

A GEOGRAPHIC STUDY OF THE CARROLLTON AREA

By Robert C. Dunlap, Jr., and Claude C. Albritton, Jr.

The Carrollton Area, as considered in this paper, includes approximately seventy square miles in the northwestern corner of Dallas County. Two small towns, Carrollton (population 689) and Farmers Branch (population 400), were important centers in the early days of settlement, but the rapid growth of Dallas, a few miles to the southeast, has delegated to these communities the roles of satellites to the larger urban center. Three railroads intersect at Carrollton, and both towns are on the Dallas-Denton paved highway.

Early History

Settlement in this portion of Dallas County began about 1850 on tributary streams of the Trinity River, which provided fresh water, wood for fuel and building, and farm lands above the reach of flood waters of the Elm Fork of the Trinity. "Old timers" in Carrollton have witnessed the killing of buffalo along Farmers Branch; can point out a tree on Hackberry Creek where four cattle thieves were hanged some fifty years ago, and recall the transaction in which two sections of land were traded for a pair of boots and a feather bed.

Stock rearing on the open range and small scale subsistence farming on the bench lands comprised the early activities in the region. As settlement increased, more land was broken and placed under cultivation, but ranching long remained the dominant activity. The prairies supported an excellent growth of grass and the mild winters of the area allowed cattle to graze on the open range throughout the year.

Cotton and wheat were introduced into this portion of Texas about 1855. The Trinity River was utilized occasionally at that time for the transportation of cotton to Gal-

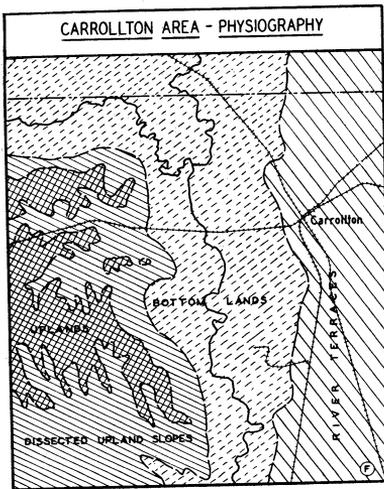


Fig. 1

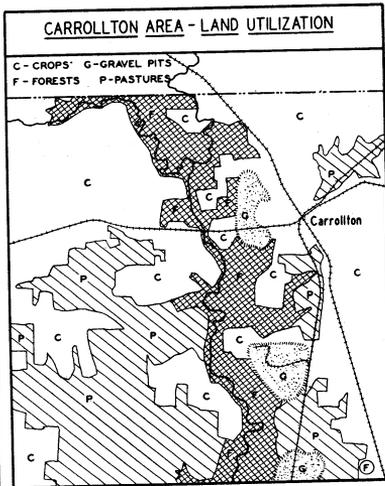


Fig. 2

veston. Wheat was ground into flour locally, or hauled by ox teams some three hundred miles to San Antonio.

The coming of several railroads to Dallas, after 1871, opened connections with outside markets. This contact gave an impetus to settlement as well as to agriculture. A marked increase in agricultural pursuits came with the introduction of the barbed wire fence in 1880. At that time cotton became the cash crop of the area, and has maintained its dominance to the present. As fencing of farms increased, ranching necessarily declined.

Physiography

The Carrollton area lies in the black prairie belt of Texas, essentially a dissected dip plain. The area comprises four physiographic sub-divisions: bottom lowlands, river terraces, dissected upland slopes and uplands (Fig. 1).

Bottom Lowlands, occupying the central part of the area and ranging from one and one-half to four miles in width, lie on either side of Elm Fork. This sub-division is an almost level flood plain. The lowlands were originally covered with a dense forest of elm, oak, pecan, hickory, ash

and locust, but extensive clearing has reduced the bottom forests to about one-fifth of their former extent (Fig. 2).

Elm Fork, the master stream of the area, with its sluggish flow and its tortuous course, is in the old-age cycle. It has one permanent tributary, Denton Creek, and a number of intermittent tributaries, including Perry Branch, on which Carrollton is located, also Farmers Branch and Hackberry Creek. Characteristically, these small tributaries have no main channels through the bottom lands, but spread out into a number of poorly defined, shallow beds before they reach the main stream. The poor drainage of this section handicaps agriculture, through flood dangers and the slow run-off, which frequently delays planting or harvesting, even after light showers.

