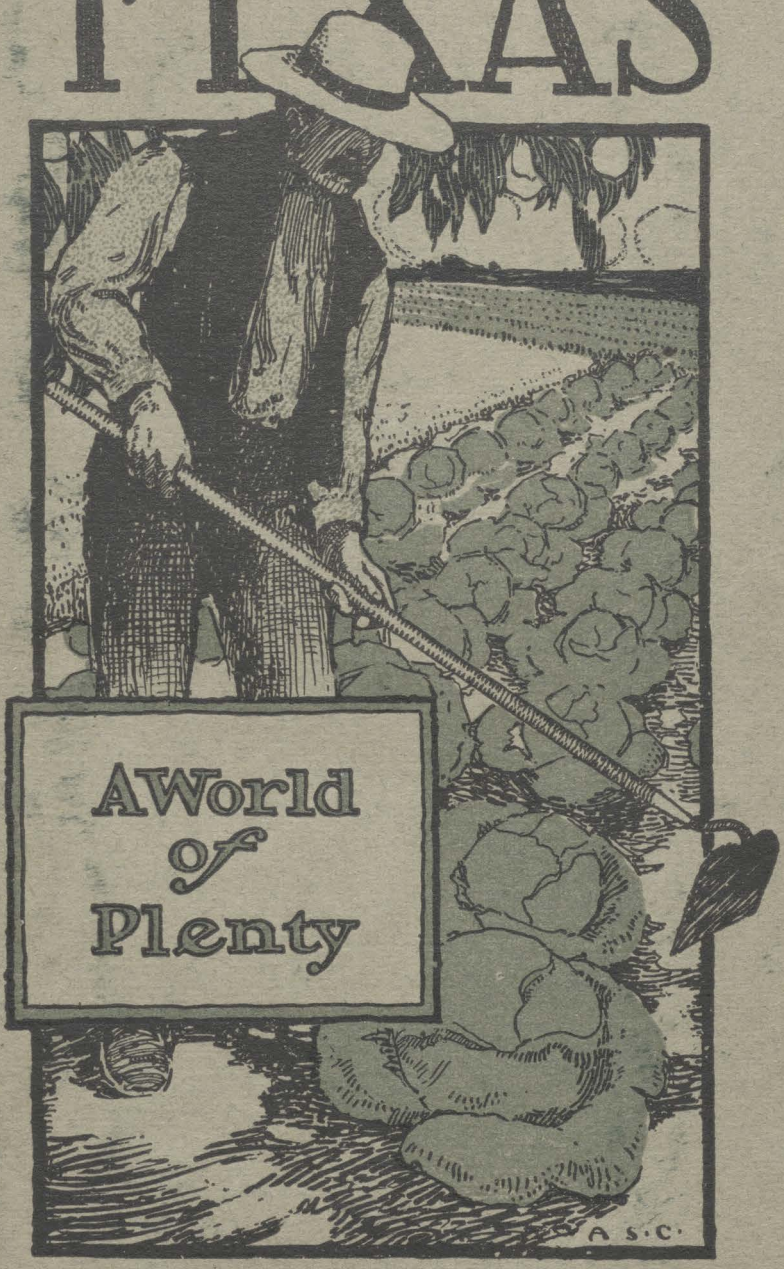
TEXAS



B—

PICKING JAPANESE PLUMS—EAST TEXAS.

TEXAS

A WORLD OF PLENTY

PASSENGER DEPARTMENT
ROCK ISLAND SYSTEM
CHICAGO, 1903.

INTRODUCTORY.

In exploiting a country it is the usual practice to dress the good looking facts in their Sunday clothes and parade them before the world. The ugly facts—those with dirty faces—those which have no "glad rags," and which do not keep step with the procession—are shut in the closet and never allowed to come into the "best room" when there is company.

"Paint me as I am," said Cromwell. The Great Lord Protector could afford to be honest with posterity. Texas can afford to be honest with the world. I have attempted, therefore, to paint the state as it is—as it appears to me. There may be a wart here and a wrinkle there—but what of it?

The interests concerned in the case in which I am called to testify, ask for the truth and nothing but the truth. The whole truth regarding such an empire as Texas could not be told between the covers of a booklet, even were the whole truth known to the writer. My limitations will confine me to the presentation of those salient facts which go to make up the general character of the country, together with such conclusions as follow from the natural correlation of those facts.

Whatever opinions I have expressed were not influenced by predilection, nor moulded by personal interest. In fact, I came to the investigation of Texas with a slight prejudice, not only against Texas, but against the entire Southwest—a prejudice the result of environment and a lack of definite and comprehensive knowledge.

Born and reared in the North, I had assumed the superiority of the North in all things. Moreover, I had for some time been engaged in an investigation of those industrial and commercial forces which are upbuilding that vast empire, that has for its boundaries, the Arkansas valley on the south, the Saskatchewan valley on the north, on the east the Great Lakes, and on the west the Pacific Ocean. Indeed, when I received the proposition to go to Texas for the purpose of investigating her resources and possibilities, I was at Winnipeg, arranging for a trip to the valley of the Peace River.

An investigating tour of Texas in mid-summer was to my mind a rather hot proposition. An examination of the United States weather reports, however, showed me that the temperature in Texas seldom rose above 86° in the month of June. With this assurance from high authority, I postponed the Peace River trip and started at once (May 25) for Texas. On June 15th I was in Galveston shivering in a temperature of 57°.

My instructions were to investigate the resources of Texas and report the facts with my observations from the view-point of a Northerner. This I have done in the following pages. What I found was so far beyond what I expected to find, that I have had to put the brakes on my enthusiasm.

When I state that Texas, to-day, offers better opportunities for the investment of capital and labor in the ordinary lines of intelligent enterprise, either agricultural, industrial, or commercial, than any other portion of North America, I am but stating a conclusion to which I am forced by an overwhelming array of facts. Some of these facts I have herein marshalled and set forth. The half has not been told—it can not be told, because it is not known. The great state is in its infancy with the long day of its future all before it.

In submitting this view of Texas I am conscious that it is incomplete to a degree. But I have done my best. I have tried to treat the state as a whole and to furnish such facts as will be of interest to that vast army of sturdy Americans in the middle west, who are looking for a new land in which to pitch their tents—to invest their capital and establish their homes.

RICHARD A. HASTE.

A 540-ACRE WHEAT FIELD—NEAR CHARLIE, CLAY COUNTY.

LOCATION AND EXTENT.

Texas is the great keystone that supports the central arch of the United States. For four hundred miles it spans the Gulf of Mexico, and for eight hundred miles rests against the Rio Grande. Extending from the 26th to the 36th parallel of latitude and from the 94th to the 107th meridian of longitude, it embraces an area of 265,280 square miles. Everybody knows that Texas is a big state—the largest in the Union—but few have taken the pains to realize its actual size. Bare figures convey but a meager idea of distance or space. It is only by comparison that we get the relative importance of things. Compared with European territory, Texas is more than twice the size of England, Ireland, Scotland and Wales; a fourth larger than the German empire, and equal in area to France, Holland, Belgium, Switzerland and Denmark. Compared with other states of the Union, it is larger than Georgia, Florida, Alabama, Mississippi and Louisiana combined. Michigan, Indiana, Illinois, Wisconsin and Iowa could be dropped within her territory and still leave unoccupied space to make several states of the New England type. It is larger than the whole of New England, with New York, New Jersey, Delaware, Maryland, West Virginia, Pennsylvania and Ohio added.

