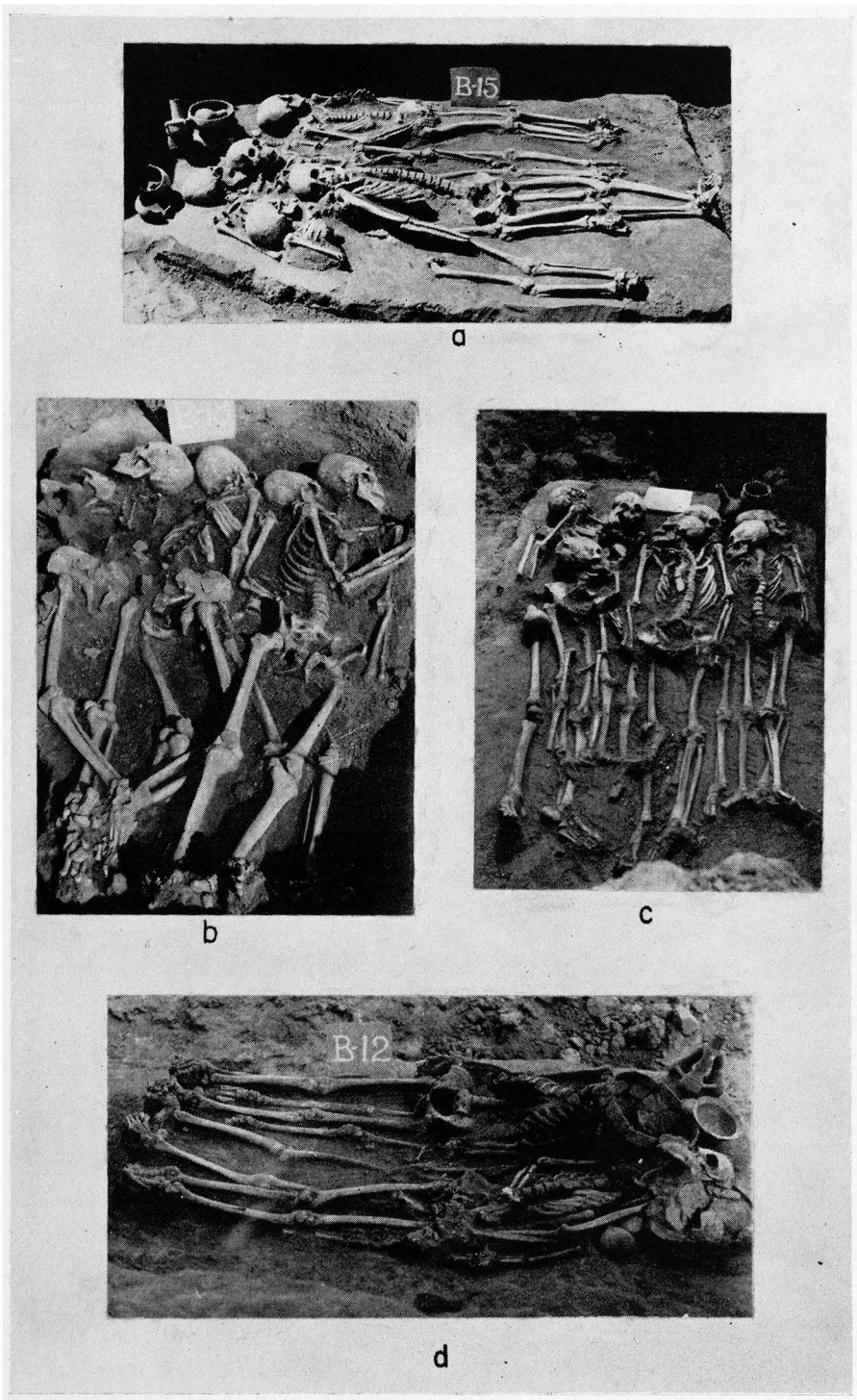

B-15
a
b
c
B-12
d

PLATE 18

Single and multiple burials in "mound 1," Sanders site, Lamar County, Texas.

a Burial 9, male. Note mass of crushed pottery at wall of grave about three feet from head of skeleton. A poorly preserved conch-shell "dipper" lies on the sternum.

b Burial 2, aged male. No pottery. Note rows of conch-shell beads below knees and around neck region; also the cut-out shell gorget shown in fig. 13 *e* near left side of head.

c Burial 17, containing eight skeletons closely packed together at length in small grave. Note vessels at head end, with skull and jaw of one skeleton resting against bottle.

d Burial 8, male, with conch-shell "dipper" at right elbow and gorget shown in fig. 13 *c* resting on cervical vertebrae.

e Another view of Burial 15, containing six skeletons.

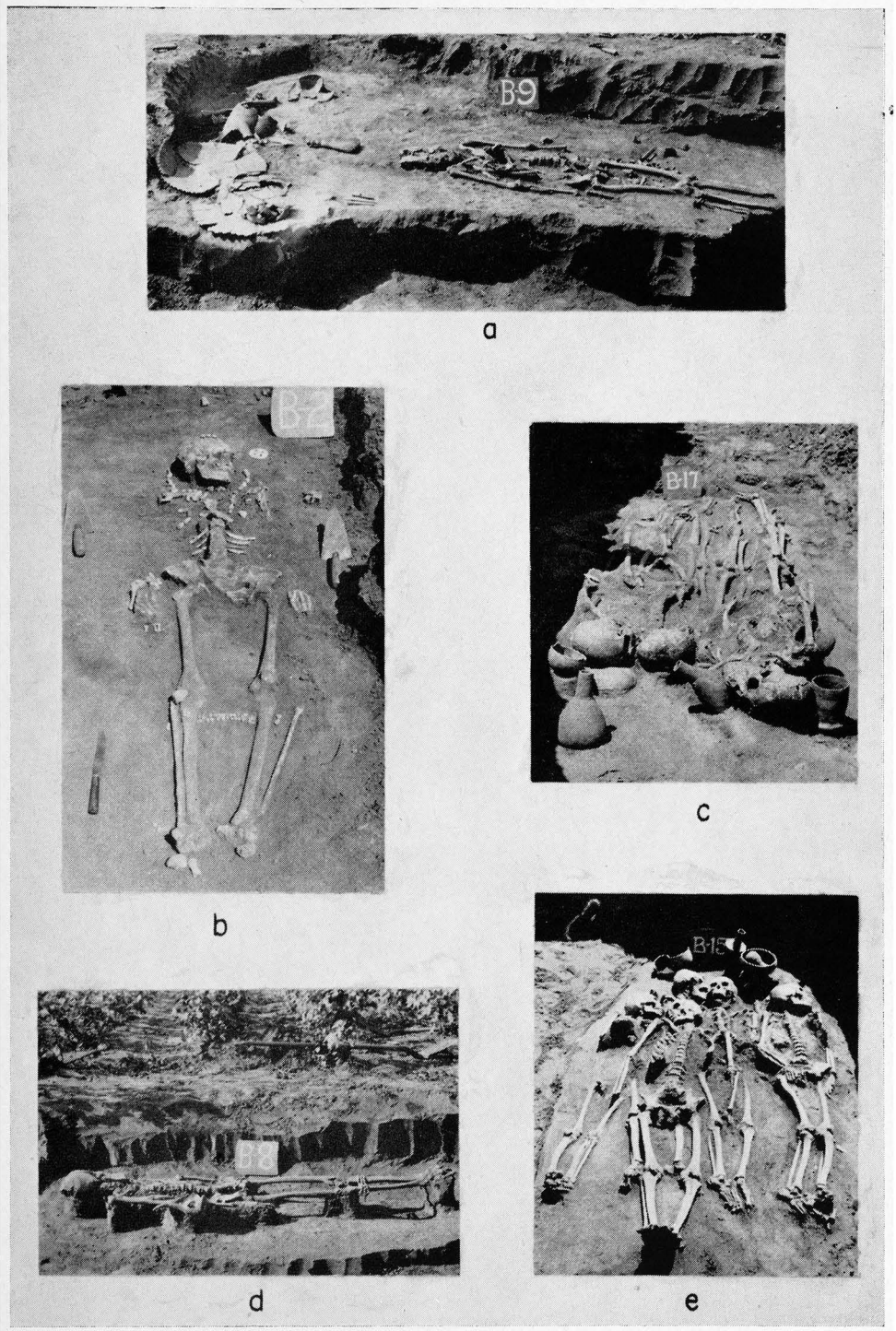

B9
a
B2
b
B17
c
B18
d
B15
e

PLATE 19

Shell artifacts from the Sanders site, Lamar County, Texas

a-b "Hair tubes" or beads cut from conch columnella and bored longitudinally.

c Mussel-shell pendant (?) with small hole at upper end for suspension.

d Small, complete conch-shell pendant, highly polished. A large hole may be seen at the upper end, and a smaller one in the lip near the spire at the bottom.

e Conch-shell gorget with disk removed from center.

f Conch-shell gorget with five human heads engraved in quadrants and center, and a cross with "bi-lobed arrow" motifs on each arm, formed by cutting through shell. (See also fig. 11.)

g-h Disk beads of conch shell with central perforation; surfaces and perimeter polished.

i Conch-shell gorget with large turkey cock mounted on a cross. Note alternate circles and diagonal bars engraved on arms of cross, manner of showing feathers with parallel lines connected at staggered intervals with short lines, two parallel lines forming chevron in tail area, spurs, and strut connecting neck with outer zone.

j Conch-shell gorget with human face in full view carved in relief. Note cross formed by sets of three parallel lines in background, hair divided into two braids down center of scalp, and braids caught with simulations of shell beads at sides of chin.

All these artifacts were found with burials belonging to the Sanders Focus complex. Size ½, except *d*, ¼).

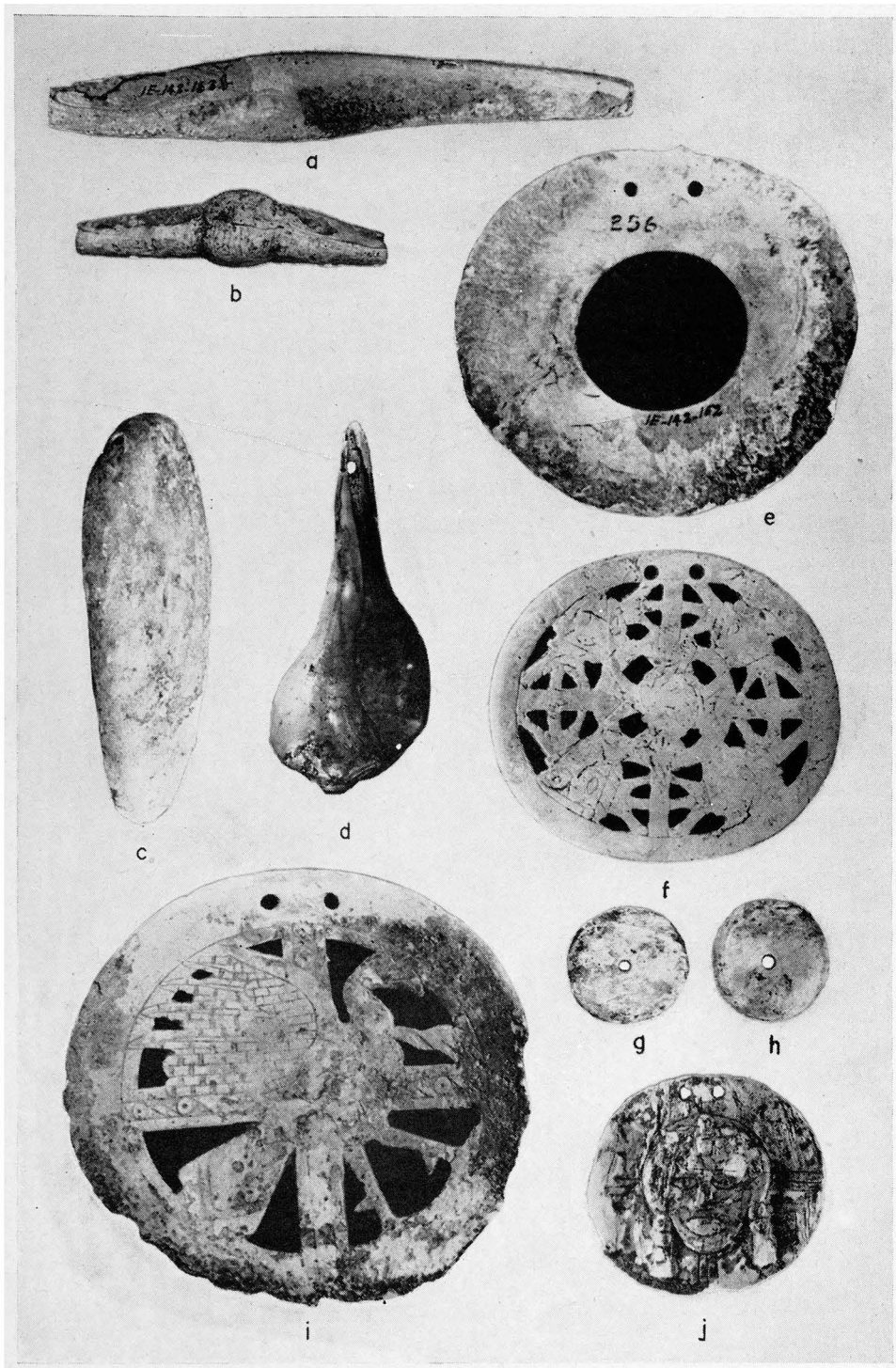

a
b
256
e
c
d
f
g
h
i
j

PLATE 20

Shell artifacts from the Sanders site, Lamar County, Texas.

a Beads cut from columnella of conch shell.

b Inside view of top fragment of conch-shell "dipper," showing removal of columnella.

c Beads made from fresh-water pearls.

d Beads of *Olivella jaspidea* Gmelin shells with spires removed.

e Cylindrical and barrel-shaped beads cut from conch-shell columnella.

f Small disk beads cut from the side wall of conch shells.

