Geology of the Barnes Bridge Quadrangle in Dallas, Kaufman, and Rockwall Counties, Texas

Arthur Richards and Claude C. Albritton, Jr.

CONTENTS

Introduction ........................................ 65  Low terrace deposits ................................ 76
Stratigraphy ........................................ 67  Correlation with terrace along
Mesozoic Rocks ...................................... 67  the Elm Fork of the Trinity ......................... 76
   Lower Taylor marl ................................ 68  Recent Alluvium ..................................... 77
   Wolfe City member ................................ 69  Structure ............................................ 77
   Upper Taylor marl ................................ 71  Faults ................................................ 78
   Relationship between the Wolfe City and Upper Taylor ........................................... 72  Joints ............................................... 79
   Cenozoic Rocks .................................... 73  Sandstone Dikes .................................... 79
   High terrace deposits .............................. 73  Conclusion .......................................... 79
   Middle terrace deposits ........................... 74  Literature Cited ..................................... 81

ILLUSTRATIONS

Figure | Page   | 6. Cemented gravel in Upper Terrace deposits .......................... 74
       |        | 7. Surface of the Middle Terrace .................................. 75
       |        | 8. Surface of the Low Terrace ..................................... 76
       |        | 1. Geologic map of the Barnes Bridge quadrangle ........... In Envelope

INTRODUCTION

The Barnes Bridge quadrangle, as shown on Figure 1, includes parts of Dallas, Kaufman, and Rockwall counties. It is bounded by the parallels 32° 45' and 32° 52' 30" N, and by the meridians 96° 27' 30" W and 96° 35' W. The area approximates 60 square miles. Forney (population, 1300) extends into the southeastern corner of the quadrangle; Heath and Tripp are smaller settlements in Rockwall and Dallas counties respectively. U.S. Highway 80 crosses the southern part of the area. The roads in Dallas and Kaufman counties have hard surfaces except for local stretches across the floodplain of East Fork (Pl. 1; map at end of article). Many of the roads in Rockwall County, however, are unimproved and in wet weather are impassable.

Geologic mapping was done during the spring and summer of 1947. In the spring, a class in Field Geology from Southern Methodist University mapped the northeastern portion under the supervision of the authors. During the summer the remainder of the quadrangle was mapped by Arthur Richards and J. F. Clement. The investigation was made possible in part through a grant-in-aid allocated by a
research committee at Southern Methodist University, from funds made available jointly by the Carnegie Foundation and the University. This study marks the beginning of a program of areal studies in northeastern Texas. The Rockwall quadrangle, directly to the north, has been mapped during the past year by G. W. Wilson and K. F. Walker; and several additional areas farther north in Collin County are being studied by graduate students at the University.

Fig. 1. Map showing location of the Barnes Bridge Quadrangle (in heavy lines).

East Fork of the Trinity River flows sluggishly southward through the center of the quadrangle with a gradient of two feet per mile. With the exception of Rowlett Creek, all its tributaries within the quadrangle are ephemeral.

The total relief is 200 feet, with altitudes ranging from 370 feet above sea level (where the Trinity flows out of the quadrangle) to 570 feet above sea level in the northeast. The floodplain of East Fork has an average width of two miles, and slopes rise fairly steeply from its margins to terrace flats or rolling uplands. A terrace surface 30 feet above the floodplain is well preserved along U.S. Highway 80 between East Fork and Buffalo Creeks (Plate 1, and Fig. 8), and a remnant of this same terrace shows along the Rockwall-Dallas County line in the extreme northern part of the area. The tread of a second terrace, approximately 60 feet above the floodplain, is more dissected than the lower one, but is locally intact along both sides of the Trinity floodplain. The broadest remnant is in the extreme
southern part of the area west of the Dallas-Kaufman County line. A third terrace is in the western part of the quadrangle, but it is so completely dissected that little, if any, of the original surface remains. A possible remnant south of Annison Creek in the northwestern part of the quadrangle is 100 feet above the Trinity floodplain.