Across the state from Texarkana to El Paso is as far as from Chicago to New York, and from Texline to Brownsville is as far as from Chicago to New Orleans. When Texas is as thickly populated as New England it will support a population of 73,142,000.

Take a pair of compasses, place one point on El Paso and the other on Texarkana, and with the latter as a center, draw a circle. The line of that circle will pass through Denver, within one hundred miles of St. Paul, through Milwaukee, and within seventy-five miles of Columbus, Savannah and Jacksonville. With Texline as a center this same circle will take in St. Louis, Bismarck, the Yellowstone Park and a large part of the Gulf of California. With the same radius and Chicago as a center, the line of a circle will pass within fifty miles of the Gulf of Mexico and Hudson Bay; will follow the line of the Atlantic coast from Mobile to New York, passing through New York, Montreal, Winnipeg and Bismarck; will cross the western part of Nebraska and Kansas, and cut off the northeast corner of Texas.

AGRICULTURAL.

GEOLOGICAL FORMATIONS AND SOILS.

Texas is first and last an agricultural state. On no other equal area of the American continent has nature bestowed so much and withheld so little. In the adjustment of climatic conditions, in the arrangement of the surface, in the deposition of soils, and in the distribution of the water supply, the primal purpose seems to have been the perfect adaptation of the state to agricultural production. Nor was this adaptation limited to special lines of production. The list embraces most of the products of both the temperate and tropical zones. It is true that the climate, soil, altitude and water supply have marked, as with a pencil on a map, the wheat, the rice, the cotton and the

fruit districts, yet over a large portion of the state wheat, oats, corn, cotton, fruit and all kinds of vegetables can be seen growing side by side in the same field.

There is but little waste land in Texas. With the exception of the trans-Pecos region and the semi-arid plains of the extreme west, cultivation is not only easy but the returns are abundant and reliable.

From an agricultural point of view the state was most fortunate in its geological formation, for to this it owes the lay of its surface and the quality and diversity of its soils. From the low-lying Gulflands to the Staked Plains, the entire state is a succession of gigantic terraces which mark the successive geological formations. As a general rule these terraces present marked soil characteristics, which in turn determine their adaptation to the various agricultural products.

SOIL.—Soil is the farmers' stock in trade. It is his capital —the basis of his prosperity. In no other respect is Texas more blessed than in the possession of a soil that is both rich and varied. In connection with a climate equally varied, it gives to the farmer a choice of products ranging from wheat and oats to rice and sugar cane, from apples to figs, from corn to cotton.

As the nature of the soil depends largely upon the geological formation, we must look to the latter for a key to soil distribution.

GEOLOGICAL FORMATIONS.—Geologically speaking, the state of Texas is young. But few localities antedate the Carboniferous age. The trans-Pecos and the Llano regions alone bear the marks of older formations. The same seismic wrath that heaved the ocean floor into rugged mountains in the trans-Pecos was responsible for the "blow out" in the Llano region. Here in an area not exceeding forty miles in diameter, surrounded by limestone hills, are vast deposits of iron, great strata of marble and mountains of granite. With these exceptions the geological formation of the state is remarkably regular, ranging from the Permian, through the Lower and Upper Cretacous and the Tertiary periods to the almost modern formation along the lower courses of the rivers and the Gulf.

THE COASTAL PLAIN.—Extending back from the Gulf of Mexico a distance of from seventy-five to one hundred miles, with one end resting on the Sabine river, the other on the Rio Grande, with an altitude varying from sea level to one hundred and fifty feet, is the Coastal Plain. This territory was built up by the deposit of detritus brought down by the rivers and spread over the floor of the shallow Gulf. Geologically it belongs to the later Tertiary period.

The soil is a composite of all the soils from the Staked Plains to the sea. Along the rivers it is a black alluvial. On the higher portion and along the coast it is a sandy loam mixed with deposits of clay and light sand. The surface is level and in many places where the drainage is not good there are stretches of "alkali." This plain, generally speaking, is fertile and bears a growth of timber along the streams and in the eastern portion, and a luxuriant stand of grass in the open.

MARINE TERTIARY BELT.—Back of the Coastal Plain, and separated from it with here and there a clear line of demarkation, is the next older formation belonging also to the

Tertiary period. This extends in a somewhat irregular belt from near Texarkana on the Red River to Eagle Pass on the Rio Grande. In width it varies from fifty miles in the middle to one hundred miles at the south and one hundred and fifty miles at the north. This belt embraces all the soils known to the state. Along the rivers that cut their way to the Gulf are wide valleys with the richest alluvial soils. In the eastern part are the light sandy soils of the pine regions as well as the black sandy loams and red hills of the hardwood forests. In the vicinity of Jacksonville, Palestine and Nacogdoches, are found the red and chocolate soils so valuable in the culture of tobacco and fruits.

The surface of this belt is much broken with hills and cut into segments with river valleys. The northern part is mostly timbered, but to the south there are stretches of prairie, interspersed with patches of scrub oak and mesquite.

UPPER CRETACEOUS.—A line drawn through Denison, Fort Worth and Austin, and thence curving west to Del Rio, will mark pretty accurately the upper boundary of the next geological terrace—the Upper Cretaceous formation. This conforms in a general way with the Black Prairie region of the state. The soil is black and ranges from a sandy loam to an extreme waxy clay. The color is due to humus. The soil has a calcareous base and is underlaid with the characteristic composites of the Cretaceous formation, limestone, marl and chalk.

LOWER CRETACEOUS.—Underlapping the black prairie region from Denison to Wichita Falls and extending into the great plains is the Lower Cretaceous formation. This embraces within its area the Llano district with its geological freaks as well as the bituminous coal measures, belonging to a previous age. The soil is underlaid with limestone and is often light. The surface is seamed with the action of water which has cut

BUSY DAYS IN THE FRUIT SEASON.

great valleys, leaving buttes and limestone hills to mark the original levels. This marks the beginning of the grazing country.

PERMIAN.—Lying west and north of the Lower Cretaceous and extending into Oklahoma is the oldest formation in the state, the Permian. This embraces that part of the state from what is called the Upper Cross timbers, to the Staked Plains, and is popularly known as the "Red Lands" or the "Chocolate" plains. The soil is characterized by the presence of strata of clay underlaid with sandstone. Iron gives color to the soil, which is very fine and pulverizes when dry into a fine powder that is readily carried by the wind. The soil, however, is rich in the elements of plant food, but the lack of moisture renders the region semi-arid. The altitude varies from 250 feet in the south to 2,500 feet in the northwest.

A NORTHERN TEXAS FRUIT FARM.

THE LLANO ESTACADO.—Immediately west of the chocolate plains and separated from them by an escarpment rising abruptly some four hundred feet is the Llano Estacado or Staked Plains. This plateau with an altitude of 3,000 feet was once the bed of a great fresh water lake 150 miles wide and 500 miles long. Its geological formation is Non Marine Tertiary, the same age as the Coastal Plains. The soil is a dark rich loam capable of growing anything. All that is needed is water, the annual rainfall scarcely reaching ten inches. Beneath the surface, however, from ten to forty feet, there is a vast reservoir of water, the source of many a river, and perhaps one if not the greatest source of the artesian belt of central and southwest Texas.