These artifacts were found with burials of the Sanders Focus complex. (Size ½.)

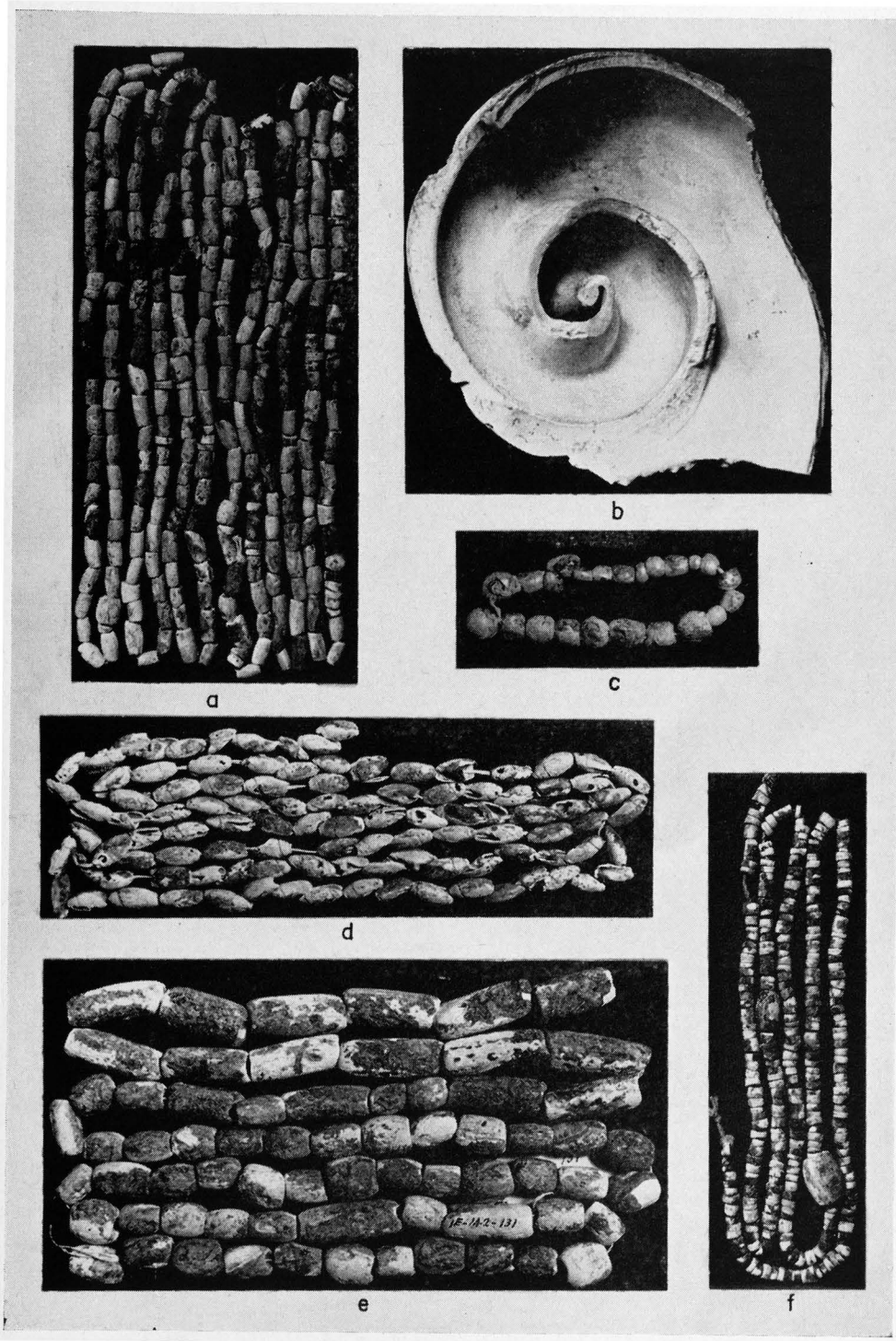

a
b
c
d
e
f

PLATE 21

Deformed skulls and artifacts of shell and stone from the Sanders site, Lamar County, Texas.

a Male skull with frontal and occipital flattening and peculiar "saddle" in crown. This was the common form of flattening on nearly all restored skulls of both sexes.

b Female skull with frontal flattening.

c Fragment of conch-shell "dipper" with green stain of copper oxide running from peak of spire toward left edge. See pl. 20 *b* for inside view of same fragment.

d-e Crudely shaped axes (?) with side notches. *d* single-bitted with cutting edge toward bottom; *e* double-bitted.

f Celt with flat, parallel faces, chipped edges, and sharp, ground bit.

g-g' Two views of a complete conch-shell "dipper" encircled by two sets of four parallel lines, the lower line of each set bearing pendant triangles.

h Thin, flat spatulate celt of grey-green steatite.

The deformed skulls and conch-shell artifacts belong to the Sanders Focus complex; the others were found in midden at depths below the surface equivalent to the graves. (Size ¼.)

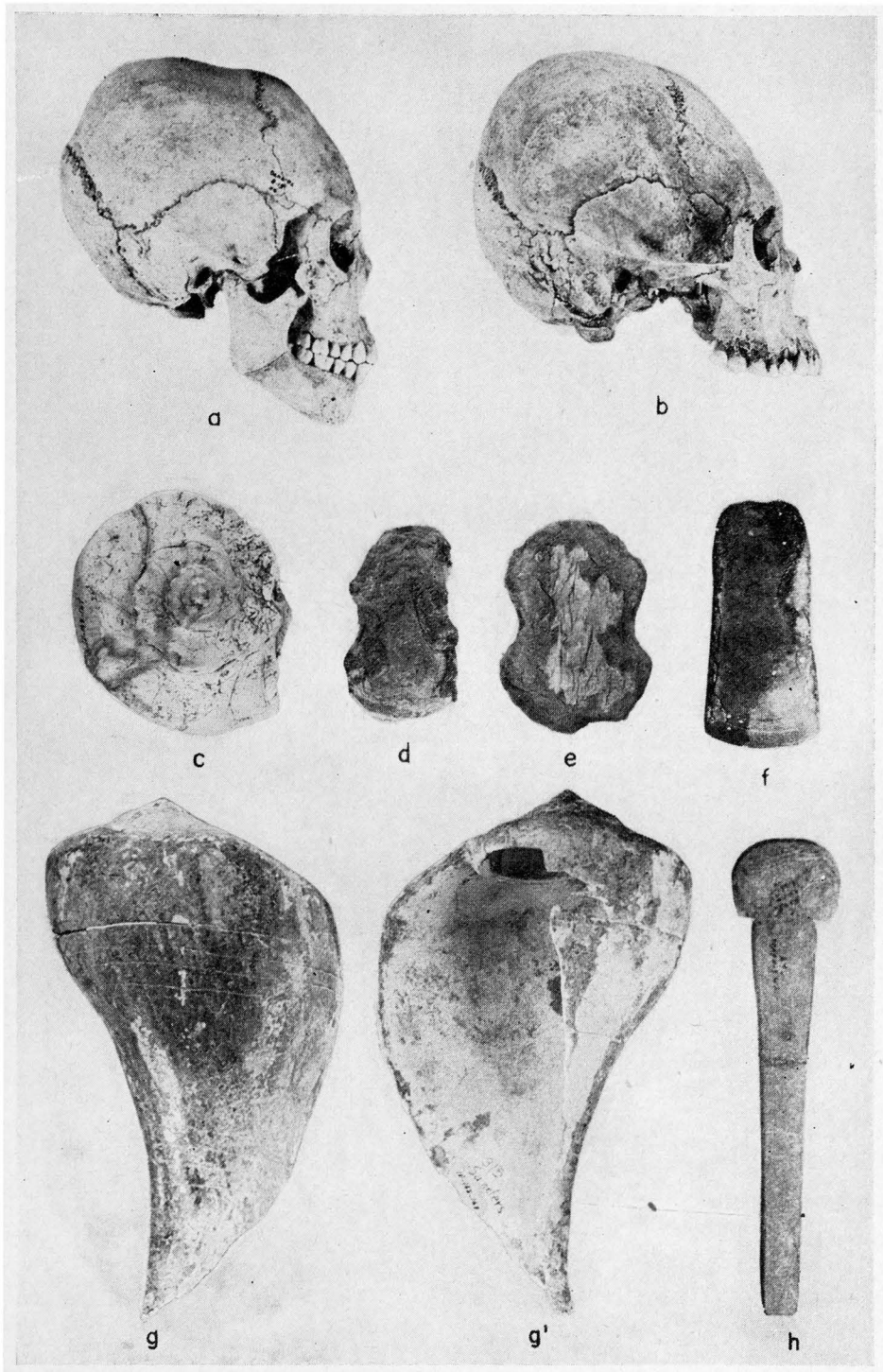

a
b
c
d
e
f
g
g'
h

PLATE 22

Artifacts of stone, shell, and pottery from the Sanders site, Lamar County, Texas.

a-b Three views of a pair of earspools of fine-grained reddish sandstone, found with male skeleton in Burial 20, containing four skeletons. Top view shows thin copper veneer, middle is side view, and bottom shows plain underside with central depression.

c Five examples of the arrow-point type *Bonham Barbed*, the only type associated with Sanders Focus burials at the Sanders site.

d Mussel-shell "hoe." It shows no signs of battering, however, and may have served some other use.

e-f Elbow pipes of fine-grained sandstone, well polished. Note flange and incised lines on *e*, and very high bowl containing remains of tobacco cake in *f*.

g-h Elbow pipes of pottery. Note spur projecting beyond bowl of *g*.

i Various objects of shell. Top: mussel shell with serrated edge, and circular pendant. Lower: oblong pendants or inlays of conch shell, carefully shaped and polished.

j-k Long, narrow knives with four beveled edges.

All these objects were found associated with burials of the Sanders Focus complex. (Size ½.)

