The Wheeler Site: a 3,500 Year-old Culture in Dallas County, Texas

Wilson W. Crook, Jr.

Discovery and investigation of the Wheeler site near Carrollton, Dallas County, Texas, has led to the tentative identification of a 3,500-year-old, “Little Pluvial” age, non-pottery culture in north Texas; it seemingly is a phase of a larger complex which at one time occupied the upper reaches of the Trinity River drainage and the middle area of the Brazos River, and may possibly demonstrate relationships with the “Desert Cultures” of California-Lower California to the west, vestiges of a late contact with remnants of the old Plainview-type culture, and with the eastern Archaic from the Mississippi Valley. It also is perhaps the source of the “Carrollton Skeleton” found in an apparently-Pleistocene terrace nearby in 1940. The work has been carried on by the writer and Mr. Jack W. Harkey; it has been visited by Dr. Claude C. Albritton, Jr., and his Southern Methodist University graduate class of sedimentary geology; Dr. Helmut de Terra, discoverer of the “Tepexpan Man” and the Chalco culture in Mexico, and the Soan culture in southeastern Asia; Mr. Edward B. Jelks of the Smithsonian River Basin Surveys; and Mr. R. K. Harris and Mr. Jack Hughes, both of the Dallas Archaeological Society. I am indebted to each of these visitors for their various observations and suggestions.

Location and Description of the Site

The Wheeler site is located on the property of Mr. D. L. Wheeler, for whom it was named, in the northwestern corner of Dallas County (see Fig. 1). It is situated at an average depth of approximately five feet in the first terrace of the Elm Fork of the Trinity River, some 150 yards south of Denton Creek where this tributary enters the river’s flood plain; this is 1.2 miles upstream from the confluence of these two waterways, and about 3.1 miles west of Carrollton,
Texas. The terrace which contains the site is the Carrollton Terrace, standing some 10 feet above the present flood plain; the Elm Fork now runs in a 20-foot notch cut into this flood plain below. The site is exposed in the side walls of a multiple and extensive gravel pit operation, and the subsequent “gullying” and erosion of these side walls; the pits were dug during the period 1946-1948 and were not available to the original finders of the “Carrollton Skeleton.” It was in search of the possible source of this 1940 find, almost precisely 0.3 mile south, that the Wheeler site was located.

Geology of the Wheeler Site

A triple-terrace system exists in the Upper Trinity River region. At Dallas, some 12 miles south on the main stream, Dr. Ellis W. Shuler identified them as the Union Terminal-
Travis School-Love Field terraces, in ascending order from lowest to highest; on the Elm Fork in the Carrollton area, Mr. L. Gray Pattillo, Jr.\(^2\) identified them as the Carrollton-Farmers Branch-Bethel, likewise in ascending order, and traced his highest (Bethel) terrace southward to its positive conjunction with the site locality of Shuler's highest (Love Field) terrace. Thus, the lower two terraces are likewise considered to be identical. Dr. Alfred S. Lull\(^3\) identified the fossils of elephant, bison, sloth, camel, horse, and saber-tooth from the lowest terrace at Dallas (Union Terminal) as being Pleistocene, and therefore the lowest terrace (Carrollton) in the Carrollton area is also attributed to the Pleistocene. It is perhaps significant that gravel occurs only in the lowest terrace in both localities. The Wheeler Site is definitely located in a segment of this lowest (Carrollton) terrace as mapped by Pattillo in 1940 (Fig. 1).

The section of the Carrollton Terrace at the Wheeler site is shown in Fig. 3. Three definite strata, each separated from the other by erosional disconformities, comprise the terrace. Topmost (A) is a fluvial, fresh-appearing, unconsolidated, brown sand with an average thickness of five feet; in some instances it fills channels in the underlying formation and increases to as much as 6 1/2 feet in depth; in other areas where the underlying formation rises, it is only about four feet deep. At the surface it is weathered and carbonized by humus into a grey, sandy, loam typical of a forest soil — an observation borne out by Mr. Wheeler's personal recollection.

\(^{2}\)Pattillo, L. Gray. River terraces in the Carrollton area, Dallas County, Texas, Field & Lab., VIII, 27-32, 1940.

of clearing the land of virgin timber in 1910. It is in the basal six to 18 inches of this brown sand that all artifacts and one fragmentary human skull have been recovered; no cultural remains whatsoever have been discovered on the surface, and even erratic flint chips do not occur at depths shallower than 40 inches from the surface.