Such, in brief, is the geological formation and soil distribution of Texas. Most, if not all, of the surface was laid down on the ocean floor before the waters receded. Since then the gigantic terraces which marked the successive geological formations have been defaced by the action of the elements. Rivers have cut out

great valleys and whole counties have been covered with alluvial deposits brought down by swollen streams. The process of disintegration and leveling has been going on for ages, so that now the geological record can be traced only by the out-croppings which have resisted time and his destroying armies.

But all this wearing of the elements has resulted in the deposition and distribution of a variety of soils potentially richer than mines of gold—soils which when placed to their highest use by the knowledge gained through the scientific investigations now in progress will make Texas the most productive and richest agricultural region of the globe.

WATER SUPPLY AND TEMPERATURE.

If a fertile soil be the first essential to successful agriculture an adequate supply of water is the second, and a proper temperature is the third. These three constitute the agrarian trinity.

The water supply may be either natural or artificial. That is, applied to the soil by precipitation in the form of rain, or by irrigation from open rivers and reservoirs, or from subterranean sources through pumps and artesian wells.

PRECIPITATION.—The 100th meridian of longitude divides Texas into two sections—the humid and the sub-humid or semi-arid. This meridian in a general way marks the western limit of *adequate* and *reliable* rainfall, from the Canadian boundary to the Rio Grande. The altitude, the prevailing winds and the temperature, however, cause the practical line of *adequate* and *reliable* rainfall to swerve west to the 102d meridian as it enters Canada and east to the 98th as it approaches the Rio Grande. East of this line the annual rainfall is usually sufficient to grow and mature ordinary field crops adapted to the latitude, if sown or planted in season.

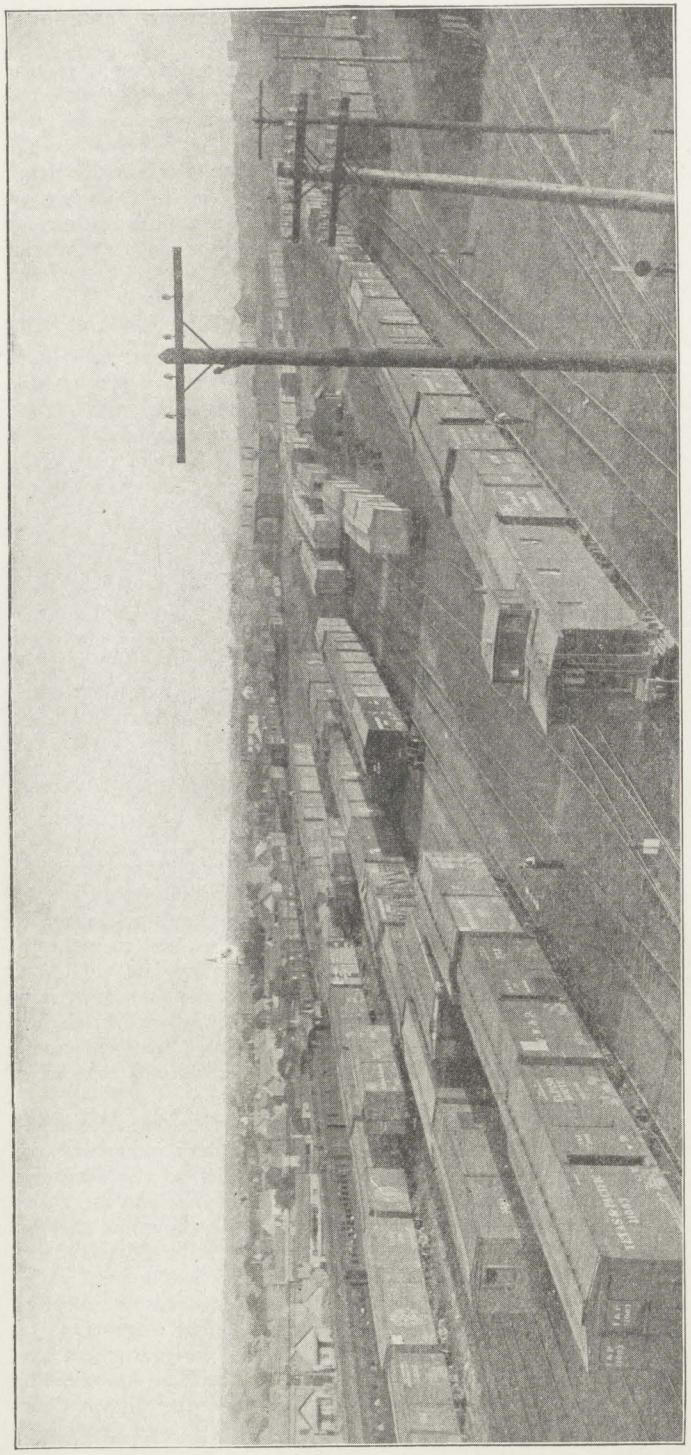
The average rainfall in Texas is marked by distinct zones and decreases from east to west at the rate of five inches for every sixty miles. It is 50 inches along the eastern border from the Red River to the mouth of the Sabine, 25 inches through the west central region along the 100th meridian, 15 inches in the valley of the Pecos and the Staked Plains, and 10 inches in the trans-Pecos and along the border of New Mexico.

Proximity to the Gulf seems not to affect the amount of rainfall. The lines of equal precipitation move westward in slightly irregular waves. The irregularities are caused by local conditions, such as soil, altitude and drainage—conditions that affect the evaporation.

THE RIVER SYSTEMS.—The Rio Grande, the Pecos and the Canadian rise in the foot-hills of the Rocky mountains and in their upper courses bring but little relief to the semi-arid regions through which they flow. The Canadian and the Pecos have eroded deep canyons through which they flow and the Rio Grande has no valley to speak of until it nears the Coastal Plain.

The rivers of Texas proper take their rise in the great plains country. In their upper courses they are dry beds for most of the year; for the remainder of the time, raging torrents.

The Red, Brazos and Colorado head in the escarpment that guards the Staked Plains. The Nueces, the San Antonio, the Guadalupe and the Trinity rise in or near the Upper Cross timber country, the limestone region of the Lower Cretaceous



RAILROAD YARDS—FORT WORTH.

period, which is marked by a great "fault" extending nearly across the state from the Rio Grande northeast to the Red. East Texas is drained by the Neches and the Sabine with their tributaries.

A marked characteristic of the rivers of Texas, from the Nueces to the Trinity, is the broad alluvial valleys which attend the greater portion of their courses. The immediate river channels are bordered by two distinct terraces, a lower and an upper bottom, the combined valley varying from ten to thirty miles in width.

The succession of rivers that stripe the state from northwest to southeast, each with its attendant valley, constitute an incomparable drainage system, while along the upper courses where the rainfall is unreliable or insufficient, the facilities for using the water of the streams for gravity irrigation are unexcelled.