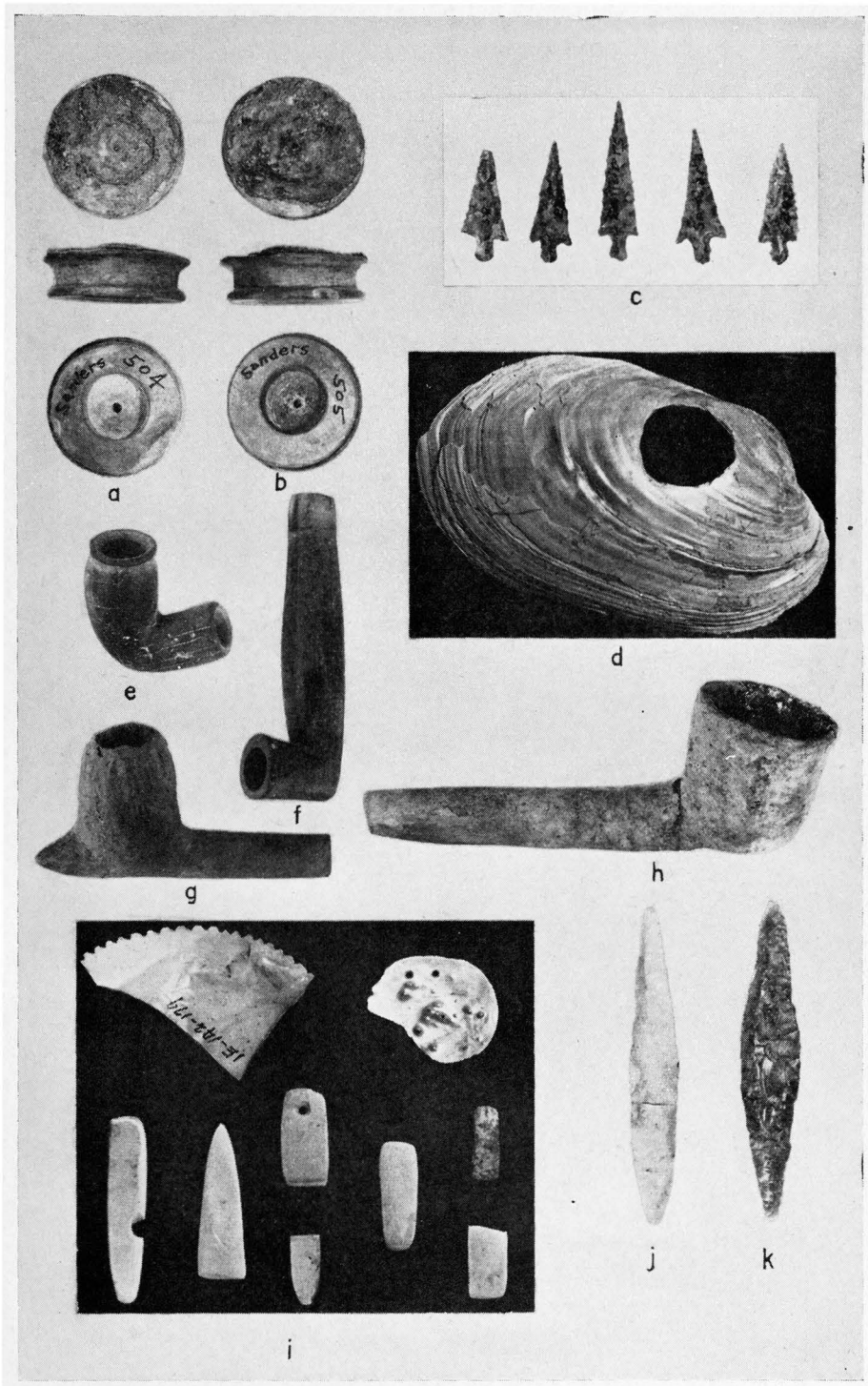

Sanders 504
Sanders 505
a
b
c
d
e
f
g
h
i
j
k

PLATE 23

Bone artifacts from the Sanders site, Lamar County, Texas.

a-a' Two views of a typical bison-scapula hoe blade with socket for hafting.

a" View of proximal end of another bison-scapula hoe blade, showing socket.

b-b' Hoe blade cut from top of bison skull.

c Deer jaw with worked and polished diastrema.

d Deer calvarium, inside view, showing trimmed edge of brain case, and antler stubs. Probably fashioned to serve as decoy or ceremonial object strapped to head.

e Deer vertebra with polished channel, possibly used as shaft wrench.

f Deer cannon bone with longitudinal groove, possibly used as corn sheller or hide "de-hairer."

g Example of group of turkey humeri with holes punched near one end, possibly used as gaming counters.

h Fish hook (?) cut from leg bone of large bird.

i-k Examples of crudely fashioned awls; *i*, *k* deer cannon, *j* fish bone.

Socketed hoe blades (see *a*) have been found with Sanders Focus burials, but the skull hoe *(b)* comes from the surface and is a Henrietta Focus trait. The other bone artifacts shown probably belong to Sanders Focus and were found in the midden. Size ⅓, except *g*, ⅔.)

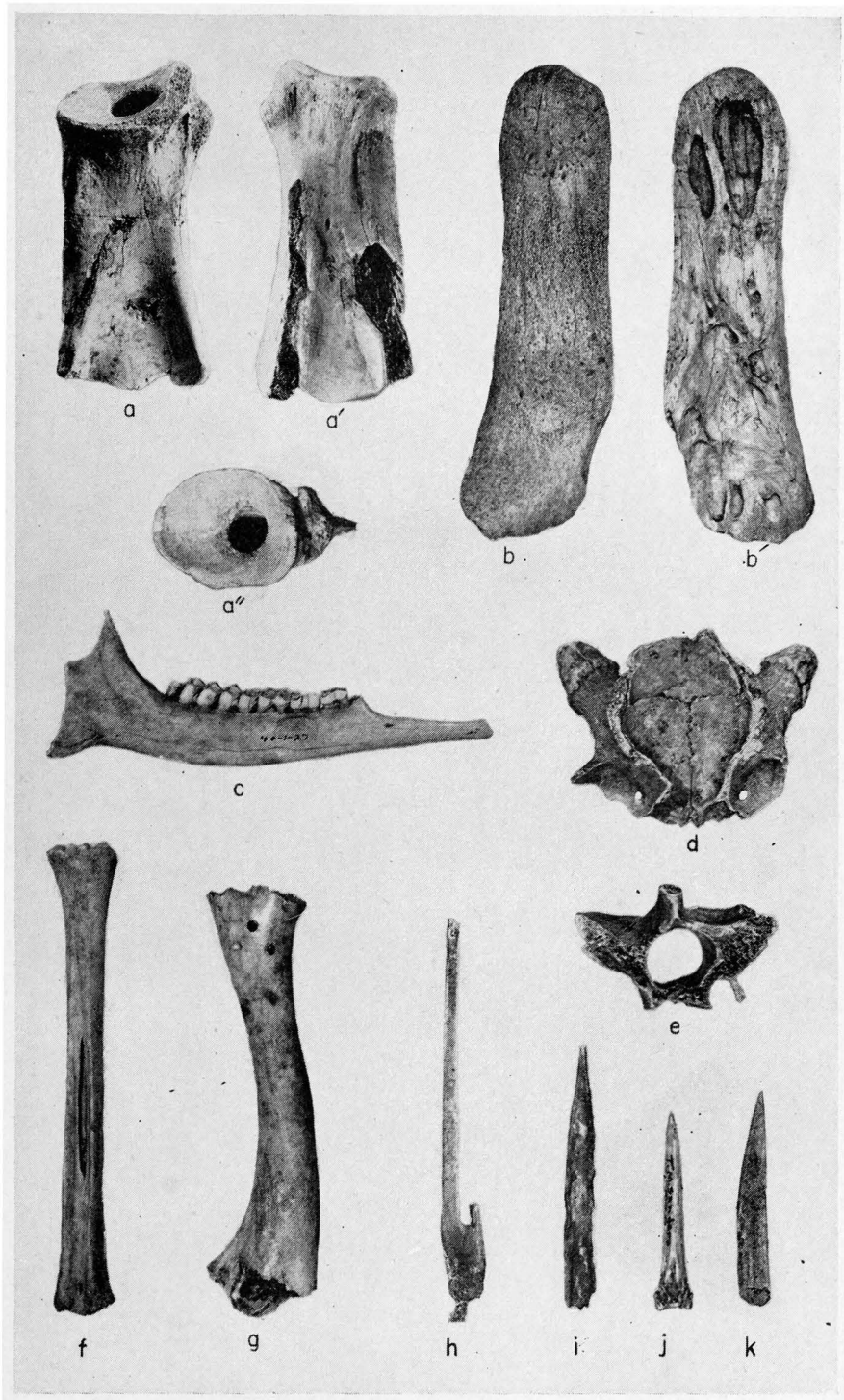

a
a'
a''
b
b'
c
d
e
f
g
h
i
j
k

PLATE 24

Large bowls, type *Sanders Plain*, from Sanders site, Lamar County, Texas. *a*, *c* red-filmed on both interior and exterior. Note scalloped lip of *b*, *c*. (Size about ¼.)

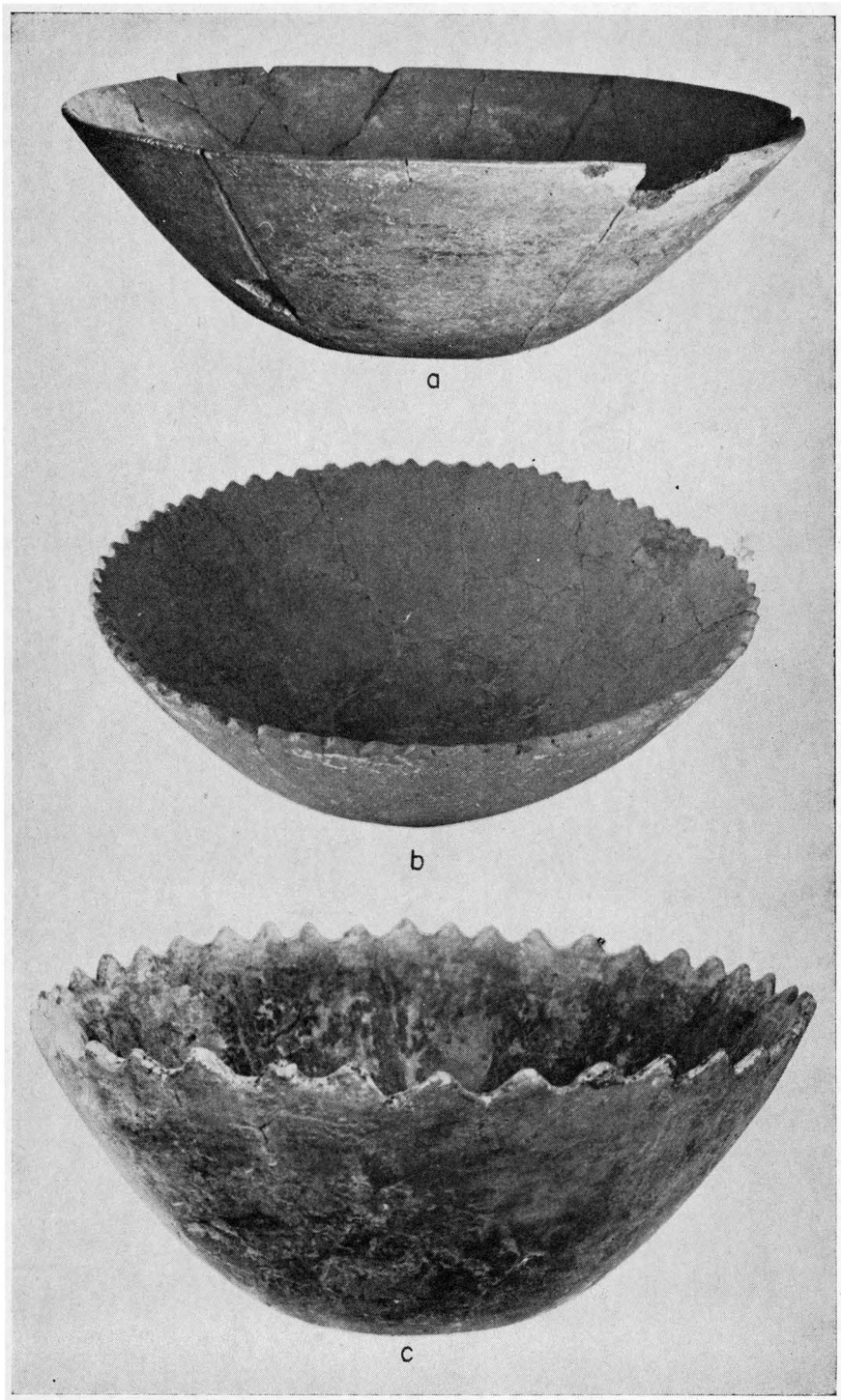

a
b
c

PLATE 25

Large carinated bowls, type *Sanders Plain*, from Sanders site, Lamar County, Texas. Note rippled surface of *a; d* red-filmed. (Size about ¼.)