**STRATIGRAPHY**

*Mesozoic Rocks*

The Taylor Marl of Upper Cretaceous age is the oldest formation that crops out within the Barnes Bridge Quadrangle. The nearest outcrop of Austin Chalk, which underlies the Taylor, is about two miles to the west along Duck Creek (Dallas Petroleum Geologists, 1941, Plate 1). In this report the name “Taylor Marl” is used to conform with the usage of the United States Geological Survey (Wilmarth, p. 2120); but since the Taylor contains rocks of such varied lithology as chalk, sand, and shale, as well as marl, it would more properly be called the “Taylor formation” or, as Adkins called it (1932, p. 455), the “Taylor group.”

Within the quadrangle the Taylor is divided into three lithologic units: the lower Taylor marl member exposed west of the Trinity floodplain; the Wolfe City member consisting of arenaceous and calcareous clay, shale, and sand—largely concealed beneath the floodplain but in part exposed east of it—and the upper marl which overlies the Wolfe City member. This upper marl is probably in part equivalent to the Pecan Gap Chalk, but within the quadrangle is lithologically almost identical with the marl found in other parts of the formation. Nowhere within the quadrangle are there exposures of bedrock comparable in lithology with the Texas chalks such as the Austin or the Pecan Gap at its type locality 55 miles to the northeast.

Due to the unindurated character of the Taylor beds in this area, most of the good exposures are confined to gullies or road cuts (Fig. 3).

The type locality of the Taylor is at Blue Bluff on the Colorado River six miles east of Austin, Travis County (Adkins, 1932, p. 45). Due to changes in facies along the outcrop, many local names have been given to rocks of different lithology within the Taylor. Within the area corresponding to the Barnes Bridge quadrangle on the state
geologic map (Darton, Stephenson & Gardner, 1937) the Pecan Gap chalk is differentiated from the overlying Upper Taylor marl. Within the extreme northern part of the area here considered, the lower part of the Upper Taylor might pass as chalky marl, but even these rocks are only slightly indurated and so resemble typical Taylor marl more than chalk. There is no justification for extending the Pecan Gap as a lithologic unit through the Barnes Bridge area.

Fig. 2. Lower Taylor marl exposed west of Mesquite Creek and south of the Texas & Pacific Railroad.

*Lower Taylor marl.* This dark gray calcareous clay is well exposed at many localities in Dallas County. It is bedded in units averaging about three inches thick. Weathering produces medium gray or tan colors. Seven samples were treated with dilute hydrochloric acid in order to determine their content of soluble substance. The most calcareous of these contained 41 per cent solubles, and the least calcareous 10 per cent; the average for all seven was 24 per cent. The marl is hard when dry, but disintegrates to mud when wet. This accounts for the scarcity of exposures. The rock contains *Inoceramus*, but few other megafossils.

The Lower Taylor is well exposed at the following localities: (1) along the west side of Mesquite Creek in an old excavation for a tank, one-half mile south of the Texas and Pacific Railroad bridge (Pl. 1, No. 1; Fig. 2); (2) one-half mile northwest of Tripp in several gullies trending southward near the head of the Long Creek drainage basin (Pl. 1,
No. 2; Fig. 3); (3) one mile north of Tripp and 500 feet east of the road in a gullied slope (Pl. 1, No. 3); and (4) in a road cut south of Rowlett Creek (Pl. 1, No. 4) as well as in gullies east and west of the road.

Wolfe City member. This is mostly concealed by Cenozoic alluvium of floodplains and terraces. Nowhere is the contact with the Lower Taylor exposed; consequently the thickness remains unknown.

Fig. 3. A gulley eroding headwardly in the Taylor marl, near Tripp.