Much of the rainfall of western Texas goes to waste. The sod of the uncultivated plains and the hills, bare of timber, sheds water like a thatched roof. A very small per cent. of the 10 to 30 inches of rainfall west of the humid line, except in the Staked Plains, is absorbed by the soil; the most of it rushes to the river channels and there, heavily charged with sediment, finds its way to the Gulf. The water of the various rivers takes its color from the soil of the region which they drain. The Red River takes its rise in the Red Lands of the plains where the soil is heavily impregnated with iron. The Colorado in times of freshet is either white, black or red, according to the section of country in which the freshet originates.

SUBTERRANEAN WATERS.—The entire state is underlaid with strata of water-bearing rock. Vast deposits of unconsolidated sand from 400 to 500 feet thick lie at the base of the Cretaceous formations. Out-croppings of this loose sand stratum occurring in various parts of the state and covering large areas act as catch basins for the surplus surface water supply and hold it in storage until tapped by artesian wells at a lower altitude. From the highest plains to the coast level water can be secured and brought to the surface or near it by natural pressure.

From Eagle Pass on the Rio Grande to Fort Worth extends an artesian belt of unknown width, and an apparent limitless supply. Rivers that rise near the Staked Plains sink into the ground to re-appear later along the great geological fault heretofore mentioned. The San Antonio and Guadalupe rivers have artesian sources. Flowing wells are found not only along this out-cropping of the Lower Cretaceous formation, but they are readily secured in the middle and eastern part of the state. The great Staked Plains is a vast reservoir. This with the sub-Cretaceous sands feeds these lower subterranean water courses. The condition of the soil and the surface slope have a marked effect upon the deeper artesian supply. The sandy soil of the Upper Cross timbers allows but little run-off; this is also true of the soil of the Staked Plains.

Whether this subterranean supply is sufficient to bring the semi-arid part of the state into general cultivation is a question It has been demonstrated to be sufficient for all pastoral purposes. With the windmill or other cheap power water could doubtless be obtained to redeem large tracts to farming which are now used only for grazing.

Droughts are possible in the humid part of the state but not frequent. Of the five general droughts which prevailed in the United States between 1870 and 1890 Texas was for some reason visited by only two and those were not so severe as in other parts of the stricken country.

The greatest precipitation is in May and September, the least in February and July. During the other months a general average is maintained.

TEMPERATURE.—From the standpoint of the tiller of the soil, temperature is the most important of the several factors that go to make up climate. And it is the extremes of temperature, not the "mean annuals," that count. The mean annual temperature along the coast from Galveston to Corpus Christi is about 70. This decreases about one degree for every forty miles as you pass to the north, with a slight increase to the west. On the Llano Estacado the mean annual is 58 and in the extreme north-

STATE CAPITOL, AUSTIN.

ern part of the Pan Handle it sinks to 54. These "mean annuals" furnish no idea of the variations of temperature over the state. There is for instance a strip of fifty miles along the coast where the temperature in summer seldom rises above 90, while in the interior the mercury has been known to reach 105 in the shade. But this is rare.

Observations covering a period of thirty years show that the temperature of central Texas passes the 100 mark only two years out of twenty in June, six years out of twenty in July and five out of twenty in August. These maximum temperatures, moreover, do not occur on more than five or six days during the year. In the extreme western part of the state and in the Pan Handle a higher temperature is encountered, but not to such an extent as farther north in Kansas and the valleys of the Missouri and the Mississippi.

While the maximum temperatures affect our comfort, it is the minimum temperatures that are of importance to the agriculturist.

In the valley of the Rio Grande and for a hundred miles inland from the Gulf, the lowest temperatures range from 10° to 18°, the latter being the minimum at Brownsville, at the mouth of the Rio Grande. Along the coast the thermometer seldom registers below 20°, and one year in five not below 32°. Temperatures below 0 are not recorded except in the extreme northwestern part of the state, where —14° has been recorded.

Over the central portions of the state the mercury falls below 32° only in the months of December, January, February and March; and then for not more than 28 days all told.

The average daily range of temperatures—the difference between the maximum and the minimum, is least at the coast, where it amounts to 6° in June and 11° in December. This increases as we recede from the coast until it reaches 30° in the northern part of the state. One peculiar feature of variability is that rises of 10° are more frequent than falls of the same number of degrees. This has an important bearing on vegetable and fruit culture, as it is the sudden falls and not the sudden rises in temperature that do mischief.

Along the coast the first killing frost occurs Dec. 15; in the central and eastern portions of the state Nov. 15, and in the northern part Oct. 15. The last killing frost occurs in the coast country about Feb. 5, one hundred miles inland Feb. 20, and in other parts of the state about March 1.

The agencies which dominate the temperature are the gulf, the winds and evaporation.

The Gulf is the great equalizer of temperature for a great part of the state. It keeps the temperature down in summer and up in winter. A Gulf breeze blows over two-thirds of Texas ten months of the year. By constantly changing the air it increases evaporation, rendering the nights cool no matter how hot the days. In January and February the south gulf winds are displaced by the winter monsoons, called "northers." If it were not for these "northers" coming down over the western plains from Medicine Hat, the mercury in Texas would not go below 32° and the southern part of the state would be in the orange and banana belt. Even with the northers the temperature over the southern part of the state is such that hardy vegetables, such as cabbage, lettuce, radishes and cauliflower can be grown during the winter months in the open field, and strawberries will bear from November to June in the open fields at Corpus Christi.

AGRICULTURAL PRODUCTS.

GRAND DIVISIONS OF STATE.—A bird's eye view of Texas would reveal three grand divisions—and a fourth. The eastern or timbered region, the central or prairie region, the western or plains region—and the gulf region crossing and overlapping the others from the Sabine to the Rio Grande. The three grand divisions occupy three distinct zones of rainfall. The influence of this rainfall is seen not only in the character of the natural product of the soil, but together with the climate it determines the character and scope of the cultivated productions.

The eastern division is covered in the main with a dense forest of pine and hardwood. The central division is generally open, but dotted here and there with patches of scrub oak on

the upland and stretches of elm, hickory and pecan along the river bottoms. The western division is treeless and bears the usual verdue of the western plains. The gulf region is mostly a level, grassy plain, striped with timber growths along the rivers and bayous.

GENERAL PRODUCTS.—In the line of cultivated products the eastern division will produce, and that abundantly, too, everything that can be grown in the south land. It will produce all the cereals from wheat to rice, but, owing to the diversity and quality of its soils, it is specially adapted to fruit, tobacco and garden truck.

The northern section of the central prairie and the northwestern part of the plains are the great wheat regions of the state. To the southwest, in the country of the Nueces, where the coast belt, the prairie and the plains merge into a triangle, south of San Antonio, is a section second only to eastern Texas in its adaptation to fruit culture and the production of garden vegetables.

The coast country is the natural home of rice and sugar cane. In the central prairie zone, while nearly everything known to mixed farming will do well, cotton and corn are at present the staple products.

The western plains are given over to cattle ranges. These, however, under irrigation are found to be as fruitful as the black prairies to the east.

COTTON.—In 1901 Texas produced 3,808,568 bales of cotton—nearly one-third of the cotton production of the world. For the last six years the cotton product of the state has averaged 3,000,000 bales, or a bale for every man, woman and child in the state. This at the average price of cotton amounts to $135,000,000. Add to this the value of the by-product, estimated at $20,000,000, and we have a total of $155,000,000 from the cotton crop alone.