River Terraces and Terrace Slopes. This division occupies the eastern quarter of the area. The first terrace, lying approximately twenty-five feet above the flood plain of the river, is about one and three quarter miles wide. The second terrace, more irregular than the first, appears three quarters of a mile further east. In the more level portions poor drainage delays planting and harvesting, but this subdivision includes the most intensive and productive farming lands of the entire area.

Dissected Upland Slopes. This division lying west of the bottom lowlands, forms a transitional zone between the lowlands and the adjacent uplands. The slopes rise abruptly from a hundred to a hundred and thirty feet above bottom lands to the east. Grazing seems the only feasible utilization of this land at present, since wherever the grass cover has been broken, erosion has stripped off the soil and gullied the uplands. Some experiments with terracing have been conducted, but present land values do not warrant this expense.

Uplands. Over most of the region the uplands are well dissected. In the west-central and northwestern portions, however, the gently rolling nature of the topography is preserved. In the dissected portions grazing dominates, but farms occupy the rolling uplands.

Climate

The climate of the area combines the features of the Humid Continental (long summer phase), and the Wet Sub-Tropical types. While the mean average rainfall (about 40 inches) conforms to that of the Humid Continental Climate, the mean annual temperature resembles the ideal figure set for the Wet Sub-Tropical Climate (64.9 F.)¹. Winter precipitation, being cyclonically controlled, exhibits a conspicuous cyclic nature, but in summer when this area is influenced by the sub-tropical high-pressure belt, rainfall is more sporadic and injurious droughts common. The last killing frost in the spring occurs about the middle of March, while the first killing frost of the fall appears in the first part of November, allowing an average growing season of 237 days.

Soils and Native Vegetation

Wolfanger² places the "black-waxy" and associated soils of northeast Texas in the pedalfer group, under the special name "prairyerth." These prairyerths, while not so fertile as the blackerths further west, are unexcelled as humid soils.

The native vegetation is definitely related to soil types. Thus the Houston, Frio, Bell, Cahaba, Leaf and portions of the Lewisville³ originally supported a mixed forest of elm, hackberry, pecan, hickory, post oak, spotted oak, blackjack oak, ash and black locust, while the Ellis and portions of the Lewisville, originally supported prairie grasses (particularly mesquite grass) and scattered mesquite trees. Increased erosion following overgrazing allowed trees (notably the mesquite) to encroach at the expense of the prairie grasses. Wolfanger points out that this forest encroachment in areas of erosion is attended by a degeneration of the prairyerths to "normal," or less productive pedalfers.

¹Trewartha, Glen T.; "Climates of the World," pages 6 and 7.

²Wolfanger, "Major Soil Divisions of the United States," p. 27.

³Carter, N. T., "Soil Survey of Dallas County, Texas."

Livestock

In the interval between 1850 and 1880, cattle were pastured on the open range of East Texas, but were moved further westward about 1880 when the barbed-wire fence began to enclose the choicer lands for cropping purposes.

Dairying of considerable importance in this area utilizes the dissected upland slopes for pasturage. Jerseys and Holsteins are the dairy cattle, the former being the more numerous. The dairy herds range in size from ten to one hundred and forty-five cows. The daily milk production per animal averages from one and one-half to two gallons. Milk is purchased by a number of wholesale milk companies of Dallas, the wholesale price varying widely.

The dairymen of the district are slowly recovering from the evil effects of a "milk war" in which the retail price for whole milk dropped as low as three cents a quart. No co-operative association exists among the dairymen, nor is there any movement toward the establishment of such. Although the average dairy produces less than one-half of its hay and a small portion of the grain it consumes, the tendency is toward the self-supporting dairy, inasmuch as this type can best weather price fluctuations. Much of the adjacent river lowlands is devoted to the raising of fodder crops (Fig. 2).

Crops

Cotton, the outstanding crop of the area, concentrates around Farmers Branch and on the western uplands. The farmers of the area feel that cotton is the only "sure" crop, there being a considerable element of uncertainty in raising both corn and the cereals. Progressive farmers, although practicing no definite scheme of crop rotation, commonly alternate cotton and corn lands. No commercial fertilizers are used, the land being safeguarded from rapid depletion by ploughing under cotton stalks, corn stalks and stubble. Under the present "depression" conditions, only the cotton lands of the two areas mentioned above have maintained approximately their normal market values of one

hundred dollars an acre. The land along the dissected upland slopes sells for twenty dollars an acre and that of the flood plain for fifteen dollars. Wheat and oats are grown most extensively along the higher terraces to the east. The western portion of the Trinity Lowlands and parts of the dissected slopes produce Sudan grass, Johnson grass, sorghum, maize and other forage crops. Crops also form the basis for the dairying industry that utilizes the dissected slopes and portions of the uplands.