There is a good exposure along the south bank of Yankee Creek a mile west of Heath (Pl. 1, No. 5; Fig. 4). Here four feet of dark gray argillaceous sandstone, containing scattered phosphatic pebbles, shows in a meander scar. Overlying this is six feet of black shale which contains abundant Pecten, turritellid gastropods and other molluscan shells. South of the meander scar ten feet of tan sand and sandy marl crop out in gullies along a hillslope. At this last locality there are a few hard layers of calcareous sandstone consisting mostly of angular quartz grains averaging about 1/15 mm. across. Glauconite and tiny marcasite concretions are also abundant. Several specimens of Exogyra ponderosa were found on the surface in the vicinity of thesecroppings, but none was seen in place.

The following section shows the lithology of the Wolfe City member as exposed in gullies east of the Trinity, 1.5 miles south of the northern boundary of the quadrangle at locality 6 (Pl. 1).
Fig. 4. Wolfe City dark gray argillaceous sandstone below and black shale above in a meander scar along Yankee Creek.

<table>
<thead>
<tr>
<th>Thickness (Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Fine-grained calcareous and argillaceous sand; slightly indurated</td>
</tr>
<tr>
<td>3. Dense gray sandy limestone</td>
</tr>
<tr>
<td>2. Black shale; slightly arenaceous and somewhat marly toward top</td>
</tr>
<tr>
<td>1. Dark gray siltstone; weathers tan</td>
</tr>
</tbody>
</table>

Total thickness of measured section 34.1
Fifteen feet of black shale crops out in a gully near the Buffalo Creek floodplain in Kaufman County 1.5 miles south of the Rockwall County line (Pl. 1, No. 7). About 20 feet of black shale is exposed along Rash Creek south of Heath. This contains 87 per cent insolubles, and grades upward into marl of the Upper Taylor.

The zone of transition between the Wolfe City and Upper Taylor members also shows in a narrow gully 1,000 feet north of U.S. Highway 80 and east of Buffalo Creek (Pl. 1, No. 9). At the base of the exposed section is 2.5 feet of medium gray sandy shale. Above the shale, in one part of the exposure, there is an inch of conglomerate consisting of phosphatic pebbles, and fossils (gastropod cores, Baculites, and sharks' teeth). Overlying the conglomerate is shale identical lithologically with the shale below. Nine feet above the conglomerate band the shale grades into Upper Taylor marl, 33 feet of which shows continuously in this section. Although the phosphatic layer marks the only lithologic break in the entire section, it cannot be used as a marker for the Wolfe City-Upper Taylor contact, as at this same small outcrop it thins laterally and disappears into an unbroken sequence of sandy shale.

Upper Taylor marl. This is medium to dark gray marl which dries light gray and weathers almost white. It is plastic when wet, but dry samples are quite hard and are chalky in appearance. The fresh marl is massive, but on slight weathering the bedding becomes quite noticeable (Fig. 5). The lower part of the member locally contains abundant layers of calcareous sandstone, each about a tenth of an inch thick. These weather in relief and in places cover the outcrops as a veneer of sandy chips. The amount of sand varies laterally in the section, as may be seen above the floodplain west of Forney.

Outside the quadrangle the marl is well exposed in the old interurban cut one-half mile south of Forney.

Fifty feet of Upper Taylor marl is exposed in an almost continuous section east of Buffalo Creek along a ditch following the road which crosses the creek northeast of the U.S. Highway 80 crossing, and one mile north of Forney. There are many other good exposures within half a mile to the northeast of this road ditch.

Twenty feet of Upper Taylor marl is exposed in the ver-
tical walls of a gully head near the secondary road 1\(\frac{3}{4}\) miles due north of Heath (Plate 1, No. 10, and Fig. 5).

The soluble content of the Upper Taylor varied from 36 to 60 per cent in fifteen samples tested. Only two samples contained over 50 per cent, and they were from the extreme northern end of the area. This higher content of solubles suggests the beginning of a gradation from marl to chalk to the north. A sample of Pecan Gap Chalk from its type locality 55 miles to the northeast contained 87 per cent solubles. Apparently somewhere between 60 and 87 per cent solubles, an arbitrary dividing line for chalk and marl might be drawn, but obviously any percentage set would be of local significance only, as some marls, such as the marls of Michigan, are almost pure calcium carbonate. For field use in this vicinity, plasticity is a better criterion. All marls here referred to are plastic when wet, but the chalk from Pecan Gap is not.