Notwithstanding this brave showing, cotton is the most unsatisfactory crop produced in Texas. The trouble is cotton has been king. And universal experience has demonstrated that agricultural monarchs are failures. While corn was king in Illinois, Iowa and Nebraska, the people had to pay tribute to other states. While the northwest was under the rule of "King Wheat," despite the show of broad fields and the glittering statistical pageant of "average yields" and "total profits," the nose of the farmer remained on the grindstone, and the mortgages went unpaid. King rule is an exploded economic theory. It is only under the democracy of the farm—the diversity of crops, that the tiller of the soil will be able to reap the greatest reward for his labors.

Cotton is a crop that is admirably adapted to the climate, soil and labor conditions of the south. The yield is reasonably certain and the market is constant. Nearly every foot of land in Texas east of the semi-arid line will grow cotton—some cotton. The yield will range from four bales to the acre in the highly cultivated and fertile bottom lands to one-fourth of a bale per acre on the light, neglected soils of the sand hills.

Cotton as a staple product of the farm will always pay, just as corn and wheat and potatoes pay in their zones of production. Cotton, like corn, is an expensive crop to produce. The period

of growth is long, and cultivation must be constant to obtain the best results. And then the extra expense of gathering and preparing for market eats up the gross profit so that the net income per acre is small, compared with many other crops that can be grown on the same land.

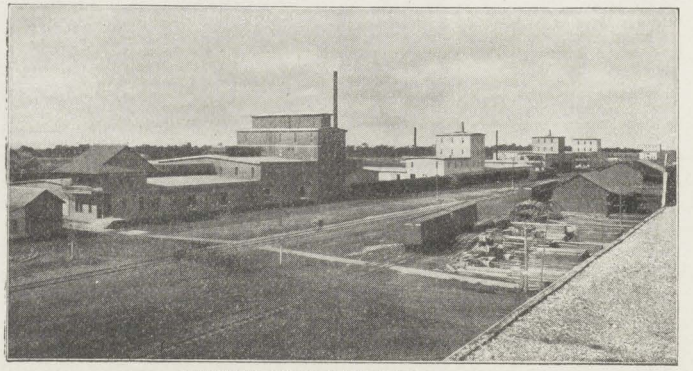
Notwithstanding these facts, cotton will always be a staple product of Texas, as corn will always be of Illinois and wheat of the Dakotas.

The by-products of cotton—oil, cottonseed, meal, lint and hulls—will tend to help out the producer. The income from these by-products is becoming very considerable.

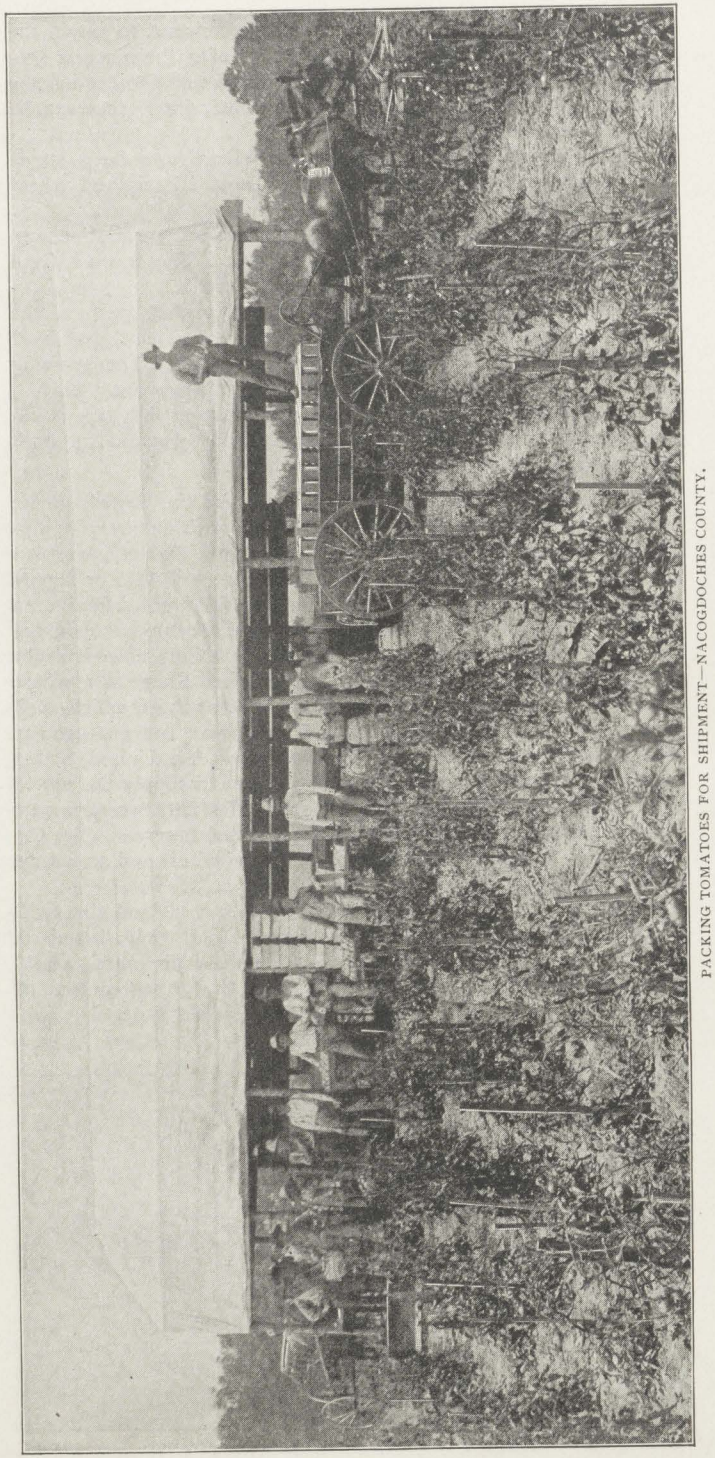
The establishment of textile factories in various parts of the state will furnish a home market for the raw material and have a decided effect upon the production of cotton. The growing cotton industry of Egypt under British influence may have a tendency to cut off a part of the English market, but this is being more than overbalanced by the increasing demand for both raw material and cotton goods in the orient.

WHEAT AND OATS.—Every few years the British public has a food scare. A statistician comes up with an array of figures which show that between the production and consumption of breadstuff there is so slight a margin that a failure or a partial failure of the world's wheat crop would mean famine to the inhabitants of the British Isles, who are dependent upon the outside world for their bread. These discussions have brought out estimates of the latent power of the United States as a wheat country. Statisticians with figures as potent as those which spell famine show that should the wheat supply of India, Australia and Russia be cut off by repeated failures, the United States within twelve months would be in a position to supply the world with bread. Texas is not a wheat state. Its northwestern part alone is adapted to the growth of this northern cereal. Yet the crop of 1903 will exceed 25,000,000 bushels of wheat and 30,000,000 bushels of oats.

There is in the state about 26,000,000 acres of land that will grow good wheat. With this acreage the total yield, based on the present average production of 14 bushels per acre, would amount to 364,000,000 bushels—one-half of the present output of the United States. And yet Texas is not a wheat state.



GROUP OF MILLS IN THE RICE DISTRICT.



PACKING TOMATOES FOR SHIPMENT—NACOGDOCHES COUNTY.