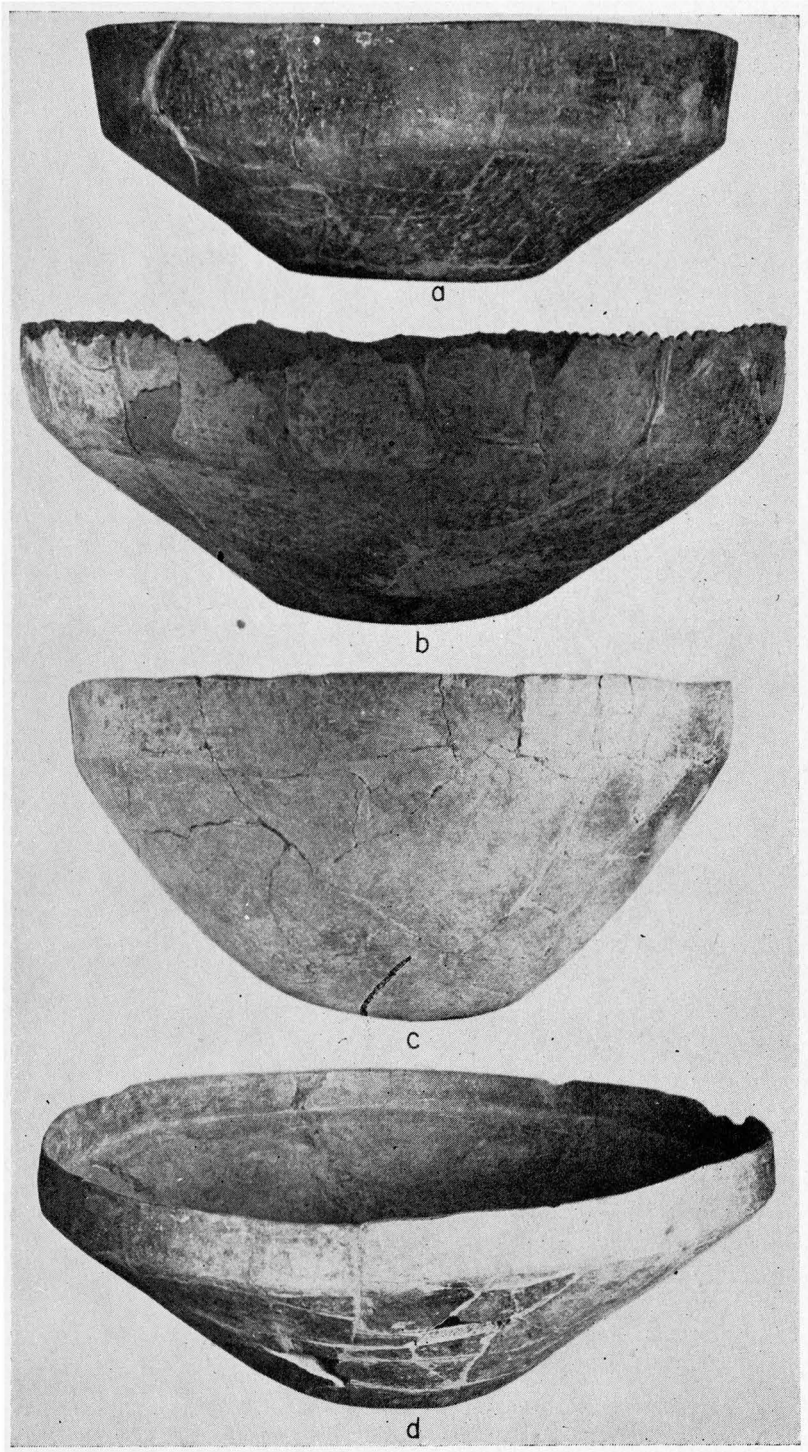

a
b
c
d

PLATE 26

Bowls, jars, and bottles, type *Sanders Plain*, from Sanders site, Lamar County, Texas.

a, c Cylindrical-necked jars. Note suspension hole in *c*.

b Deep bowl, highly polished, very dark brown color.

d, g Simple bowls with flat bases; *d* red-filmed.

e, f Bottles; *f* a rich chocolate brown.

h-j Deep bowls; *h* has two opposed lugs jutting up from lip.
(Size about ¼.)

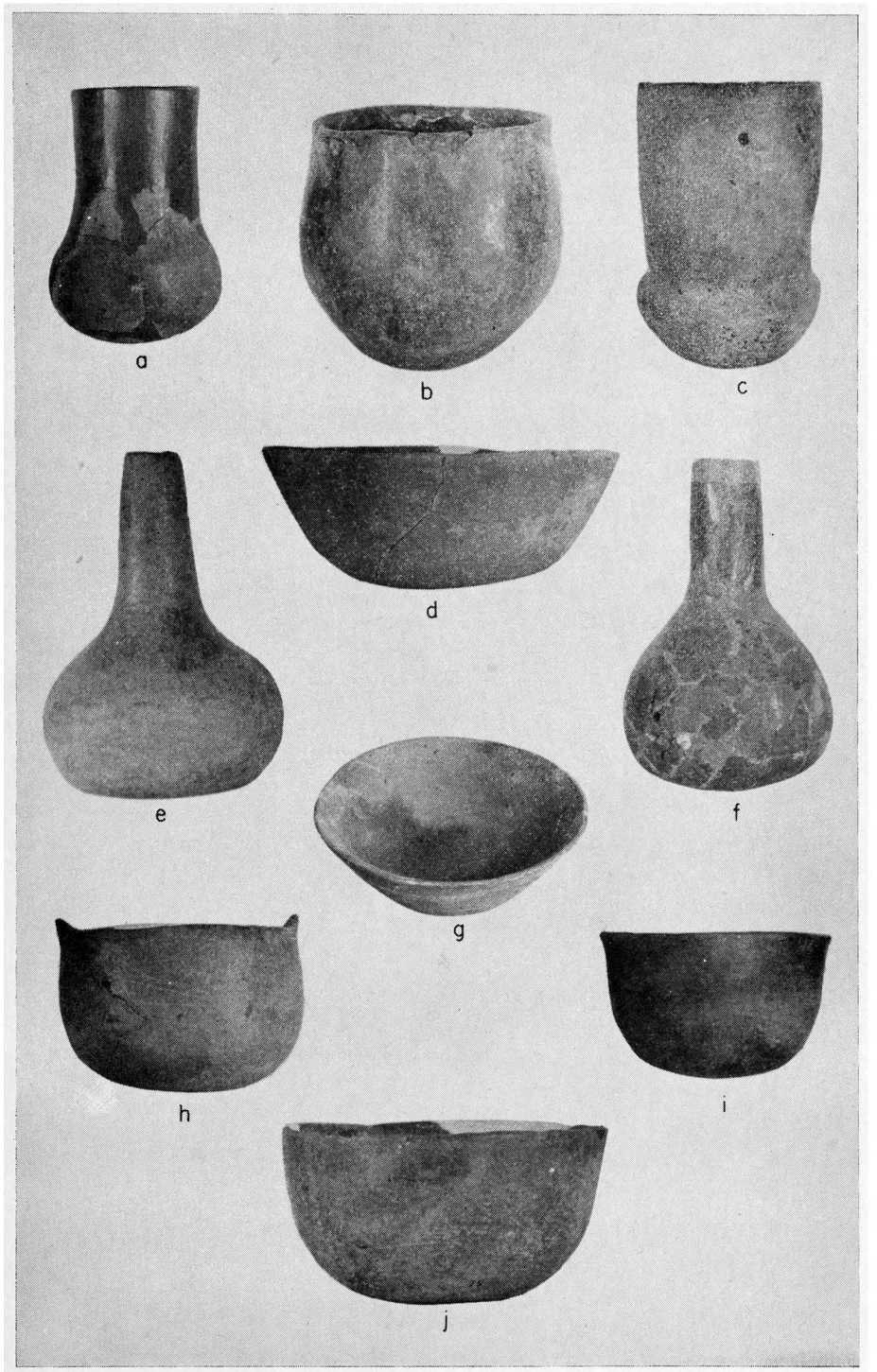

a
b
c
d
e
f
g
h
i
j

PLATE 27

Various vessels of *Sanders Engraved* from Sanders site, Lamar County, Texas.

a, c, e, f Carinated bowls; *a* red-filmed.

b Cylindrical-necked jar with suspension holes.

d, h Deep bowls with two opposed lip lugs.

g Large neckless bottle with suspension holes.

Note simple designs, consisting of single band of straight-line motifs such as triangles and hachuring. Note vessel shapes (except *g*) are also found in *Sanders Plain.* (Size about ¼.)

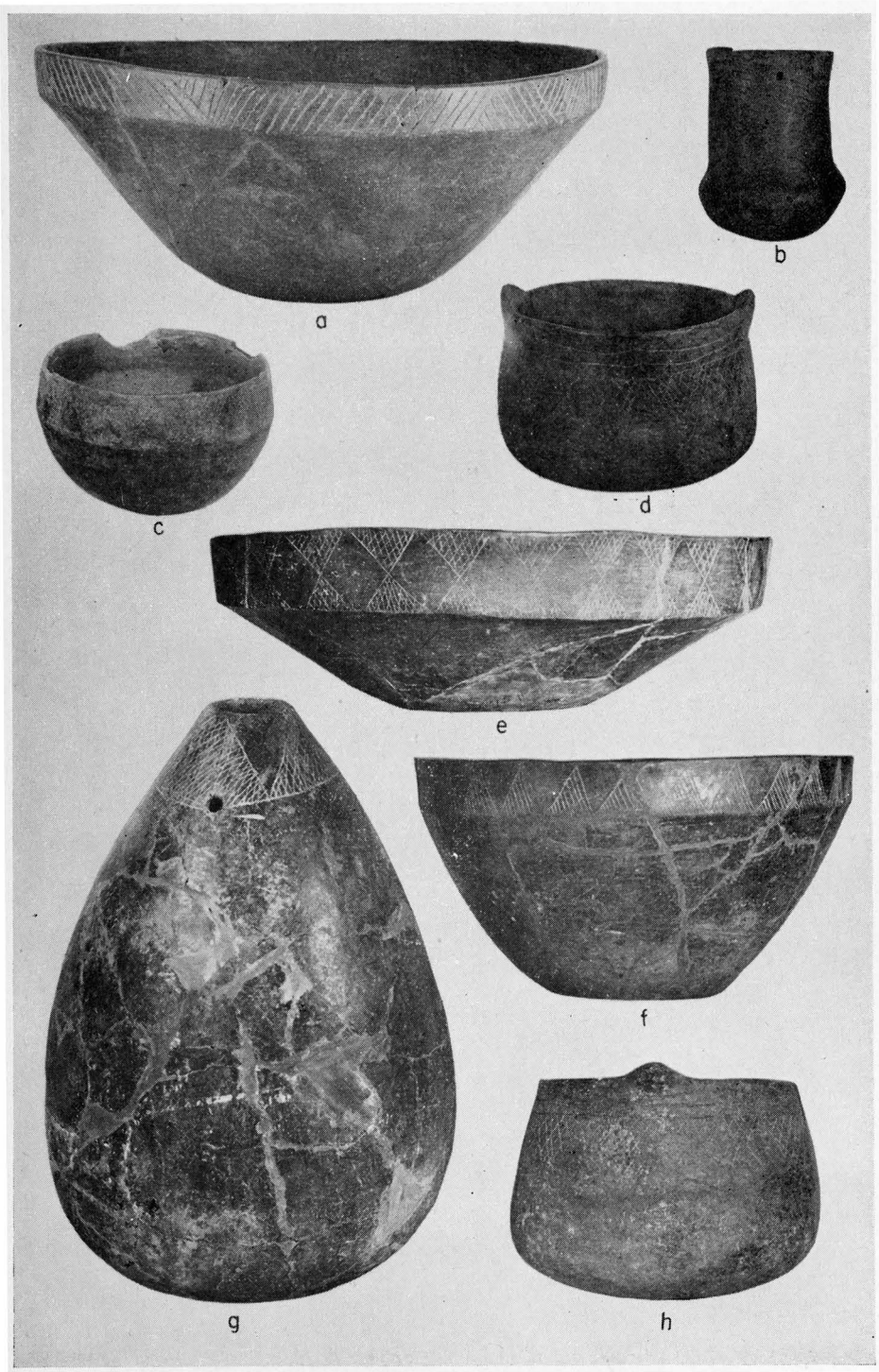

a
b
c
d
e
f
g
h

PLATE 28

Various vessels from the Sanders site, Lamar County, Texas.

a, b, d Carinated bowls, *Sanders Plain.* Note that the rim of *a, d* turns upward from the body, then sharply outward; *a* has spotty smudging in interior, *d* is a pale red color.

c Bottle with shelf around shoulder, four small loop handles, and series of banners probably applied in negative painting; these banners may be seen extending from base of neck to the shelf, and in vertical rows on the body.

e Deep bowl with flaring rim, *Sanders Engraved,* red-filmed. Note sets of five straight engraved lines spaced around rim interior.

f-g Cylindrical jars, *Canton Incised.* The design consists of diagonal hachured lines, or diagonal lines alternated with large punctates, in a single band around rim, with the body always plain. Bases are flat and circular.