Relationship between the Wolfe City and the Upper Taylor. According to Rouse (1944, p. 525) the base of the Pecan Gap in North Texas is easy to recognize, as it is characterized by a zone (varying from several inches to several feet thick) of phosphatized fossils and glauconite, which has been traced from northern Rockwall County to western Red River County. Stephenson (1929, pp. 1330-1331) states that in Bear Creek, one-half mile south of Lavon, Collin County,
the base of the Pecan Gap Chalk, marked by a thin line of phosphatic nodules and casts, cuts across the edges of the underlying clay strata. Dane & Stephenson (1928, pp. 43-44), however, state that locally within the Wolfe City there are phosphatic zones resembling the zone at the base of the Pecan Gap. In the Barnes Bridge Quadrangle phosphatic nodule concentrations have been observed at several places (see Plate 1). These apparently all correspond to Dane & Stephenson's phosphatic zones within the Wolfe City. In this area the prominent phosphatic zone at the base of the Pecan Gap to the north has no equivalent at the base of the Upper Taylor, which here blends into the Wolfe City without stratigraphic break.

*Cenozoic Rocks*

The Cenozoic rocks consist of alluvium deposited by the East Fork and its tributaries. Alluviation, which has prevailed at intervals, possibly beginning with the Pliocene, is now in progress along the floodplains.

The alluvium of the three terraces already mentioned in this report consists of particles ranging in size from clay to pebbles; but clay and silt are predominant, and pebbles occur only as gravel stringers or scattered individuals. Apparently there are no thick gravel deposits such as those along the Elm Fork of the Trinity around Dallas (Shuler, 1918, pp. 30-34).

*High Terrace deposits.* Deposits of the highest terrace are exposed in only a few places. Northeast of Duck Creek in Dallas County (Pl. 1, No. 11) the alluvium is seen in contact with Taylor marl. Here it is mainly sandy clay with a few stringers of gravel. One mile north of Tripp (Pl. 1, No. 12) a ditch alongside the road exposes two feet of conglomerate at the base of the alluvium. (This exposure is best observed after heavy rains have flushed the seasonal accumulations of garbage.) A fewcroppings like this one are found near the heads of gullies entering the Trinity floodplain south of Annison Creek. Sandy terrace deposits resting on Taylor marl are exposed in the head of a gully northeast of the Texas and Pacific Railway crossing over Mesquite Creek (Pl. 1, No. 13). In detail many of these contacts between the uppermost terrace deposits and the Taylor are irregular, but all are at an altitude of approximately 475 feet above sea level except in the northern part of the area, south of
Rowlett Creek, where the altitude of the contact is approximately 500 feet.

Other than in gullies where erosion is rapid, this terrace material has weathered to black soil, which could not be distinguished by us from the black soil derived from the Taylor. Little if any of the original surface of this terrace is preserved, though possibly the nearly flat divide south of Rowlett Creek is a remnant. If so, there must have been a still higher alluvial deposit at one time, as the higher hills of Rockwall County are locally covered with a scattering of exotic pebbles, which could not be residual from the Taylor.

Fig. 6. Conglomerate at the base of the Upper Terrace deposits in a road ditch north of Tripp.

These pebbles are from one to three inches in longest dimension and are usually fairly well rounded. They are pink to white quartzite, white vein quartz, and gray petrified wood. They have been reworked into all of the younger deposits. Their ultimate source is not known; they could not have been derived from any of the Cretaceous formations within the present watershed of the East Fork, as this stream system reaches no formation below the Austin Chalk.