Gravel and Sand

Pleistocene gravels and sands occur along the valleys and lower terraces of many Texas streams. Such deposits in the Trinity lowlands have formed the basis for a profitable industry since 1912⁴. Prior to that time gravels were hauled from the river bends, but with the discovery of more extensive flood-plain deposits systematic exploitation began. Local demand for railroad ballast and road materials resulted in three large pit areas being opened up within a year. All large gravel workings appear on the east side of the river (Fig. 2) because the deposits of the west side are too small and scattered to be worked economically. The more level portions of the terraces have become routes for the railroads that are both consumers and transporters of sand and gravel. The most remote portion of a gravel pit of any size is not more than a mile from the main line of a railway.

The gravel is sufficiently free from silt and clay to make washing and screening unnecessary for ordinary concrete construction work, or for making road beds for railways. Considerable variation in the sand-gravel ratio is found at the opposite side of the pits. The early method of extraction was to strip off the two to ten feet of surface soil that overlies the gravel and to load railroad cars and trucks directly from the pit by means of a steam shovel. A considerable difficulty presented itself to this type of extraction when pits began to fill with water. In an attempt

⁴J. Fred Smith, Sr., of Dallas opened up a small pit in 1912 near Trinity Mills.

to solve this problem, a company operating about a mile west of Farmers Branch began to pump the water from the pits with the result that the shallow wells at Farmers Branch, which, at that time, secured their water from a small lens of gravel not more than two feet thick, went dry. The gravel companies, faced with a series of law suits, had to remedy the situation by employing a drag line to work along the steam shovel, thus making it possible to remove gravel from under a water cover. Dallas and Dallas County constitute the principal market for Carrollton gravel and sand, although shipments have been made as far as Grayson County.

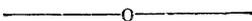
The gravel industry has stripped about two and a half square miles of bottom land of soil and for the most part these areas appear permanently impaired, at least for agricultural activities. These pits, with their giant furrows separated by high rows of waste gravel show that land of this type will probably always remain unoccupied. Where this stripping has left water-filled borrow pits, fringed with an abundant growth of willow trees, another type of land utilization has developed. In the last few years several small fishing clubs have been established on the sites of old pits and the water of the lakes stocked with fish. Near Carrollton, at Edwards Lake, a recreation park with beaches, diving boards, picnic grounds and boating facilities has appeared. This type of adaptation, however, applies only to easily accessible pits.

The injury done by the gravel industry should not be overestimated, since the pits are located on low-priced overflow land, which had not been cleared of its original forest growth. Overgrazing of the terrace slopes is responsible for the stripping of more land than the removal of sand and gravel.

Summary

The Carrollton area is primarily agricultural. The days of the open range are past, but ranching may maintain its inferior position, with respect to both dairying and farming. Gravel and sand workings constitute the one important non-agricultural industry.

The tendency is for farmers to plant as much cotton as possible, as through the sale of this crop cash is obtained, and through the anticipation of the crop credit is secured at the bank. Farming in the area is not intensive. Fertilizers are but little used, terracing practically unknown, and poor stands of corn and cotton are common enough to indicate slight population pressure. Some time will elapse before all the bottom land is cleared and broken for cultivation. Economically, the area faces Dallas and most of its produce finds a market in that center.



NOTES ON TEXAS CRUSTACEA

S. W. Geiser

The accumulation, during the past few years, of data relative to the occurrence in Texas of species of Crustacea not credited, in the usual handbooks, to our fauna, has induced the present writer to assemble in a brief note such observations as seem of particular interest.

1. *A New Isopod Record from America*¹. Attention is called to the occurrence in great abundance at Dallas, of a terrestrial Isopod that has hitherto been recorded only from the shores of the Eastern Mediterranean; and which was originally described from Jaffa as its type-locality. The species is a tiny, inconspicuous one, which was caught in abundance in potato traps in the greenhouse of Southern Methodist University. Its name is *Porcellio (Proporcellio) quadriseriatus* Verhoeff, 1917. Determination was by Dr. Alceste Arcangeli of Turin, through the kind offices of Dr. Willard VanName, of the American Museum of Natural History.

¹"Abstracts of Papers Presented at the Annual Meeting of the North Texas Biological Society, April 22, 1933, by Members of the Department of Biology, Southern Methodist University", folio 1.