A definite erosional disconformity separates this brown sand from the hard, consolidated, cream-colored clay (B) beneath. Consolidated root fillings in the clay end abruptly at the contact line. The clay layer, averaging some four feet in thickness, gives the impression of considerable age; no artifacts or cultural material have been found even partly embedded in the clay.

Another erosional disconformity with a mineral concentration zone caused by solution separates the clay from the underlying gravel formation (C). This gravel layer, also averaging four feet in thickness, is heavily stained with iron and likewise appears to be of much greater age than the
brown sand. It, too, is sterile in cultural objects. The Cretaceous Eagle Ford shale forms the bedrock under the gravel. Both the fresh appearance of the brown sand (A) and the presence of the type of artifact in its basal portion argue for a much later time of deposition than the two old, consolidated layers beneath. These two (B and C) are considered to be the actual Pleistocene terrace, with the erosional disconformity at the top of the clay (B) representing the old surface at the close of the Pleistocene some 10,000-12,000 years ago. After a long lapse of time, it received an added layer, the brown sand (A), as a result of later flooding that again covered the terrace. Examination of this brown sand under the magnifying glass, plus the general character of the deposit, precludes aeolian deposition and identifies it as a flood material.

**Dating of the Cultural Stratum**

From its inclusion in a terrace already shown to be considered as Pleistocene, it would logically appear that the cultural stratum and the brown sand covering it were at least 10,000 years of age. However, the fresh appearance of the sand, the type of artifact present at its base, and the absence of any type of extinct animal forms, all argue strongly for a later dating. On the basis of artifact typology, specifically stemmed-and-shouldered projectile points, an age of much beyond a few thousand years cannot be postulated. Let us, therefore, examine other pertinent facts:

The U.S. Coast & Geodetic Survey maintains a stream gage at the old Carrollton Dam by the bridge (Fig. 1) just 1.3 miles southeast of the site. The record flood since installation was that of 1908, which rose 28 feet above gage zero, at that distance downstream; according to Mr. Wheeler, the 1908 flood barely reached the base of the terrace. To have risen an additional 10 feet and cover the present terrace — across the widest reach of the flood plain — would have required a water volume of approximately twice that of the 1908 flood. This is an occurrence difficult to attribute to modern times (witness the severe drouth cycles of A.D. 1275-1300 and A.D. 1450-1475 recorded by tree-rings for the Southwest), and yet, for reasons already stated, equally impossible to assign to the “Great Pluvial” of some 10,000 years ago. It is, therefore, proposed that the “Little Pluvial” provided the
unusual precipitation which caused the late flooding and the deposition of the brown sand. As the artifacts occur at the base of the sand, the human occupation must have just preceded this geologic phenomenon.

Therefore, the date of the "Little Pluvial" is of prime importance. This has been estimated by various outstanding geologists as having taken place about 3,000 to 3,200 years ago; the re-advance of certain mountain glaciers in Europe and America, perhaps coincident with, or the cause of, the "Little Pluvial", has also been estimated as having taken place about 3,500 years ago. The new technique of radiocarbon dating gives us a much more definite means of arriving at a specific, though approximate, date for this period. Seven carbon dates of formations attributable to the "Little Pluvial" are now available\(^4\) and form the basis of Chart 1, Page 49.

The two Watertown, Alberta, Canada dates are from a wood and a peat sample, respectively, taken from a late Rocky Mountain glacial forest bed; the Sand Island, Wisconsin date is from peat correlated with the Nipissing Great Lakes stage; the Boston, Massachusetts date is from peat of marine origin overlying the famous Boylston Street Fishweir, apparently caused by a rise in sea level; the Dolton, Illinois date is from wood taken from the beach of old Lake Chicago; the Tlaltico, Mexico date is from an Early Middle Culture burial charcoal considered to be previous to a rise in the level of Lake Texcoco; the Zacatenco I date is from an occupation level beneath the silts deposited by this rise in Lake Texcoco. Each sample's plus-or-minus possible variation as measured by Messrs. W. F. Libby and J. R. Arnold has been plotted against a time-scale graduated for each hundred years; where the difference exceeds the possible allowable variation, the bracket has been marked as "impossible" by an "X". Utilizing this method, only one column—that headed by "3,500"—emerges without an "X" and encloses all of the variations possible to all dates. By closer examination it is found that this period encompasses the dates from 3,451 to 3,501.