(Size about ¼.)

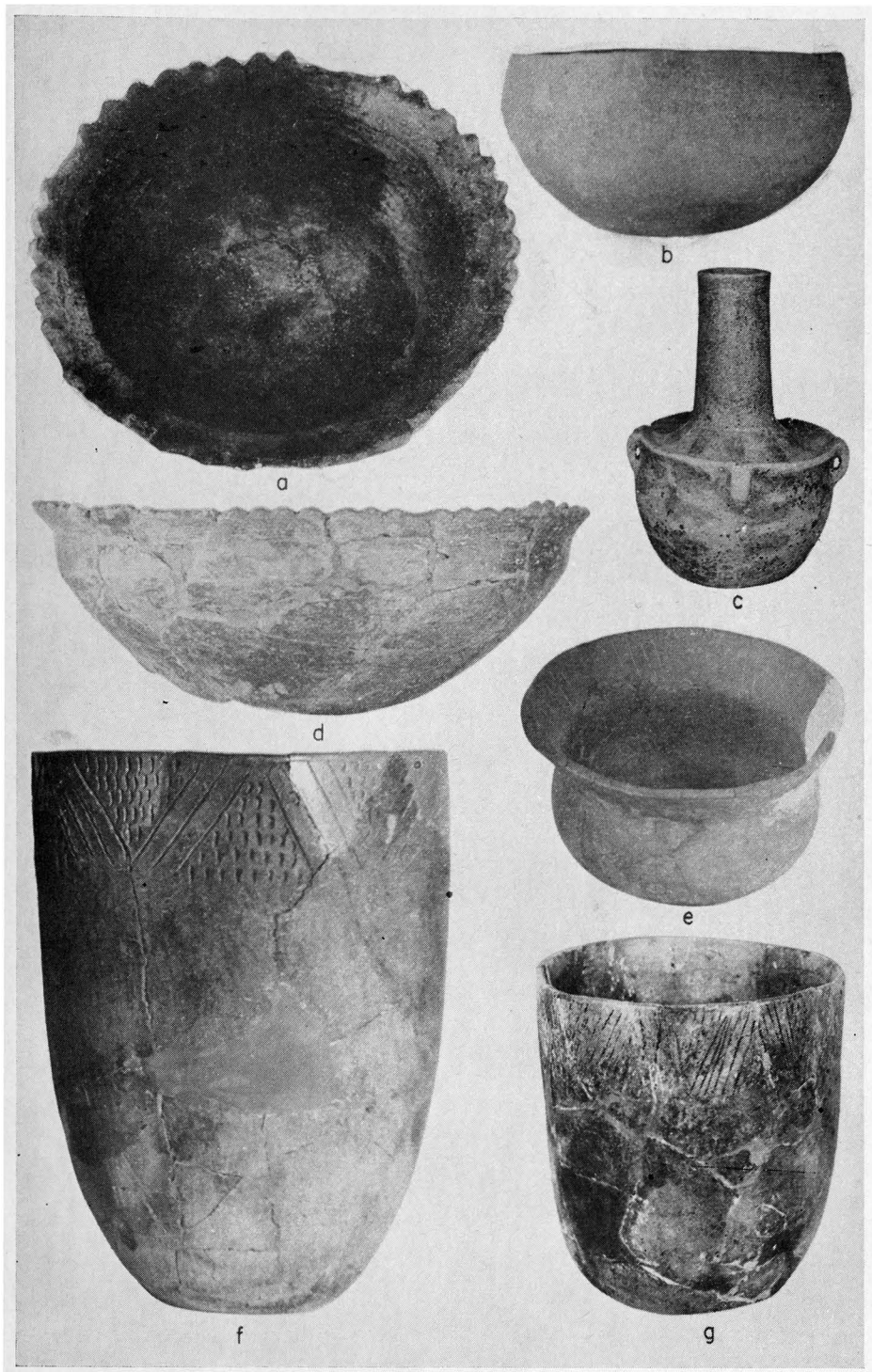

a
b
c
d
e
f
g

PLATE 29

Vessels of *Maxey Noded Redware* and *Monkstown Fingernail Punctated* from the Sanders site, Lamar County, Texas.

a-c Bottles of *Maxey Noded Redware*, always bearing a hard-baked red film on exterior only Note *a*, tri-chambered bottle with human face modeled at top of each chamber near base of common spout.

d-g' Jars of *Monkstown Fingernail Punctated*. Note use of two lugs *(d)* and two handles *(e-g)* with two projecting "ears" above lip. *g-g'* two views of same vessel. (Size about ¼.)

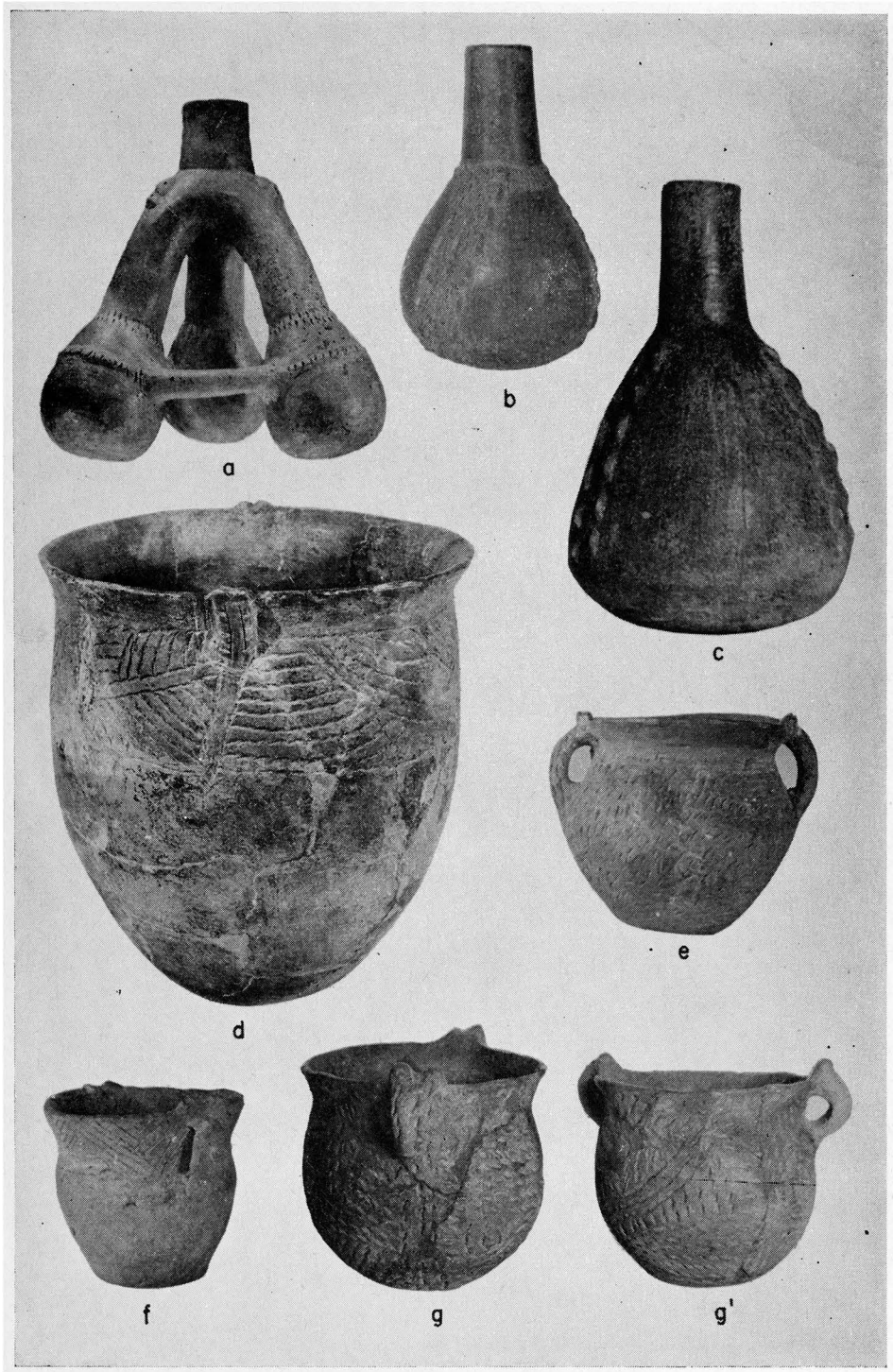

a
b
c
d
e
f
g
g'

PLATE 30

Shouldered and carinated bowls of the Texarkana Focus from Hatchel site, Bowie County, Texas.

a, c, e Sharp-shouldered bowls of *Simms Engraved.* Note decoration zone around shoulder, and manner in which rim turns up sharply to lip; such vessels are always round-bottomed.

b, d, f Shouldered bowls of *Simms Engraved* with rim turned inward somewhat less sharply than those to left, lip rounded, and bases either round or flat.

g-i Carinated bowls of *Barkman Engraved,* with rim straight and turned slightly inward or outward. Bases usually rounded, but occasionally flat on larger vessels *(i).*

These common bowls of Texarkana Focus may be compared with shouldered and carinated bowls from Pecos Pueblo, New Mexico (see figs. 20–22). (Size about ¼.)

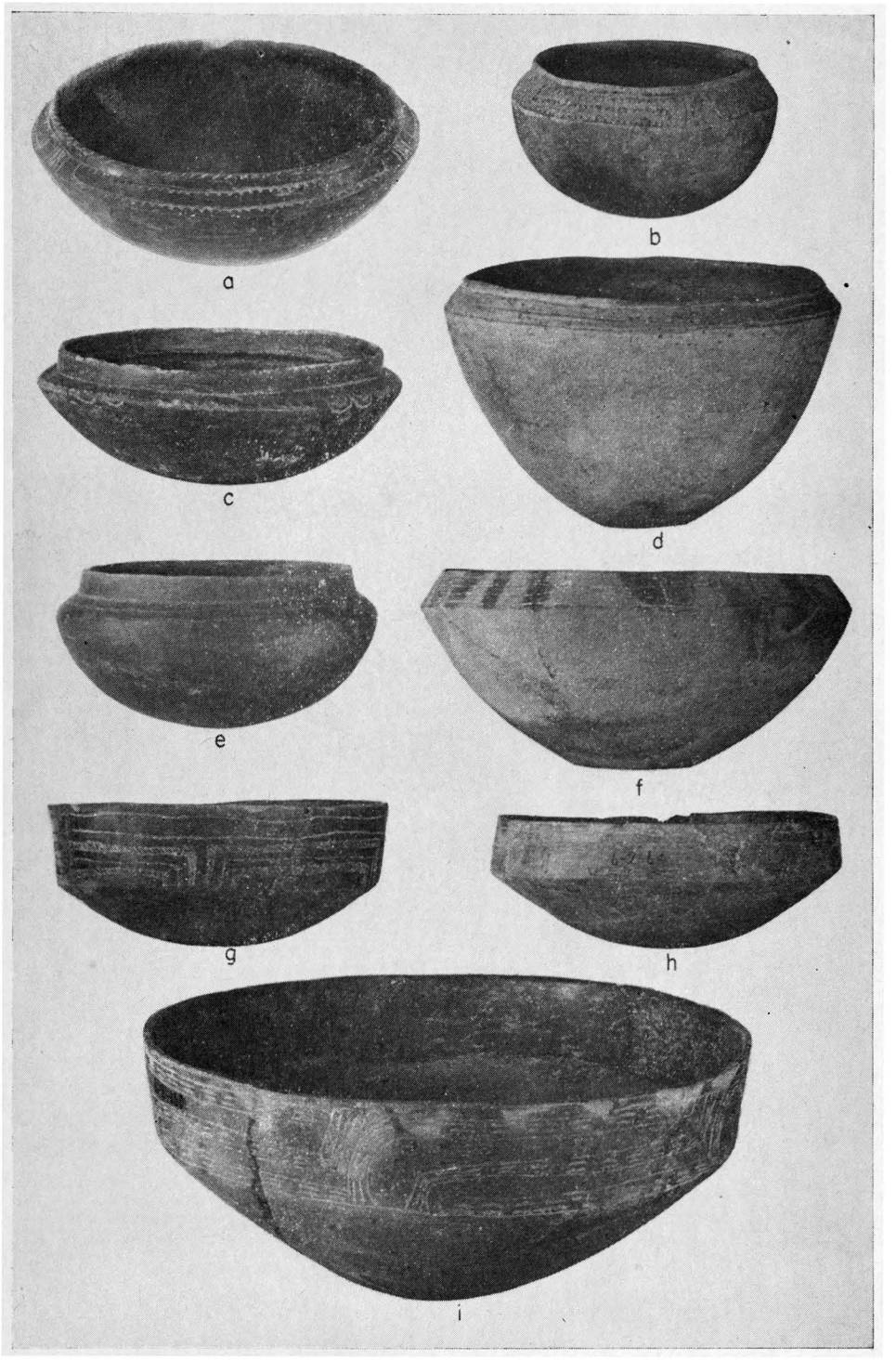

a
b
c
d
e
f
g
h
i

PLATE 31

Shouldered and carinated bowls of the Titus Focus from various sites in Titus, Harrison, Franklin, and Upshur counties, northeast Texas.

a-e, g Carinated bowls of *Ripley Engraved*, showing tendency toward high rims which usually flare outward, but may turn inward slightly *(d)*. Such bowls always have flat disk bases.

f, h Modified form of shouldered bowls, *Ripley Engraved (f)* and *Taylor Engraved (h)*, with rim turned inward and lip rounded, and bases flat or rounded, as in some *Simms Engraved* bowls of Texarkana Focus (pl. 30 *b, d, f*). (Size about ¼.)