Middle Terrace Deposits. The surface of the middle terrace is approximately 60 feet above the Trinity floodplain. The base of the alluvium is only locally exposed, as near the
mouth of Duck Creek in Dallas County and north of Yankee Creek in Rockwall County, where several small outcrops of Wolfe City are surrounded by terrace clays. These bedrock inliers are probably parts of buried hills from an earlier erosion cycle, and the actual altitude of the base of the terrace alluvium in the deeper channelways is not known. The composition varies from a slightly sandy gray to tan calcareous clay, locally resembling weathered Taylor Marl, to sand consisting largely of reworked Taylor foraminifera

and prisms of Inoceramus shells with local lenses of fine conglomerate. The pebbles of the conglomerate are largely Inoceramus fragments.

The surface of this terrace is best preserved in the extreme south central part of the quadrangle west of the Trinity floodplain (Fig. 7), and is fairly well preserved between Rowlett and Annison creeks.

The best exposures of the material making up this terrace are in gullies which either did not exist or were not deeply trenched at the time the Barnes Bridge topographic map was made in 1910. No attempt was made to resurvey the topography during this investigation, and for that reason the gullies showing the best exposures are not indicated on the map.
One exposure is in a deep gully heading on the J. M. Hughes farm one mile south of Heath and trending south into Kaufman County before opening on the Trinity floodplain. Near the lower end of this gully (Plate 1, No. 14), tan calcite sands showing cross bedding are exposed. Farther upstream in Rockwall County, the walls of the gully, locally 20 feet high, are of tan silty clay with very indistinct bedding.

Along the secondary road east of Barnes Bridge the tan silty terrace clays may be seen. Here the clays show no bedding, but there are closely spaced vertical drying cracks, and vertical tube-like masses of friable white caliche are abundant. Locally caliche resembling popped corn is common.

Low Terrace Deposits. The surface of the lowest terrace, 30 feet above the floodplain, is best preserved along U.S. Highway 80 between the Trinity River and Buffalo Creek in the southeastern part of the quadrangle (Fig. 8). Another well-preserved remnant of this surface is between Rowlett Creek and the Trinity River in the north central part of the quadrangle. No good exposures comparable to the exposures of the middle terrace were seen. Scattered very shallow exposures, however, indicate that the terrace is made up of gray to buff silty clay.

Correlation of Terraces. Shuler (1935) has shown that
there are three terraces along the Elm Fork of the Trinity River at Dallas. He has named these the Union Terminal, Travis School, and Love Field, in order from lowest to highest. Patillo (1940, pp. 27-32) has mapped three terraces at Carrollton, 15 miles northwest of Dallas. In order from lowest to highest they have been named the Carrollton, the Farmer’s Branch, and the Bethel. Patillo has demonstrated that the Bethel and Love Field terraces are one and the same surface. Kelsey (1934) mapped a terrace in Dallas south of the Trinity River which he named the Marsalis terrace and correlated with the Love Field terrace to the northwest on the north side of the river. Shuler (oral communication), however, believes that the Love Field and Marsalis are not paired terraces, and that the Marsalis is definitely higher. Tentatively the upper terrace of the Barnes Bridge area may be correlated with the Marsalis terrace at Dallas, as they are both about 100 feet above the floodplains. The middle terrace is here tentatively correlated with the Love Field and Bethel terraces, and the low terrace of the Barnes Bridge area is correlated with the Travis School and Farmer’s Branch terraces. The low Union Terminal and Carrollton terraces of the Dallas and Carrollton areas respectively appear to have no equivalent in the Barnes Bridge quadrangle.

No direct evidence for the age of any of the terraces of the Barnes Bridge area was unearthed during the course of field work. At Dallas the Union Terminal terrace is mid-Pleistocene in age (Shuler, 1935, p. 52); consequently the only assumption that can be made is that the terraces of the Barnes Bridge quadrangle are not younger than mid-Pleistocene.