Though too few to be definitive, if these sample dates do represent various evidences of the "Little Pluvial" activity, such as advancing mountain glaciers, rising lake levels, rising

# Chart 1: Comparative Analysis of “Little Pluvial” Radiocarbon Dates

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*American Antiquity: Radiocarbon Dating Vol. XVII.

Common Possibilities: 3,451-3,501 Years Ago
sea level, etc., then Chart I provides an approximate date for the event. Thus the Wheeler occupation, just at the base of the sand attributed to the “Little Pluvial”, is tentatively dated at about 3,500 years ago, plus-or-minus.

Cultural Material

Artifacts from the occupation level include projectile points, end-scrapers, side-scrapers, choppers, core implements, hammerstones, knives, drills, cutting and scraping flakes, and innumerable sun or fire-burnt clay “blobs”. Negative evidence includes no pottery, no grinders of any type, no polished stone work or celts, no boat-stones or atl-atl weights of any type, no sinkers, no bone implements or shell work (at least not preserved), and no bones of extinct fauna. Varying in depth from 48 to 69 inches, a number of artifacts were recovered in situ (see Plate I for examples) in the pit walls and gully sides and in test digging; others were found on the slopes or in the pit below, and on adjacent spoil heaps composed of the brown sand.

Projectile points are the most common artifacts, some 77 whole or broken ones having been found (examples are shown in Plates II, III, and IV); the general workmanship of these is rather crude, presenting a thick cross-section and with flaking and retouch (if any) ranging from poor to fair, “good” in a few instances, and “excellent” in only three specimens. Point types vary through an entire range of gradation from leaf-shapes, to slightly-stemmed, slightly-indentated, roughly-shouldered, some one-shouldered, and a few even which approach actual barbing. The flaking technique seems to be generally percussion, with only a very few examples suggesting pressure work. Some erratics from earlier cultures appear to be present, such as re-worked Plainviews (or unfluted, basic Folsoms) [Nos. 8 & 9, Plate III] and one seemingly from the Edwards Plateau aspect of Texas, possibly more or less contemporaneous (No. 7, Plate III), which also exhibits the characteristic “West Texas” right-beveled edges — the only specimen from the site possessing this feature. These were probably “pick-ups” or possibly, trade-pieces acquired from earlier sites then more exposed and available than they are today, and re-utilized by these later people. The entire group contrasts strongly with the typical Alba-Barbed Caddo and the side-notched triangular
Wichita "bird-points" from common Dallas County sites of recent age, illustrated in the enclosed space on Plate III for comparative purposes.

Two sizes of projectile points appear to be represented, although almost every possible intermediate size is present: a larger group, ranging up to 65 mm. in length, and a smaller, reaching a minimum length of 32 mm. The larger series is almost definitely a dart type used with the atl-atl for hunting larger game, such as bison; the smaller could be either small dart points for smaller game such as deer, or equally well, could be arrow-points. It is the writer's opinion, in view of the thinness and small-size of recent Indian arrow-points, coupled with the estimated age of the site and the absence of nearly every other "modern" trait in the total assemblage of artifacts, that the bow-and-arrow was not present.

Measurements of the point series give an average length for 51 whole or almost-whole specimens of 44 mm., varying from 65 mm. maximum to 32 mm. minimum; and 8 mm. in thickness of cross-section, varying from an 11 mm. maximum to a 5 mm. minimum.

Examples of all types present at Wheeler are shown in the illustration. It is interesting that 90 per cent of the projectile points are made from some variety of flinty material, exceptional in view of the fact that only a poor grade of quartzite is available as native material in the Dallas-North Texas area. On the other hand, as we shall see, nearly 90 per cent of the scrapers and other artifacts are fashioned from quartzite; this may indicate that the people involved had only recently migrated from a previous flint-bearing region — perhaps Oklahoma to the northwest along Denton Creek, or West Texas along the Brazos River — carrying their darts or "ammunition" even as a modern hunter would, but fashioning their everyday tools from local materials at hand.