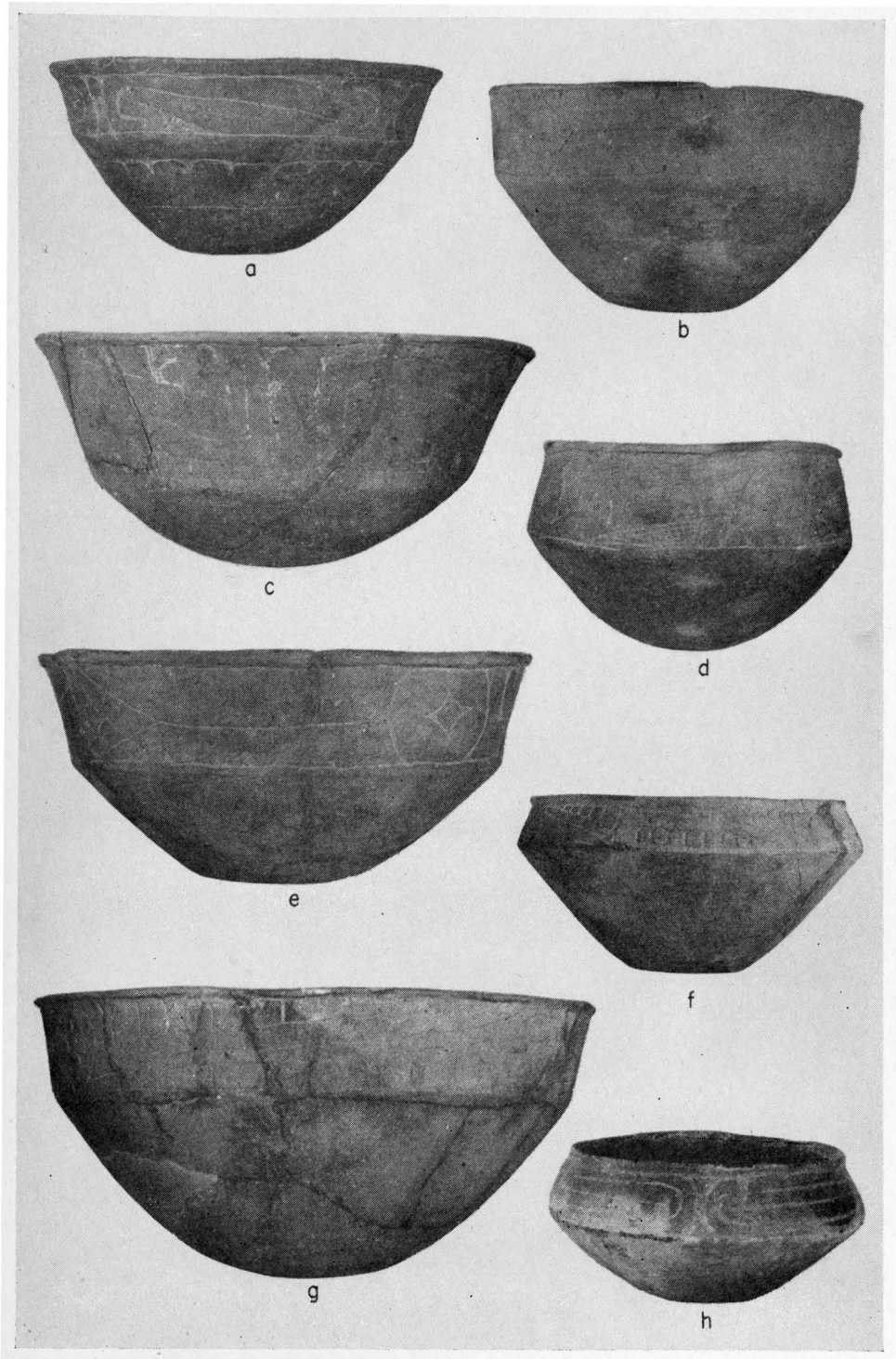

a
b
c
d
e
f
g
h

PLATE 32

Various vessels from Titus Focus components, northeast Texas, which suggest Puebloan influence on their shapes.

a Typical vessel of *Belcher Ridged*, found in Belcher and Titus Foci, always in form of tall, small-mouthed vessel shown here.

b, d Olla-like vessels of *Taylor Engraved*, found in Titus Focus.

c Vessel from Taylor site, Harrison County, Texas, which resembles *a* in shape but is decorated with vertical scored lines.

e-g Olla-like vessels of *Ripley Engraved* from Titus Focus.

These vessel forms occur in some numbers in both Belcher and Titus Focus, but more commonly in the latter. They are decidedly anomalous for the Southeastern archaeological province as a whole and may be due to Puebloan influences (see pp. 235–237 for discussion). (Size about ¼.)

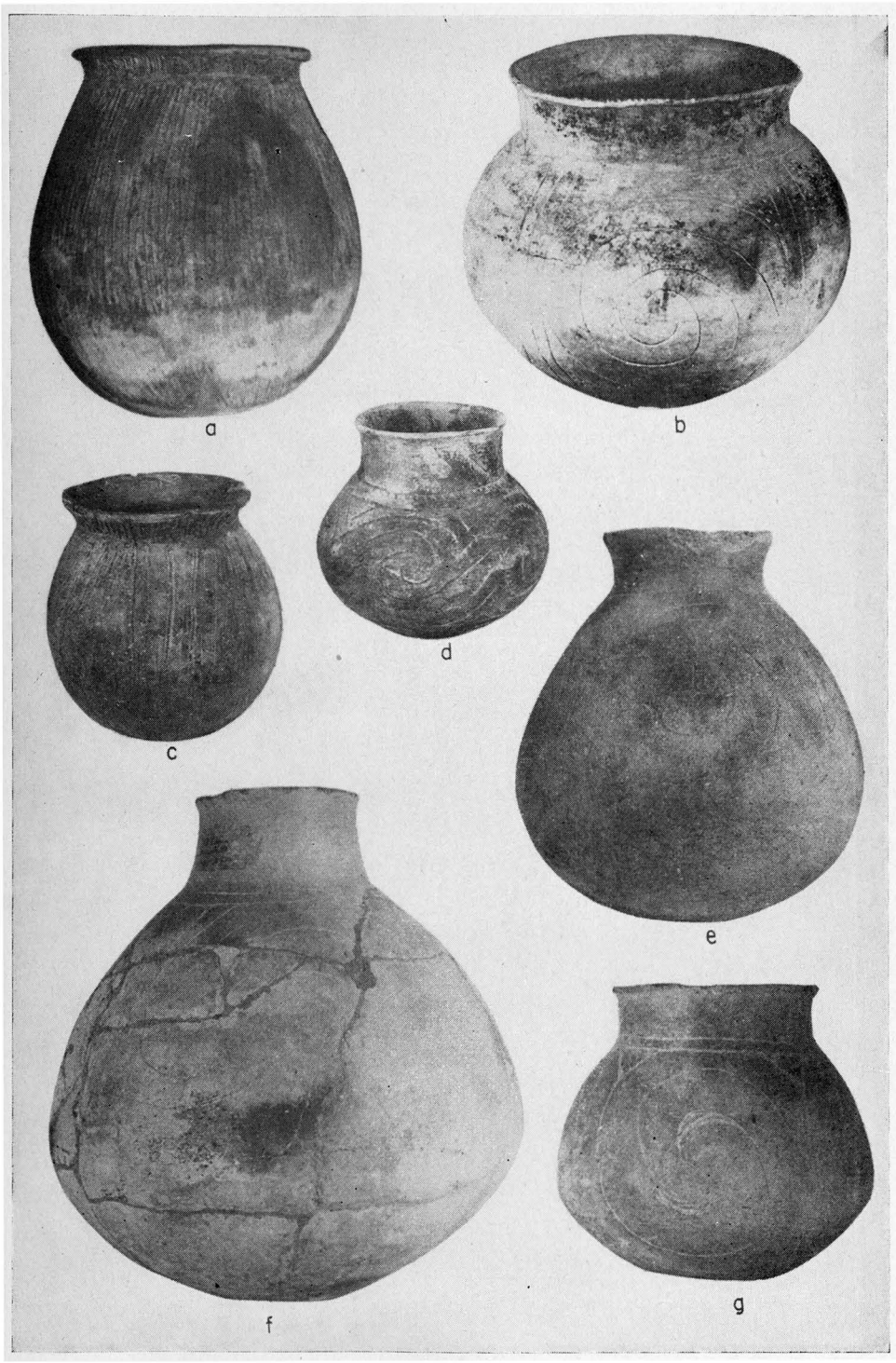

a
b
c
d
e
f
g

PLATE 33

Neck-banded and brushed pottery from northeast Texas.

a Large jar, type *LaRue Neck Banded* of Frankston Focus. Note unmodified neck coils and vertically brushed body. Base is a flat disk.

b Jar, *LaRue Neck Banded*, found in Coleman County, north-central Texas. An example of Frankston Focus pottery carried westward into central Texas in late prehistoric times. Neck coils crudely crimped at intervals; body brushed vertically. Flat disk base.

c-f Rim sherds, *LaRue Neck Banded*, showing variations in treatment of the coils from unmodified *(c)* to partly smoothed over *(f)*.

g Large cooking jar, type *Winfield Brushed* of Titus Focus. Interior polished, exterior brushed horizontally around rim and vertically on body; the black blotches are soot. Flat disk base.

(Size about ¼.)


a
b
c
d
e
f
g

PLATE 34

Neck-banded pottery from northeast Texas.

a Very large cooking jar, *Leesburg Neck Banded* of Titus Focus, with crudely crimped rim coils and plain body; dark blotches are soot. Flat disk base.

b, d, e Smaller jars, *Leesburg Neck Banded* with crudely crimped neck coils; *b* has applique decoration of four ridges alternated with four chevron areas around upper body, and four miniature lugs on the rim above the ridges; *d* has vertically brushed body; and *e* plain polished body and abundant tempering of crushed bone. All have flat disk bases.

c Jar, type uncertain, with five wide neck coils, each punctated with fingernail along lower edge; paste like that of Titus Focus jars. Flat disk base.

(Size about ¼, except *a*, actual height 19½ inches.)