Owing to the fact that the greater part of the rainfall in the western plains comes in the spring and fall at the times when most needed for winter wheat, the grain belt is rapidly invading the semi-arid zone. The history of the rise of winter wheat in Nebraska will be repeated in northern Texas. Ten years ago Nebraska did not produce enough wheat to supply her local flour mills. Last year the crop amounted to 60,000,000 bushels of first-class winter wheat. The conditions in the two sections are similar. The winter wheat matures early and thus escapes the dry, hot weather of July.

Oats is a good crop throughout the entire wheat belt. It can be sown in February and March and harvested with the wheat in May and June. The wheat grower of Texas has two commercial advantages over his rival further north. He gets the advantage of the summer market and the short haul to tidewater for export.

CORN.—Although corn can be raised in every nook and corner of the state, it cannot be produced in Texas at a profit for export. While the state produces about 100,000,000 bushels annually, the yield per acre is comparatively small. Texas is not a corn country, and the sooner that is realized the better. It never can compete with the states of the corn belt; nor does it need to. As a side crop for home consumption to be used with cottonseed and alfalfa, for hog feed it will pay, but in no other way.

SUGAR CANE.—The consumption of sugar has increased from 30 pounds per capita in 1870 to 70 pounds per capita in 1903, an increase of more than one pound per capita each year. The consumption of sugar in the United States last year was, in round numbers, 5,500,000,000 lbs. Of this about 750,000,000 lbs. was domestic, one-half of which was produced from sugar cane. The remainder was the product of the sugar beet and the maple tree. The increase in sugar consumption is much greater than the increase in sugar production in spite of the fostering care of the government over the sugar beet industry. In the face of the tax we are paying out $130,000,000 annually for foreign sugar.

These conditions are bound to bring to the front the cane producing lands of Texas.

The coast country—that zone of alluvial plains which extends from the Sabine to the Rio Grande, is crossed by at least a dozen rivers with wide rich bottom lands. This is the cane region of Texas. The area embraces the rice lands, low, level and easily irrigated and the alluvial bottom lands along the rivers, preeminently adapted to the growth of sugar cane.

EXPENSE AND PROFIT.—To plant and cultivate an acre of land in sugar cane will cost about $30. The cost of cutting and hauling to the factory or the railroad will be about $12, a total of $42. On this land the average production will be: The first year, 25 tons; the second year, 22 tons; the third year, 18 tons, and the fourth year, 15 tons of cane, making an average of 20 tons per acre for the four years, which is the life of the planting.

The price of cane is regulated by the price of sugar. For every cent per pound in the current price of sugar the planter gets 80 cents per ton for his cane. Thus, when sugar is $.04 cane bearing the proper per cent test will bring $3.20 per ton.

This at 20 tons per acre will amount to $64 gross profit. Deduct the cost of planting and cultivation the first year and there is a net profit of $22 per acre. Out of the $42 deduct the cost of seed and planting—$17.50—that is saved the three subsequent years. Add this to the $22 and we have $39.50 the average net profit per acre for four years with sugar at $.04 per pound.

As to the probable profit from the manufacturing standpoint. A factory sufficiently large to accommodate the product of 1,000 acres of land will cost about $125,000. One ton of cane will yield 135 pounds of first-grade sugar worth $.04 per pound —$5.40; 35 pounds of second-grade sugar worth $.03 per pound —$1.05, and five gallons of molasses at $.10 per gallon, $.50, a total of $6.95. From this deduct the cost of manufacturing, $1.65, and $3.20, cost of cane, and we have a net profit of $2.10 per ton to the factory. With a capacity of 20,000 tons there will be a net income over absolute cost of $44,000. Deduct 20 per cent for insurance, tax, wear and tear, etc., and there will remain a balance to the account of the enterprise of $35,500 on an investment of $125,000. Discount this 50 per cent for accidents and bad luck and there remains still a good profit on the investment.

BY-PRODUCTS.—The by-products of a sugar factory are vinegar, alcohol and paper. Paper is made from the bagasse—the fiber of the cane after the juice is squeezed out. It makes a good quality of wrapping paper. It is worth $5 per ton for paper and $2 per ton for fuel. Alcohol and vinegar are made from the saccharine refuse of the factory. These by-products are the perquisites of the factory and should be added to the profits.

RICE.—From the tenor and volume of the advertising matter emanating from southern Texas, one would conclude that rice is to be the dominant crop of the state, and that health, wealth and happiness will be the reward of all who engage in its cultivation. So well pleaded is the cause of rice and the coast country that the stranger from the north is led to declare: "Almost thou persuadest me to be a rice grower."

Rice is now and doubtless always will be a profitable crop in the rice belt of the United States. Whether it will pay better returns than other crops where irrigation is employed is a question which will require more definite data than I have now at my disposal to answer.

RICE BELT LIMITED.—Rice is an aquatic plant, requiring a special soil and conditions that allow a complete submergence of the roots for a period of at least 70 days. The following essentials, therefore, are required: Level or moderately level ground, access to a large supply of water, a soil underlaid with an impervious stratum to prevent seepage and lastly facilities for complete drainage when the crop is matured.

It is evident that rice lands meeting these requirements are limited.

They are not confined to the states bordering on the Gulf, but also to certain localities of the coastal plain. It is estimated that not more than 10,000,000 acres of the coastal plain are suited to rice and that, with the present available water supply, only about 3,000,000 acres can be irrigated and worked at a profit.

METHOD OF CULTURE.—Rice culture is comparatively new in this country. True, it has been grown in South Carolina and Georgia for the last two hundred years in a small way, but not until the last fifteen years has it been cultivated after the modern methods now prevailing in Louisiana and Texas.

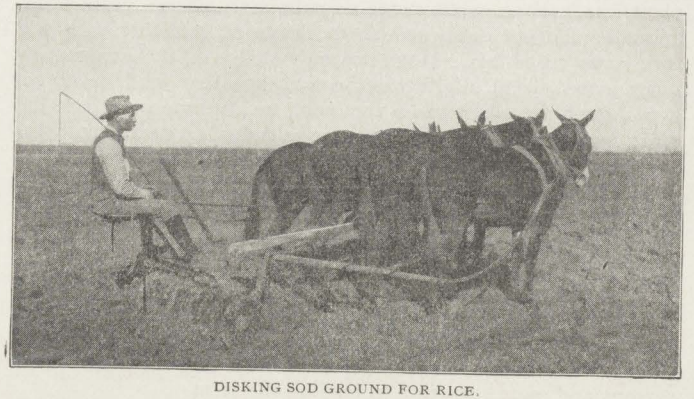
Every one has in his mind's eye a picture of rice culture in the orient—a picture in the old school geographies, of a half-naked native with an inverted chopping bowl on his head, driving a buffalo hitched to some sort of rude plow, through a field of mud and water.

Rice culture as it is carried on in the coast country is as different from the ancient oriental method as one can well imagine. It consists in plowing an ordinary field with an ordinary gang plow, sowing it with the ordinary drill and when ripe harvesting it with the ordinary binder and threshing it with an ordinary thresher. The process with the exception of irrigation is identical with wheat cultivation in the north. After the plant is from four to eight inches high it is kept under water for about 70 days or until the plant is matured. Sufficient time must be allowed after the water is withdrawn for the ground to become firm enough to sustain heavy harvesting machinery.