Two main series of scrapers are present, end-scrapers and side-scrapers. The end-scrapers form a distinctive and surprisingly consistent type, as illustrated in Nos. 1-11 on Plate V; they are roughly triangular in form, plano-convex in technique, all but No. 1 and No. 9 are of the same grey quartzite, and exhibit from one to three definitely beveled working edges. As a group, they are much more distinctive and recognizable out of context than are the projectile points — a quite unusual occurrence for scrapers! Such specializa-
tion and more-than-usual care in workmanship on scrapers indicates considerable utilization of animal hides, a conclusion compatible with other indications that hunting was the main feature of the economy. They closely resemble Clear Fork gouges and planer-gouges.

Side-scrapers, shown in Plate V as Nos. 12-22, are large flakes roughly worked to shape; they are usually of a coarser reddish quartzite, with the exception of a few of flint and petrified wood.

Plate VI illustrates a number of other artifacts: hammerstones; point blanks, a rough core implement or chopper and a large broken, biface chopper; fragments of four knives; two flint flake scrapers or cutters; and an apparently combination scraper-and-shaft-scaping tool. The knives give evidence of better workmanship than do the projectile points; this is a feature common to a number of other hunting cultures, for example the corner-tang knife people of Central Texas, and is apparently a trait to be expected in groups that lived almost entirely by hunting and to whom the processes of skinning, quartering, and hide-working were highly important. Projectile points were expendable; knives were not, and hence received more care in their construction.

One remaining cultural evidence is not pictured — the numerous clay "blobs". These appear everywhere that the cultural layer outcrops and are thoroughly intermixed with it. They definitely are not pottery, but do seem to be either sun-burnt or fire-burnt; if they were hearth linings, one would be compelled to infer a fire-pit in almost every square yard of the site. Therefore, although no wattle-marks have been found on the "blobs", the suspicion is very strong that they are connected in some manner with brush-huts or houses — possibly as clay floorings or daubing on the sides and top. No post holes have been found, however. House evidences have recently been uncovered at the Pinto Basin-type Stahl site near Little Lake, California, of at least comparable age, and it is known that the Early Middle Culture people in the Valley of Mexico — carbon-dated as being at least 3,310 ± 250 years ago — possessed rude wattle huts, so there is a definite possibility for this assumption to be correct.

Conditions for the preservation of bone are very poor, and only unidentifiable fragments are found; of interest is the
total absence of mussel shells in the deposits, whereas practically all Dallas County sites of later age possess them, and many present massive mussel-shell middens; apparently these earlier hunters preferred strictly "red meat" for their diet! Another thought is the fact that the streams running at high, or even flood-stage, at the time of occupation, offered a poor opportunity for mussels to be collected. Not enough bone fragments exist for radio-carbon dating, nor does charcoal seem to exist in sufficiently concentrated quantities; objects of wood have apparently totally disintegrated.

Human Remains

A portion of one incomplete human skull, comprising about one half of the skull cap, nearly the entire right side of the brain case, the forehead and brow regions topping the eye sockets, and the nasal bones, are the only human remains recovered to date. This skull was found in situ (see Plate I) in the pit wall at a depth of 54 inches from the surface and six inches above the clay contact line. The bones were not mineralized in any degree whatsoever, but rather were so decalcified and subject to complete disintegration that copious quantities of shellac were required to preserve them—an unfortunate necessity, as this may have been the only organic material that might have yielded a carbon date for the site.

Careful observation and investigation previous to removal failed to give any evidences of burial. The sand overlying the skull showed no disturbance and presented a perfectly homogeneous appearance; in addition, its position was exactly in the zone of cultural occupation, accompanied by flint chips, clay "blobs", and other common debris, which extended without interruption to each side for 20 to 30 feet until reaching a change-in-direction of the pit walls (Plate I). No specific artifacts, let alone any burial offerings, were in association.

Excavation revealed that no other bones were present, even in fragmentary form; at first this was believed caused by the pit's having cut away the remainder of the skeleton, leaving only the skull in the wall; but it was discovered that the exposed portion was the top of the skull, lying on its right side with the base directed inwards in the sand, hence additional members of the individual should have still been
present lying deeper in the bank. None being so present, the absence of other, harder parts, such as the teeth and jaw, is strictly conjectural. From the lack of burial indications and the uncontestable inclusion in the cultural layer, one would be almost tempted to surmise that the individual was drowned on the site by the flood that covered it with sand, were it not for this absence of any other skeletal remains.