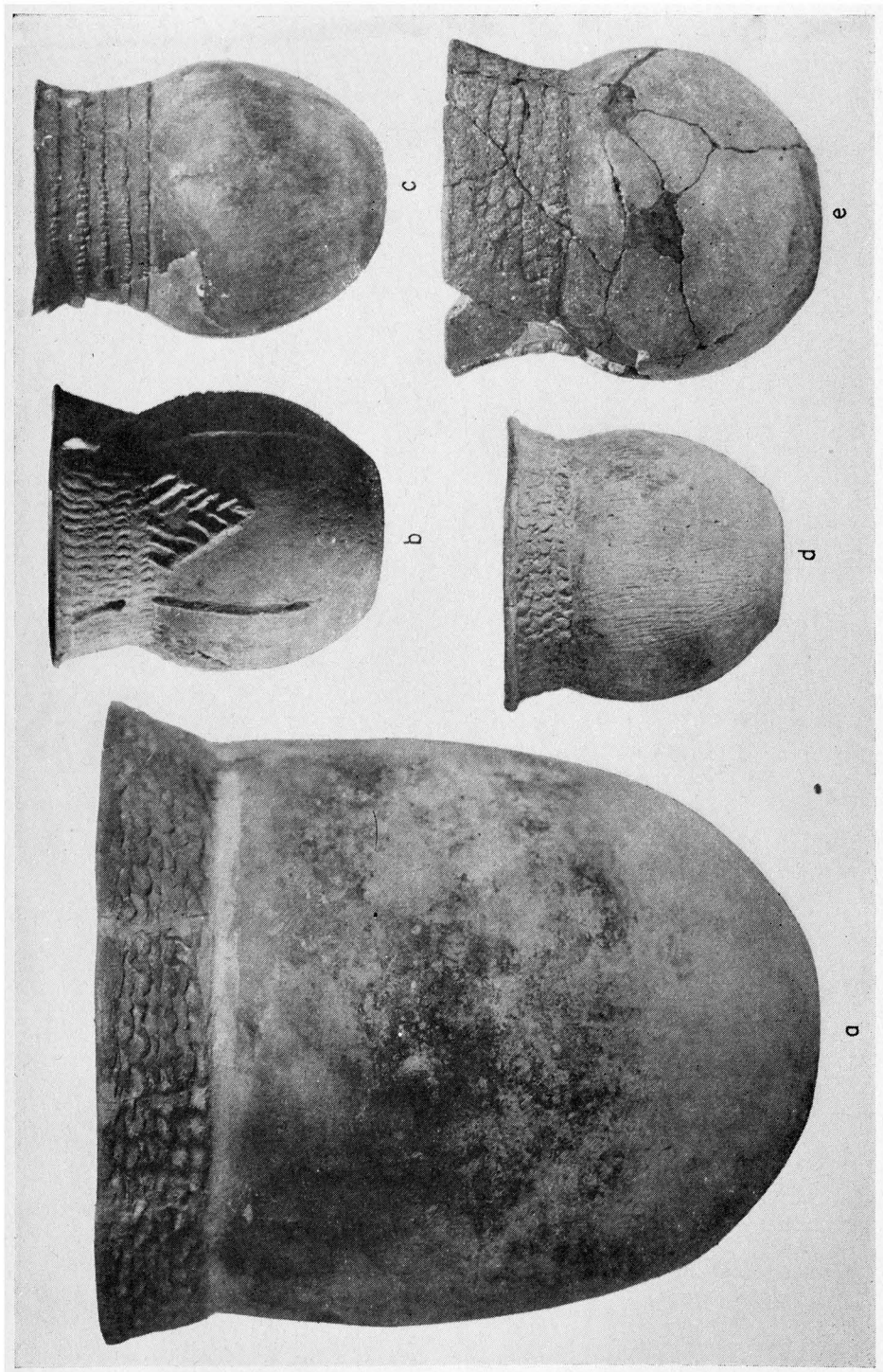

a
b
c
d
e

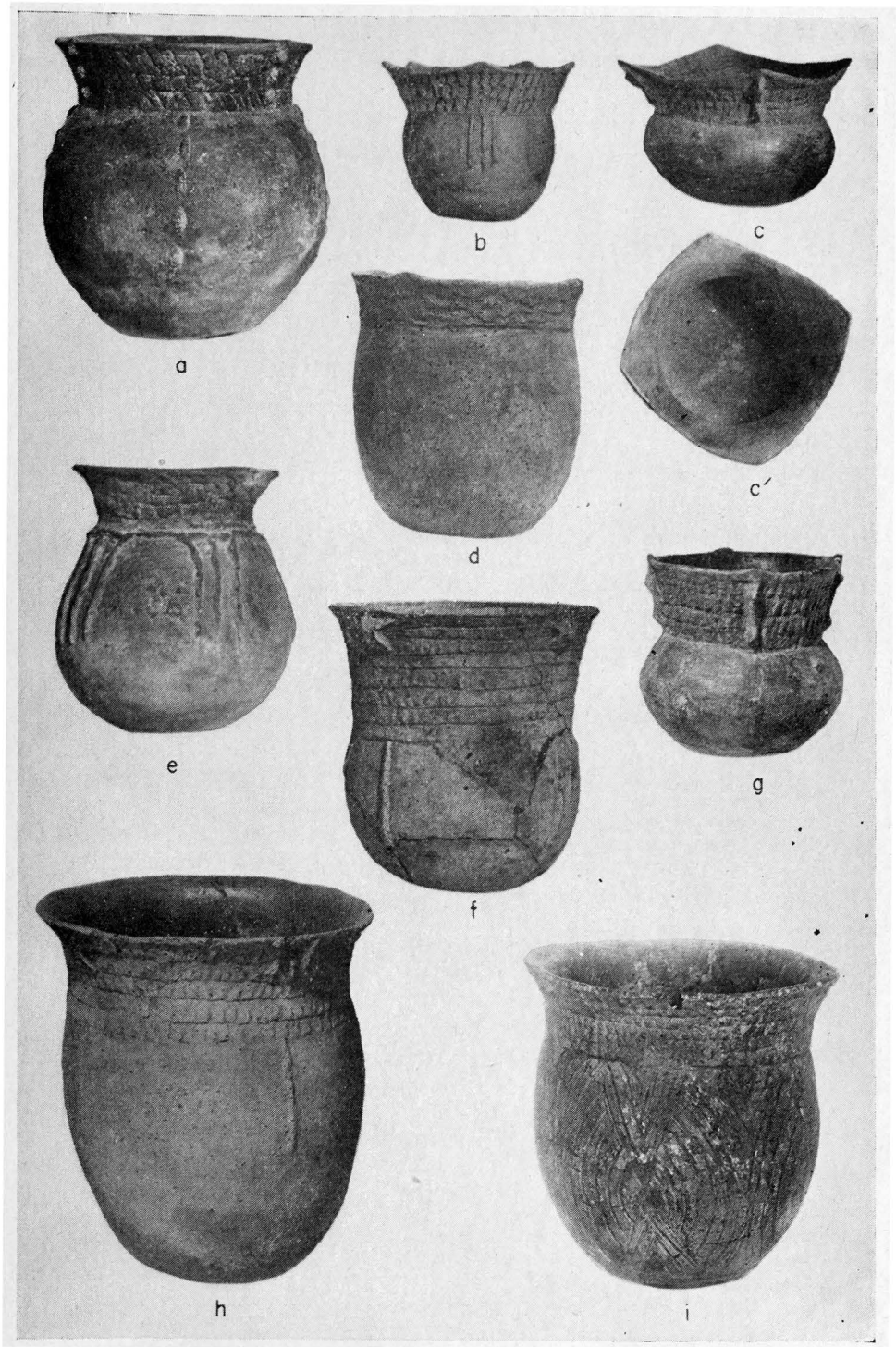
PLATE 35

Neck-banded pottery from northeast Texas.

a-d, g, h Jars of type *Nash Neck Banded*, Texarkana Focus. Note more regular crimping of neck coils than in Titus and Frankston Focus jars (pls. 33, 34); also common use of applied nodes and fillets to rim and upper body at four points. *a*, *b*, *d*, *h* have flat disk bases; *c* is round-bottomed. *d*, *h* shell-tempered.

e, f, i Probably *Nash Neck Banded*, but may be variations of *Leesburg Neck Banded*. Found in Titus Focus graves. *f* has incised lines marking coil seams and unusually high rim. *i* has very regular neck crimping, incised decoration on body, and shell temper.

The neck-banded jars of Texarkana and Titus Focus are sometimes difficult to distinguish, but in general those of Texarkana are better made, with the neck crimping forming a true corrugation, and shell-tempering a fairly common feature. (Size about ¼.)


a
b
c
d
c'
e
f
g
h
i

DIAGNOSTIC POTTERY TYPES OF SOME FULTON ASPECT FOCI

(S) shell temper occurs in type (R) red filming occurs in type

SCALE: 0 2 5 10 15 inches
0 5 10 20 30 cm.

FRANKSTON FOCUS

Patton Engraved (historic sites, Hasinai Caddos)

Poynor Engraved

(no red filming or shell temper in Focus)

GLENDORA FOCUS

common polished types from historic and protohistoric sites of "Caddo proper" groups; associated rough types not shown

Natchitoches Engraved (S,R)

Keno Trailed (S)

Fatherland Incised (intrusive Natchezan) (S,R)

BOSSIER FOCUS

Maddox Band Engraved

Pease Brushed-Incised

Taylor Engraved

TITUS FOCUS

Ripley Engraved (R)

Bullard Brushed

LaRue Neck Banded

Maydelle Incised

Killough Pinched

Winfield Brushed

effigy

rattle bowl

Leesburg Neck Banded

Harleton Appliqué

BELCHER FOCUS

Belcher Engraved

type?

effigies

Belcher Ridged (S)

Cowhide Stamped (S)

Belcher Plain

TEXARKANA FOCUS

Avery Engraved (S,R)

Simms Engraved (S,R)

Barkman Engraved

McKinney Plain

Nash Neck Banded (S)

Foster Trailed-Incised (S)

effigy & rattle

FIG. 18. Common pottery types of some Fulton Aspect foci. Arrangement roughly chronological, with latest types at top (except Bossier Focus may be earlier than Titus). Use of shell temper and red filming in each type indicated by symbols S and R. Contrast Fulton Aspect pottery in shapes and decorations with Sanders Focus (pls. 24–29, fig. 14) and other Gibson Aspect foci (fig. 19). Note olla forms in Titus and Belcher; neck-banded jars in Frankston, Titus, and Texarkana.

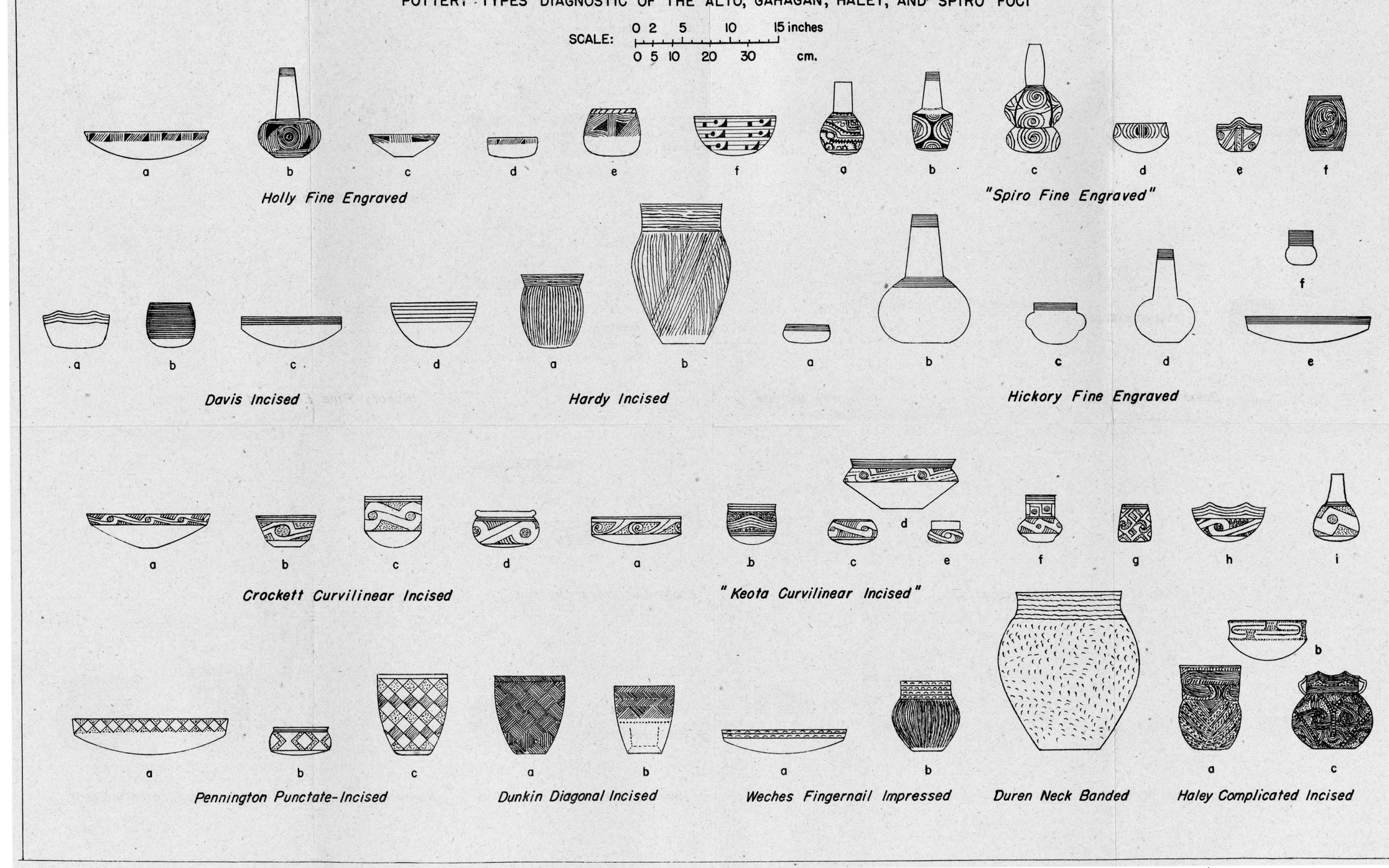


FIG. 19. Selected vessels showing shapes and decorations of Gibson Aspect pottery in Alto, Gahagan, Haley, and Spiro Foci. The types are most common in the following foci: Holly (Alto, Gahagan); "Spiro Fine Engraved" (Spiro, Haley); Davis (Alto, Gahagan); Hardy (late in Alto); Hickory (Alto, Gahagan?, Haley, Spiro); Crockett, Pennington, Dunkin, and Weches (Alto); Duren (late in Alto); "Keota Curvilinear Incised" (Haley, Spiro); Haley Complicated Incised (Haley): The names "Spiro Fine Engraved" and "Keota Curvilinear Incised" are improvisations of the author and have not been used in Oklahoma and Arkansas, where these vessels are mostly found.