COST AND PROFITS.—No crop figures out better yields and profits on paper than rice. When once the industry is established the results are reasonably certain, as they are in all irrigation propositions, where the uncertain element of rainfall is eliminated.

Under the canal system in both Louisiana and Texas the profits have been very satisfactory, if we may judge by reports backed up by the increase of acreage and output.

One man with four horses can handle 100 acres of rice land. The yield is on the average 10 barrels per acre. The average price paid to the farmer is $250 per barrel, or $25 per acre for his crop. It costs for seed, harvesting, threshing and delivery to mills about $10 per acre. In addition to this the farmer pays the canal company one-fifth of his crop for water (unless he has a well of his own). This leaves him a net profit on 100 acres of rice of $1,200 per year. I am inclined to believe this to be a conservative estimate of what can be done under ordinary circumstances. But this presupposes, energy, good sense and work on the part of the farmer.

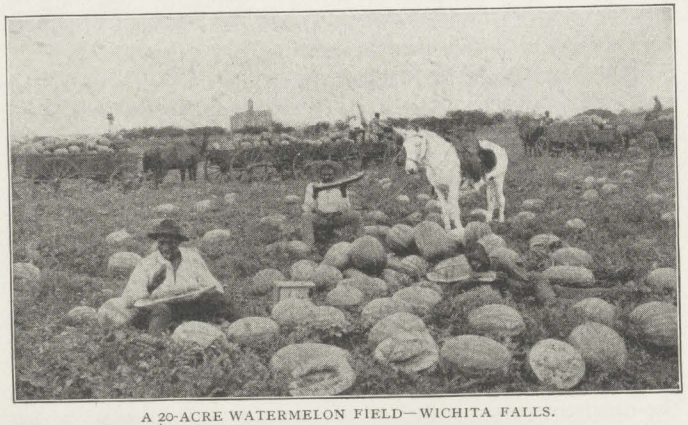


DISKING SOD GROUND FOR RICE.

ALFALFA.—Can alfalfa be successfully grown in Texas? An affirmative answer to this question means more to the state than the combined possibilities of any three of her spare products. If alfalfa will flourish on the soils of Texas, it means the establishment of creameries and cheese factories in every town in the agricultural districts; it means the multiplying of the dairy herds of eastern Texas by ten; it means the redemption of the western plains from the ranchman and the establishment of thousands of combination dairy and stock farms; it means the raising of hogs for export instead of the importation of ham and bacon; and, more than all, it means the establishment of a system of diversified farming and the redemption of all exhausted lands.

In the last ten years alfalfa has added thousands to the population of Nebraska and Kansas and millions to their wealth by bringing the western parts of those states into the circle of successful cultivation.

What is alfalfa? It is a member of the clover family that came from Arabia and Turkestan to Spain, thence to Mexico.



A 20-ACRE WATERMELON FIELD—WICHITA FALLS.

It was introduced into the United States through California, bringing its Arabic name with it. Its great value in the west lies in its ability to resist drought. In a loose soil it will go 20 or more feet to water if it is obliged to. It will yield four crops a year, with an average of one ton to each crop. No other forage plant has such a wide range of admirers among grass-eating animals. Horses, cows and sheep thrive on it, either as a pasture or as cured hay. Hogs not only thrive on it, but grow fat when placed in an alfalfa pasture with no other food. And the hen, though not classed as a ruminant, will browse on alfalfa day after day and go to roost chewing the cud of contentment.

The value of alfalfa as a soil restorer lies in the fact that its roots, which penetrate the soil to a great depth, die and are constantly renewed, thus enriching the soil with a supply of humus, and, what is more important, the nitrogen which the plant has gathered from the atmosphere.

As a butter fat and milk producer alfalfa has no superior in the range of forage. Dairy cows feed on the cured hay and keep up the milk flow as well as when fed on ensilage. As hay it is worth from $10 to $15 per ton in the market according to seasons and more than that to feed on the farm.

Can alfalfa be successfully grown in Texas? Near Sherman in the northern part of the state, Mr. R. E. Smith has 600 acres of alfalfa which yields an average of five tons to the acre. Mr. Smith is a farmer who uses brains as a fertilizer. Besides the 600 acres of alfalfa he has corn, cotton, potatoes, peas, wheat, oats and a large fruit orchard. He does not strip the soil of its products, but keeps 400 horses and 100 cattle, 600 hogs and a flock of Angora goats, just to show the land that he appreciates what it is doing, and incidentally to increase his profits. All this stock, including large flocks of poultry, eat and grow fat and strong on alfalfa.

South of Sherman, along the uplands, and in the valley of the Brazos are fields of alfalfa. On the semi-arid plains it thrives under irrigation. There are sections of Texas where the probabilities are that it will not do well, but these areas are small. In a climate like that of Texas all that alfalfa needs is a loose soil with good drainage. It will resist drought by going deep for water or it will thrive abundantly when the water is applied to the surface.

In the present condition of the dairy, the stock and the swine interests of the state, the importance of the extensive cultivation of alfalfa cannot be overestimated.

PRICE OF PRIVATE LANDS.—The price of lands in individual hands has during the past two years been advancing with rapid strides. The rich returns which the soil yields to whomsoever will tickle it with a plow or hoe are gradually becoming known to the people of the Mississippi valley. Immigration has set in toward the southwest—an immigration of actual settlers and not speculators. This fact with the known returns secured from the cultivation of rice and sugar cane in the Coast country, the growing of fruit, and the garden truck business has had the effect of putting heart into the old inhabitants of the state. They are beginning to appreciate what they have. But still land remains cheap—very cheap.