It was expected that the Wheeler site would prove the source of the 1940 "Carrollton Skeleton", and that this skull would conform with the type of the earlier find described in detail by Dr. Marcus S. Goldstein in the report by Albritton and Pattillo to be discussed more in detail in the next section. Suffice to say, the "Carrollton Skeleton" was that of a 60-year-old female, mesocranic (index of 77.0), and with no particular archaic features. However, as the matrix was removed, it was found that the Wheeler skull was of a type characterized by extreme dolichocephaly, slab-sides, keel-vaulted, with retreating forehead, rather definite brow-ridges, and a low, broad nose base. This was immediately recognizable as the type established by groups of skulls from Jones County near Abilene, Val Verde County, and the coastal region of Texas; the Early Sacramento, Santa Barbara, and Channel Islands in California; the Pericu in Lower California; and a number of other cites in the Americas—all considered to be indicative of an early strain that blended with later migrations to form the composite historic "Indian."

There can be little doubt as to this identification. The breadth of the skull can be easily reconstructed to match the existing right side, and although the posterior prominences are lacking, it is apparent from the extreme narrowness of the skull as compared with its length, that the cephalic index could not possibly have been higher than 72, and most probably was 70, or even less. The right side exhibits the straight "slab-sided" appearance, angling sharply inward at the top towards a definite "keel" ridge along the center line from front to rear, giving an almost "roof-like" impression to the eye. The forehead retreats at a definite angle from the brow-ridges; these, while somewhat divided and following the curvature of the eye-sockets rather

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5Albritton, C. C., Jr., Pattillo, L. Gray, Jr., & Goldstein, Marcus S. A. human skeleton found near Carrollton, Texas, Field & Lab., VIII, 59-64, 1940.
than presenting the straight-across "torus" of truly primitive crania, are still definitely more pronounced than in recent skulls of more modern type. The nose does not show a basal indentation beneath the forehead, but is relatively quite broad and flat, curving downward slightly at the sides. The socket for the condyle of the right ramus is rather large, perhaps indicating a powerful jaw. Thickness of the brain-case bone is 6 mm.

The "Carrollton Skeleton"

In 1940, just 0.3 mile south of the Wheeler site, workmen unearthed a human skeleton in another gravel pit. As the bones had already been removed and the pit cut away by further commercial operations, it was impossible to determine whether or not it had been contemporaneous with the deposition of the formation or whether it represented a later, intrusive, burial. The workmen asserted that it came from the base of a brown sand, some six feet deep, just above the clay and gravel formations below. As the terrace structure in which the pit was sunk was considered to be of Pleistocene age, the find attracted some attention and Dr. Albritton and Mr. Pattillo investigated it and recorded the occurrence for future reference. Unfortunately, stream action has blurred definite terrace identifications at this locality, hence even geologic assignment was difficult; however, the altitude of the site was that which the low, or Carrollton, terrace should have occupied if present. Only an unidentifiable animal bone fragment accompanied the skeleton, hence cultural affiliation was impossible. In an appendix analyzing the remains, Dr. Goldstein was able to conclude only that the bones fell "possibly ... within the lower limits of the Wichita-Caddo group." Thus no definite conclusions could be made at the time.

Comparisons and Conclusions

Material similar to that at the Wheeler site is difficult to find in published reports. However, some does seem to exist in private collections. The writer has recovered one of the distinctive beveled end-scrapers, indistinguishable in every respect and made of the same grey quartzite, as an erratic, probably a "pick-up", in an Early Woodland site just south of Dallas. Mr. Harris, mentioned earlier as a visitor to the
site, has found a number of identical end-scrapers—even to the grey quartzite—along with somewhat similar points (although the leaf-shaped and less-definitely shouldered types are missing), all in an unusual mixture also including Plainview or unfluted-Folsom points, a slender side-notched point with the indentions ground smooth and which rather resembles Chiricahua-type points, net-sinkers of the Waco type, and even a few grinding stones. This is a sand "blow-out" type of site just below the old Lake Dallas Dam, 10.5 miles due north in Denton County, and stratification, if any, has been impossible to determine. It is of interest that the sand layer is a brown sand, very similar to the sand layer at Wheeler, and likewise overlies a clay formation. It may well be that this location is the source of the Plainview-type reworks found at Wheeler.