SUGGESTED ALIGNMENT OF AGRICULTURAL AND POTTERY-BEARING CULTURES FROM THE RIO GRANDE TO THE MISSISSIPPI

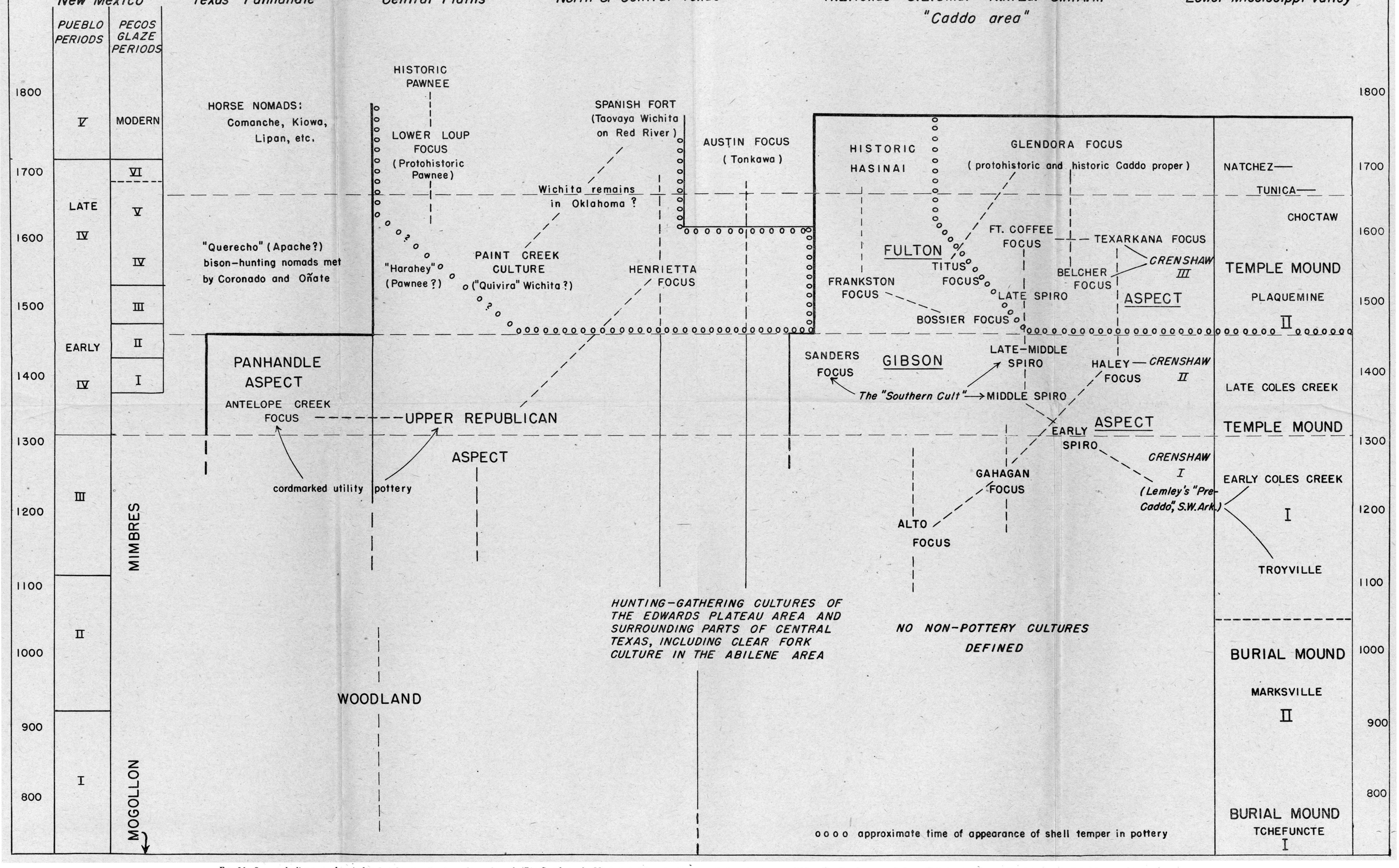
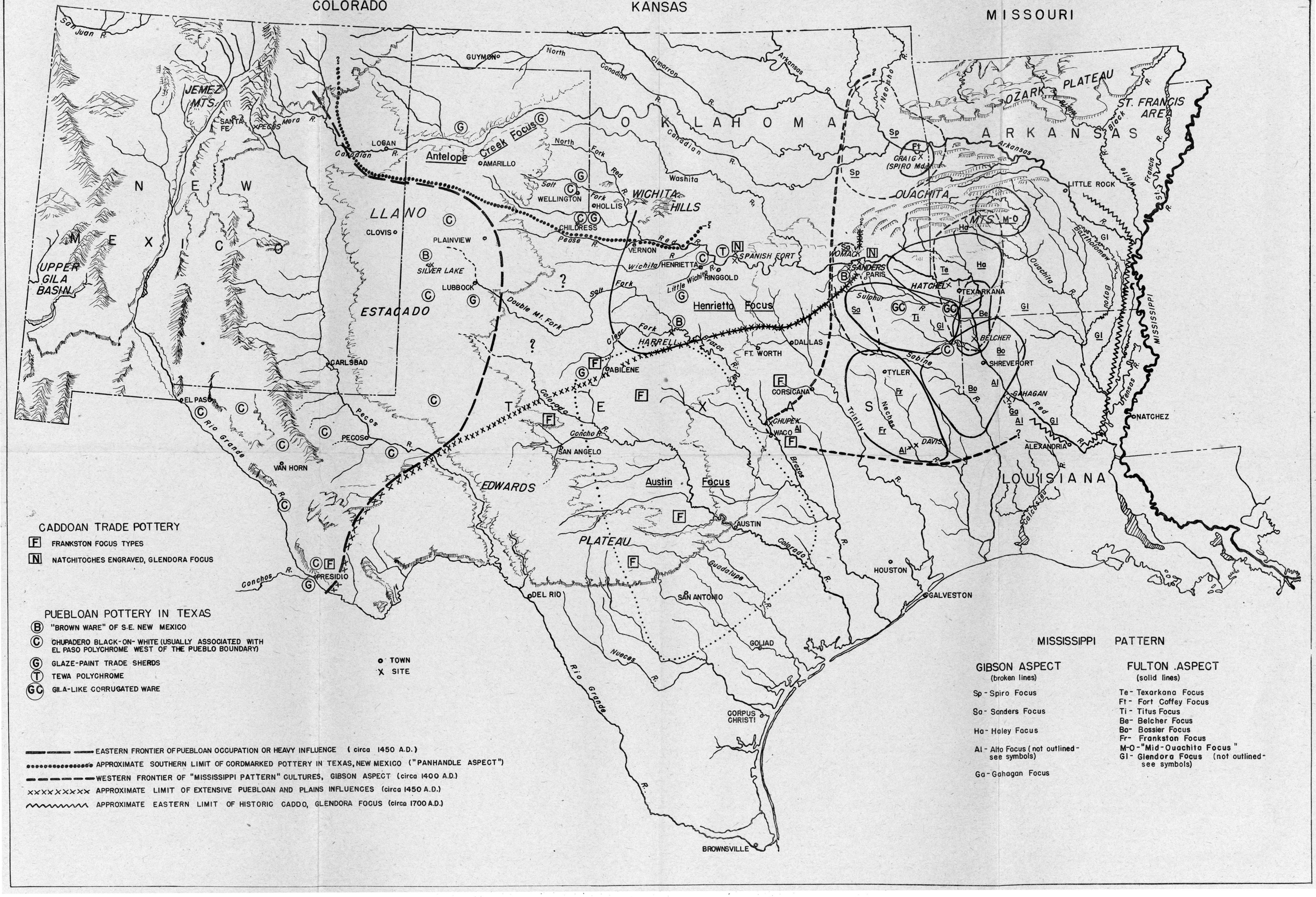


FIG. 26. Suggested alignment of agricultural and pottery-bearing cultures from the Rio Grande to the Mississippi. The generally-recognized Puebloan time scale at the left provides the basis for extending datings eastward. Puebloan trade sherds, stratigraphic data, and documentary materials are used to determine the age of these cultures. Broken lines indicate varying kinds and degrees of cultural continuity, influence, and borrowing (see text). The Lower Mississippi valley sequence at right is based on that of Ford and Willey (1941), the Early Spiro to Ft. Coffee sequence on Orr (1946); in both cases the chronological position of these cultures as shown here is the author's responsibility. The Crenshaw mound site on Red river in Arkansas (Lemley, 1936) includes three superimposed components: I, Lemley's "Pre-Caddo" graves with Troyville and Early Coles Creek pottery; II, a Haley Focus component; III, surface occupation and graves with Texarkana and Belcher Focus materials (II and III were combined by Lemley as "Caddo"). For general area covered by the cultures on this chart see Map 1.



CADDOAN TRADE POTTERY

- F — FRANKSTON FOCUS TYPES
- N — NATCHITOCHES ENGRAVED, GLENDORA FOCUS

PUEBLOAN POTTERY IN TEXAS

- B — "BROWN WARE" OF S.E. NEW MEXICO
- C — CHUPADERO BLACK-ON-WHITE (USUALLY ASSOCIATED WITH EL PASO POLYCHROME WEST OF THE PUEBLO BOUNDARY)
- G — GLAZE-PAINT TRADE SHERDS
- T — TEWA POLYCHROME
- GC — GILA-LIKE CORRUGATED WARE

o TOWN
X SITE

- EASTERN FRONTIER OF PUEBLOAN OCCUPATION OR HEAVY INFLUENCE (circa 1450 A.D.)
- APPROXIMATE SOUTHERN LIMIT OF CORDMARKED POTTERY IN TEXAS, NEW MEXICO ("PANHANDLE ASPECT")
- WESTERN FRONTIER OF "MISSISSIPPI PATTERN" CULTURES, GIBSON ASPECT (circa 1400 A.D.)
- APPROXIMATE LIMIT OF EXTENSIVE PUEBLOAN AND PLAINS INFLUENCES (circa 1450 A.D.)
- APPROXIMATE EASTERN LIMIT OF HISTORIC CADDO, GLENDORA FOCUS (circa 1700 A.D.)

MISSISSIPPI PATTERN

GIBSON ASPECT (broken lines)

- Sp - Spiro Focus
- Sa - Sanders Focus
- Ha - Haley Focus
- Al - Alto Focus (not outlined - see symbols)
- Ga - Gahagan Focus

FULTON ASPECT (solid lines)

- Te - Texarkana Focus
- Ft - Fort Coffey Focus
- Ti - Titus Focus
- Be - Belcher Focus
- Bo - Bossier Focus
- Fr - Frankston Focus
- M-O - "Mid-Ouachita Focus"
- Gl - Glendora Focus (not outlined - see symbols)

MAP 1. General map of the regions included in this report. All boundaries approximate and subject to revision. Lines in "Caddo area" indicate extent of area in which components of each focus occur, with a few exceptions; these areas labeled with symbols given in legend at lower right. Trade sherds entered for Texas only. For temporal relations of culture complexes see fig. 26.

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