Recent Alluvium. The recent alluvium which makes the floodplains of all streams in the Barnes Bridge quadrangle is a dark gray to black silty clay rich in humus. Locally, as along the east side of Buffalo Creek, a light gray layer a foot or more thick overlies the black alluvium. This light gray layer is a product of the years when, as the result of plowing, the soil was almost completely removed from the steeper slopes and the partially altered bed rock washed down onto the alluvium of the bottoms.

Structure
From well logs the general strike of the beds in Dallas
County has been found to be NNE and the dip to be 0° 40' east (Dallas Petroleum Geologists, 1941, p. 67). Due to the absence of subsurface data, no separate determination could be made for the Barnes Bridge quadrangle, and because of the flatness of dip the compass and clinometer are of but little help. The general strike and dip obtained for Dallas County appear to be reasonable for this area, also. On Plate 1, contacts cross contours locally. Because of their transitional nature and poor exposure, however, these contacts are somewhat generalized; and the authors intend to show only a general eastward dip and not any specific angle of dip.

The Taylor is broken by many joints and by a few faults. A very small fold produces a local reversal of dip in the Wolfe City south of Yankee Creek.

Faults. Two faults of appreciable displacement are shown on the accompanying map. The largest of these is an inferred fault which is believed to be present because of the areal distribution of outcrops of the Wolfe City and the Upper Taylor. The evidence for this concealed fault is to be seen in two areas. Along the first major gully north of Yankee Creek, Wolfe City silty sand is exposed along the west slope, but at the same altitude, as well as below and above, typical Upper Taylor marl crops out in a minor tributary entering the gully from the east. Other similar anomalous positions for the Wolfe City and Upper Taylor are to be seen between this gully and Yankee Creek. To the south near Buffalo Creek a similar anomalous stratigraphic situation occurs. Southwest of the trace of this concealed fault, as shown on Plate 1, Wolfe City black shale and gray sandy shale crop out. The black shale is well exposed in a gully a short distance to the southwest of the fault (Pl. 1, No. 7) and the sandy shale in a tank a few hundred feet east of the road that runs north in that vicinity. Northeast of the concealed fault at this same locality, typical Upper Taylor marl crops out at several places, some of which are lower in altitude than the Wolfe City exposures to the southwest; and the position of some of these Upper Taylor cropping cannot be accounted for except by faulting. The exposures of Wolfe City and Upper Taylor are separated by several hundred feet of grassy slope along which there are no outcrops; but there are numerous scattered plates of coarse calcite such as are present along many minor faults
in the area. North of Yankee Creek the east side is downthrown about 30 feet. Near Buffalo Creek the displacement is less certain but must be at least 15 feet, with the east side downthrown. North of Yankee Creek the trace of the fault must be approximately as shown on the map; but toward the south area the trend may vary considerably from that of the line on the map.

The shorter fault located a short distance east of the inferred fault (Pl. 1) is exposed in the north bank of Rash Creek. It dips 45° toward the west and has a normal throw of about fifteen feet.

**Joints.** These are seen in almost every outcrop. Some are fairly straight, but at many outcrops they form a reticulate pattern of curved surfaces which trend in all directions. The strikes of 25 relatively straight joints ranged through all points of the compass without marked concentration in any quadrant.

**Sandstone Dikes.** Four of these are exposed in gullies in the northeast part of the quadrangle. The westernmost has a maximum thickness of eight inches, but the usual thickness is between two and three inches. The dike rock is gray, angular, fine sand with inclusions of marl; the margins are mostly stained with iron. As the dikes have already been described in considerable detail by Stephenson (1927, pp. 1-5) and by Kelsey & Denton (1932, pp. 134-148) they are not considered further in this report.