More of the distinctive beveled end-scrapers have also been reported by Harris from a few small sites just east of Dallas in Kaufman County and from a site near Trinidad, Henderson County, all downstream on the main branch of the Trinity River. In each case they have been accompanied by the Waco-type net-sinkers, a number of points somewhat similar to the Wheelers, and also a number of Early-type points such as Plainviews or unfluted-Folsoms.

Although totally absent at Wheeler, the net-sinker seems to be a constant companion everywhere else; in each instance a few Early-type points also occur; at Lake Dallas grinding stones were present; none of the sites mentioned has been found to possess pottery. Following this lead, we have referred to the fine article by Mr. Frank Watt of Waco describing the net-sinkers; pictured were also a number of typical projectile points commonly found on sinker sites, many of which seemed quite similar to a number of the Wheeler types (although, once again, no leaf-shaped or slightly-stemmed forms were illustrated), including a few Plainview or unfluted-Folsom points; unfortunately, no mention was made of scraper types and none was pictured. Mr. Watt makes notice that the sinker sites are rare west of the Brazos River, but heavily concentrated to the east. He considers them to be of some considerable antiquity.

It would begin to be apparent, therefore, that a cultural complex is taking gradual shape along the upper Trinity
River and its tributaries and possibly along the middle reach of the Brazos eastward; this complex seems to be distinguished, most universally, by a distinctive beveled end-scraper and net-sinkers, accompanied by somewhat stemmed-and-shouldered, crudely-chipped, projectile points. Without exception, its sites also display a small percentage of Plainview or unfluted-Folsom types from earlier times. It is a non-pottery complex. The Wheeler site of this group is distinguished by the presence of certain leaf-shaped and slightly-shouldered points as well, and the absence of net-sinkers; the Lake Dallas site may add milling stones and another type of point. All seem to possess choppers in some form or another, crudely double-bitted in the cases of the Kaufman County and Trinidad sites. Further investigations and comparisons are in order to establish additional correlations.

What is such a postulated complex and whence is it derived? It rather appears to be a mixture of a number of elements — the Early type of Plainview-like projectile points come from the High Plains to the west, and the beveled end-scrapers are quite similar to, though somewhat smaller than, the "Clear Fork Gouges", Types 1 and 2, described by Dr. Cyrus N. Ray from near Abilene, Texas, likewise to the west; the Waco-type net-sinkers seem to derive from an eastern source, and in this connection it is to be noted that the most prevalent use of net-sinkers, not identical but similar, is demonstrated in the Archaic of the northeastern States; the projectile points, at least the series from the Wheeler site, seem to have their closest relationship with the Borax Lake-Pinto Basin-Playa Complex types of the "Desert Cultures" of California, each of which in varying degrees and proportions included a seeming transition from leaf-shapes to stemmed-and-shouldered points, all thickly and crudely flaked, and likewise in each case seemingly associated with, in some manner or another, a few of the older forms such as unfluted-Folsom. The crude, double-bitted choppers from Kaufman County and Trinidad must find their source in the eastern Archaic, whereas the Wheeler choppers have their relationship westward.

Thus it may be that at about the time of the "Little Pluvial" some 3,500 years ago one group of people moving

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southeast and east represented a branch of "first cousin" relationship to a larger general family which included all of the California "Desert Cultures"; in the course of their migrations they either encountered or possibly intermixed with a remnant of the older Plainview-type people, or acquired a few of these Early-type projectile points from sites then much more exposed and prevalent than they are today; this far east they had apparently not come into contact with the Cochise-influenced tribes and therefore had not added milling stones to their cultural complex. At this stage they must have arrived at the Wheeler site, just previous to the "Little Pluvial" maximum. At the same time, or shortly later, a people carrying cultural traits of the eastern Archaic must have been spreading out southwest and west from the general Mississippi Valley region. At some time after the Wheeler occupation, and therefore after the "Little Pluvial" maximum, the two groups came into contact and mingled traits. These proposals are possible chronologically, as the California cultures have all been attributed a "Little Pluvial" age at least, and the eastern Archaic has been radio-carbon-dated as far back as 5,000 years ago.

