

THE MARSALIS TERRACE: A HIGH LEVEL TERRACE OF THE TRINITY RIVER, DALLAS, TEXAS

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The highest terrace of the Trinity River at Dallas on the Oak Cliff side of the river is named for Marsalis Avenue because of its extensive development along that thoroughfare.

The Marsalis Terrace occurs in two well developed areas in Oak Cliff. Lake Cliff Branch divides the two sections and has eroded the central part of the terrace. The larger area of the Marsalis Terrace lies on the southwest side of Lake Cliff Branch. The second area lies in the vicinity of the Methodist Hospital on the northeast side of the Lake Cliff Branch. Figure 1 shows the extent of the Marsalis Terrace and the topographic expression.

The typical Marsalis Terrace soil consists of a black or dark ashy gray clay, which either shows but little change in the 3-foot section, or passes into ashy-black or dark ashy-grey clay, having a faint bluish cast. In the very flat areas the grayish color of soil and subsoil is more pronounced than elsewhere. In some places the lower subsoil is a greenish-brown clay containing whitish lime particles and concretions. The concretions vary in size from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch in diameter.

The terrace soil is underlain at variable depths by beds of chalk gravel. In many places the beds are thick, in one locality about five feet, but in other localities they are thin. The gravel is principally in a crumbly yellowish clay bed with considerable soft lime or whitish limy clay. Locally it is cemented into a hard stratum or "concrete" by calcium carbonate. The top soil is sticky when wet. Surface drainage is poor because the surface is almost level (Fig. 1). The soil type on the Marsalis terrace is similar to that of

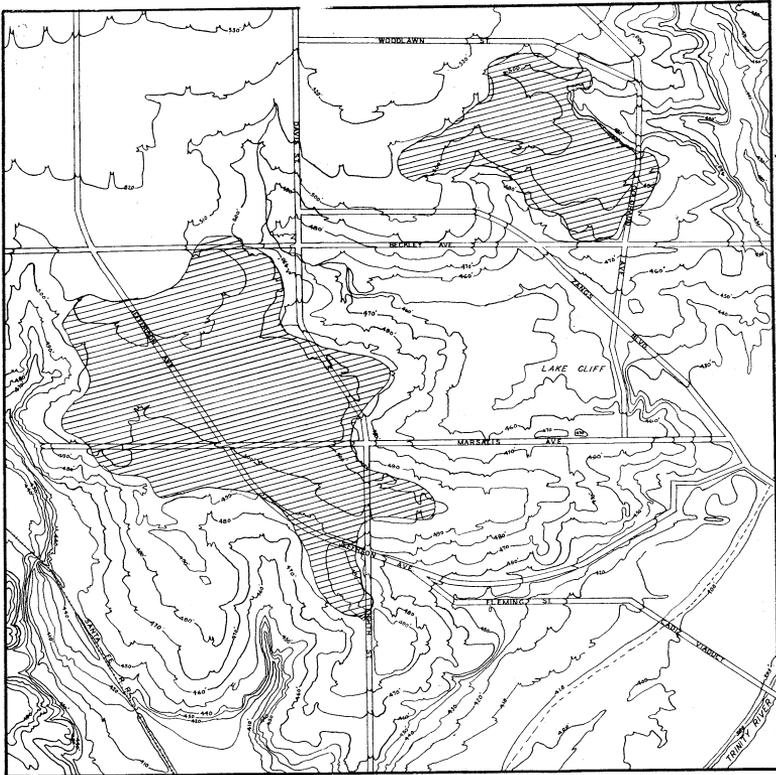


Fig. 1. Marsalis Terrace, Oak Cliff.

the weathered Austin chalk, especially where the latter is flat.

Figure 2 shows a detailed section of the Marsalis Terrace taken in a water main excavation at Comal Street and Lancaster Avenue. This section exhibits excellent crossbedding of the chalk gravel. The size of the well rounded, elongated chalk gravel varies greatly and shows a considerable difference in the velocity of the water current at the time of its deposition. The size of the pebbles varies from $\frac{1}{8}$ inch to 1 inch in diameter with an average of about $\frac{1}{4}$ inch in diameter. The Trinity River was probably at flood stage at the time of deposition of these coarse gravels.

The Marsalis terrace is correlated with the Love Field Terrace for the following reasons. The soils of the two terraces are similar and each has the chalk gravel beneath

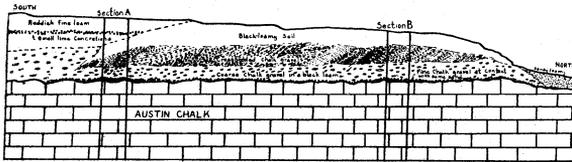


Fig. 2. Cross section of Marsalis Terrace at Comal Street.

the soil. The elevation of each is practically the same, being from 100 to 120 feet above the river. The Marsalis Terrace, like the Love Field Terrace, differs from the lower terraces of the Trinity River in many ways. Perhaps the most outstanding difference is in the character of the materials. The Marsalis Terrace material has a dark to blackish surface soil with numerous underlying beds of chalk gravel. The lower terrace materials have a brown to reddish surface soil. The lower terraces contain gravel beds which carry many fossils of Lower Cretaceous age.

No fossils of the Lower Cretaceous formation have been found as yet in the Marsalis Terrace. Since the lower terraces contain an abundance of Lower Cretaceous fossils, while none have been found on the upper Marsalis, it appears reasonable to suppose that the tributaries of the Trinity River, at the time of the deposition of the Marsalis Terrace were still eroding in the Austin Chalk. The Austin Chalk outcrop must have extended much farther west than it did during the deposition of the lower terraces.