**Conclusions**

In the Barnes Bridge quadrangle the Taylor beds, of Upper Cretaceous age, are divisible into three members: the Lower Taylor marl, the Wolfe City, and the Upper Taylor marl, named in order from oldest to youngest. The lower marl is a calcareous clay in which the content of calcium carbonate appears to be everywhere less than 50 per cent, and on an average near 25 per cent. The Wolfe City is variable as to lithology, consisting of interbedded dark shale, siltstone, sandstone, and sandy marl. Some beds contain glauconite as well as scattered phosphatic pebbles and the teeth of sharks. Locally these pebbles, many of which are casts of molluscan shells, are concentrated as conglomerate lentils; these are generally less than an inch thick, and none appears to persist laterally for any considerable distance. The Wolfe City grades into the upper marl. This differs
from the lower marl chiefly by its higher content of calcareous material, which may amount to as much as 60 per cent of the rock in the northern area of outcrop; and by the presence of platy calcareous sandstone lentils, which are especially abundant in the lower portion.

There are few croppings, and the only contact exposed is the one between the Wolfe City and upper marl. At least in the southern part of the area this contact is one of conformity between lithologic types grading into each other. Yet what has been mapped as the same contact in southern Collin County is one of angular unconformity. This raises interesting points for speculation, but these are better left for discussion until the intervening areas have been studied.

The Taylor is a complex unit and it is not surprising that there is no uniform nomenclature for it or for its lithologic subdivisions. There is little that can be done at this time by way of clarifying the nomenclature, especially in a study of an area the size of this quadrangle. Results of this survey do indicate, however, that it is misleading to extend the Pecan Gap chalk through the Barnes Bridge area as was done on the state geologic map. There has been a tendency on the part of geologists working in the Cretaceous terranes of Texas to confuse the lithologic and paleontologic ("time-stratigraphic") concepts of classification, so that rocks of different lithology have sometimes been given the same formal names because they contained the same fossils. The effort here is to begin a project of mapping the lithology of Cretaceous beds in northern Texas; and it is already evident that the resulting maps will differ significantly from those now available.

The Taylor beds strike toward the north and dip east on the average of a degree or less. They are broken by minor faults and joints, but obviously the fracture pattern must be studied over a wider area before generalizations regarding its pattern and symmetry are warranted. Indeed the present uncertainties regarding the precise attitude of bedding, and regarding the structure underlying broad tracts where the Cretaceous beds are covered with soil or alluvium, make it impossible to give good estimates for the thickness of the members described.

The Taylor is mostly concealed by soil, or by alluvium of the floodplains and terraces. There are three terraces at
levels approximately 30, 60 and 100 feet above the floodplain of East Fork. Tentatively these are correlated with terraces of the Dallas area: the Travis School, Love Field, and Marsalis, in order from lowest to highest. The highest and oldest terrace is maturely dissected, but the lower two are preserved as discontinuous flats bordering the floodplain of East Fork. Alluvium below the treads of the terraces reflects in its composition the fine-grained character of rocks in the watershed of East Fork; clay, silt, and sand are the predominant constituents and gravel occurs only as minor lentils. According to a conventional interpretation, these terraces together with the floodplains record four stages of downcutting alternating with as many stages of alluviation. However this may be, it is evident that the present topography owes its configuration to the activity of streams—in part to alluviation, but more generally to erosion, a process which has been greatly accelerated in recent years by carelessness in the practice of agriculture.

LITERATURE CITED


DALLAS PETROLEUM GEOLOGISTS (1941) Geology of Dallas County, Texas.


KELSEY, LOUIS (1934) “The Marsalis Terrace: a High Level Terrace of the Trinity River, Dallas, Texas.” (Field & Laboratory, vol. 3, no. 2, pp. 54-56.)

KELSEY, MARTIN, & HAROLD DENTON (1932) “Sandstone Dikes near Rockwall, Texas.” (Texas University Bulletin 3201, pp. 139-148.)

PATTILLO, L. G. (1940) “River Terraces in the Carrollton Area, Dallas County, Texas.” (Field & Laboratory, vol. 8, No. 1, pp. 27-32.)


“Plate 1” (map of the quadrangle) is enclosed in accompanying envelope.