The use of fishing nets on a large scale, attested by the netsinkers probably contributed by the eastern people, then flourished side-by-side with hunting as the rivers and streams continued at high stage for some time following the "Little Pluvial" maximum, gradually dying out as the stream-flow diminished to reach present levels. It must have been at this point that the later cultures began their heavy collection of river mussels for food, even as today a dried-up pond or diminished creek leaves large quantities of these shellfish exposed and available.

If all this be true, the human remains associated with the Wheeler site fall into the pattern. The long-headed, keeled-vaulted type has been most commonly reported from Texas and California-Lower California, according to Mr. Kenneth R. MacGowan, and its presence at Wheeler, therefore, should be no great surprise other than in its association with this type of culture — and numerous authors contend that this human type survived much later than elsewhere in the more-or-less peripheral areas of Texas and Lower California. The nearby "Carrollton Skeleton" may or may not belong with

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8MacGowan, Kenneth. What have the bones to say?, in Early Man in the New World, 1960.
the Wheeler site. Certainly the proximity and the geological occurrence render such a supposition that it does belong a very probable one; such being the case, then it must either represent a hybrid type caused by mixture between the long-headed, keeled-vaulted people and a later, more brachycephalic, wave — and we are compelled to view the Wheeler site as representing some sort of mixture and transitional stage — or it may be a female variant of the type. It is well-accepted that in the same species a female skull will show a few points less dolichocephaly and a rounder, fuller contour showing less markedly the retreating forehead and brow-ridges, than in a comparable male individual; this may also be true of keeled-vaulting.

Summary

At any rate, it seems definitely established that a non-pottery, non-agricultural, hunting people who specialized in a great deal of hide-working, arrived at the Wheeler site and occupied the low terrace there previous to the maximum of the “Little Pluvial”. Their route of migration was from some previous flint-bearing region, possibly along Denton Creek from the northwest or across the Brazos to the west. At this time the streams were undoubtedly running higher than they do today and vegetation and the abundance of wild game, including bison, must have been materially greater. A high flood, accompanying the probable maximum of the “Little Pluvial” swept over the site and buried it under five feet of sand; this is considered to have occurred about 3,500 years ago. The people involved were akin to an early type and they and their culture were more or less distant “grandfathers” of the Indians first encountered in the area by the white man.

It is hoped that the Wheeler site will, in a minor way, help to fill in the “hiatus” — possibly more apparent than real — long supposed to exist between the Early cultures and the recent ones; certainly, at least, it should do so in the North Texas region.
COMPARATIVE LITERATURE UTILIZED


BRYAN, KIRK. The San Jose non-ceramic culture and its relation to a Puebloan culture in New Mexico, *ibid.*, VIII, 269-280, 1943.


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PLATE I. Wheeler site. (A.) Scraper *in situ* in pit wall, 48 inches deep (No. 12, Plate IV). (B.) Human skull *in situ* in pit wall at base of brown sand in cultural zone, 54 inches deep. (C.) Re-worked Plainview point *in situ* in pit wall, 69 inches deep (No. 18, Plate II).
Plate II. Series of large dart points from Wheeler site. All natural size.
Left to right in enclosure, typical Wichita and Caddo "Bird-points" from Dallas County sites for comparison. Both natural size.

Plate III. Series of large dart points from Wheeler site, all natural size. No. 7 is an erratic from Edwards Plateau culture, No. 8 is a Plainview or Yuma-like point, No. 9 is a re-worked Plainview point.
Plate IV. Series of smaller dart points or arrow points from Wheeler site, all natural size.
Plate V. Wheeler site. Nos. 1-11 represent the series of distinctive end-scrapers—typically plano-convex, roughly-triangular, and beveled (Nos. 1-2 beveled all three sides); all but Nos. 1 and 10 are of the same grey quartzite. Nos. 12-22 are side-scrapers, mostly of red quartzite. All ½ natural size.
PLATE VI. Wheeler site. Nos. 1-2, hammerstones; Nos. 3-4, point blanks; Nos. 5-6, choppers; Nos. 7-10, knife fragments; No. 11, a drill; Nos. 12-13, flake scraping and cutting implements; No. 14, combination scraper and shaft-scraper. All $\frac{1}{2}$ natural size.