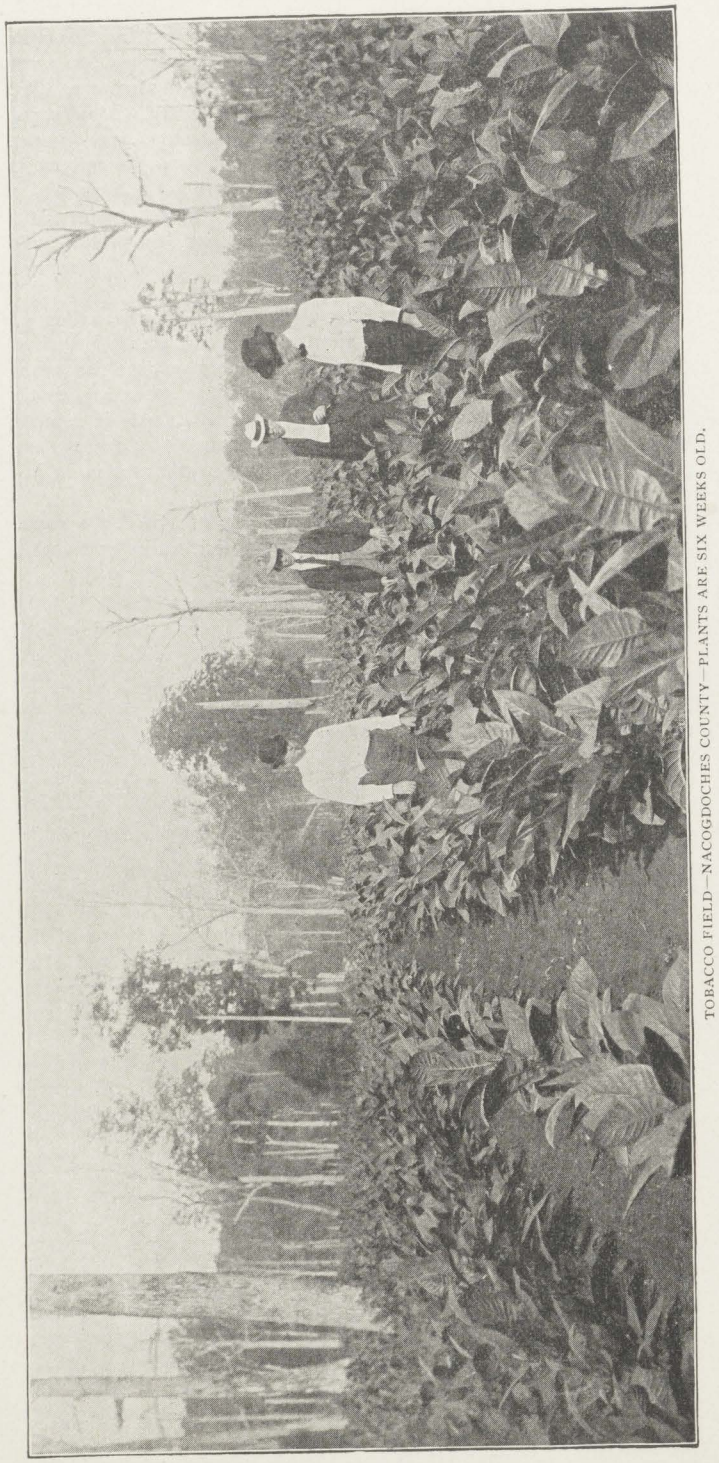
In the central prairie region—a section well settled and with a soil that can not be duplicated except in certain portions of the Mississippi valley—a region that reminds you of Iowa and Missouri, improved land can be bought for from $15 to $50 per acre, and unimproved land from $7 to $20 per acre. And this is land on which anything from wheat to cotton can be produced.

In the coast belt where sugar cane and rice are the staples best adapted to the conditions, land can be had from $6 to $30 per acre according to location in reference to water and transportation.

In the fruit and vegetable region of the southwestern part of the state from Austin to Brownsville, land is worth from $3 to $50 per acre according to its supply of artesian water. This region is on the border of the semi-arid belt and requires irrigation for absolute crop certainty. Large tracts of land can be bought for $3 per acre on which flowing wells can be secured.

In the eastern part of the state—that part which has been settled for more than a century—the most picturesque and perhaps the most fertile part of the state, land can be bought for from $3 to $20 per acre according to improvements.

Here the old and the new sit cheek by jowl. Here the cotton fields, studded with dead trees which the owner is too "busy" to



TOBACCO FIELD—NACOGDOCHES COUNTY—PLANTS ARE SIX WEEKS OLD.

remove, is neighbor to a peach farm newly cut out of the hardwood forest. Here lands that will produce tobacco equal to the best Cuban leaf can be bought for $6 per acre.

The following advertisements are taken at random from the center of the fruit and garden truck district of the eastern part of the state:

1. A tract of 1,476 acres 14 miles west of county seat, a fine body of hardwood timber, white oak, hickory, ash, etc. $5 per acre.

2. 1,146 acres, two miles from station, 150 acres in cultivation, every foot farming land, four tenant houses. $6 per acre.

3. A tract of 360 acres one mile west of the town of Nacogdoches (a town of 4,000 people), improved. $25 per acre.

4. Six tracts embracing from 170 to 2,000 acres in Nacogdoches county, partly covered with pine and hardwood, near railroad. $6 per acre.

These specific instances constitute a fair index of the range of prices all over the state. There are tracts of cut-over timber land and pasture land that can be bought for $2 per acre, and that in the humid portions of the state. There are irrigated tracts which bring a rental of $25 per acre per year which can not be bought for less than $250 per acre. There are fruit and truck farms which yield an income equal to 100 per cent on a land valuation of $100, while the land within two miles can be bought for $6 per acre. Farms that are paying an income on a capitalization of $50 per acre have for neighbors farms that can be bought for $12 per acre.

This condition cannot long remain. The steady stream of immigration will adjust prices to values in a very few years. Unoccupied land is always worthless. A speculative value may attach to it for a time but in the end it becomes a burden unless made to contribute through cultivation.

The agricultural lands of Texas will double in price within the next two years. In many sections they will quadruple in price within the next five years, and this will be the legitimate result of development, not a boom.

TRUCK FARMING AND FRUIT CULTURE.

Truck farming and fruit culture, like dairying, have developed from an occupation on the side to an industry, and from an industry to the dignity of a profession.

Forty years ago people did not expect to get vegetables and fruit out of season—they had not acquired the taste. The inhabitants of the cities were content to wait until the farmer in their immediate vicinity could raise and bring to market his garden truck in his own conveyance.

The increase in population and wealth of the northern cities, the development of transportation facilities throughout the south since the war, the invention of the refrigerator car and the establishment of fast freight service, have led to a most wonderful development of the vegetable and fruit industries, especially in the south, where the seasons are such that for ten and sometimes twelve months in the year the soil may be kept busy bearing small fruits and vegetables for the northern markets.

Transportation and the ice factory have eliminated the seasons. We of the north can get our lettuce, our radishes, or our

strawberries fresh from the truck farms of Corpus Christi in January if we are willing to pay the freight.

REFRIGERATOR CARS AND FAST FREIGHT.—Before the railroads were able to handle perishable garden truck and fruits, the traffic was carried on to a limited extent by the Atlantic coast steamers, plying between the eastern cities and the ports of the southern states. The first all-rail shipment of garden truck to New York did not take place until May 26, 1885. It came from Virginia. South Carolina sent her first consignment April 12, 1888. The first carload of oranges from Florida reached New York in 1888 and the first refrigerator car of strawberries in 1889.

Fruit had been shipped from California to eastern points in a small way as early as 1870, but not until 1886 did the first trainload of deciduous fruits in modern refrigerator cars leave the state.

Next to soil and climate, the most important factors in truck farming and fruit growing, are the refrigerator car and fast freight service. The general use of the refrigerator car was delayed by the difficulty in securing ice in the south. This has been overcome by the establishment of ice factories in all the principal cities and towns below the natural ice belt.

The freight service given perishables is about equal to that of express. The run from New Orleans to Chicago, a distance of over 900 miles, is made in 55 hours. And solid banana trains have made it in 47 hours and 30 minutes. The time consumed from Texas points to Kansas City, Omaha, St. Louis and Chicago varies from 36 to 72 hours, according to distance.

FRUIT BELT OF TEXAS.—The fruit belt of Texas extends from the southwest to the northeast across the state in a veritable zone conforming in a general way to the Tertiary and Cretaceous formations.

Fruit demands not only a proper climate and a proper location as to drainage, but also certain ingredients in the soil. It is to be regretted that there is not a reliable and complete geological survey of Texas including soil analysis. Until this is done the fruit regions of the state cannot be determined except by experiment.

It is now known that peaches, apples, pears and plums among the larger fruits, and grapes, strawberries, blackberries and dewberries, among the smaller, will flourish in eastern Texas. It has been demonstrated also that peaches, apricots, figs, plums and all the smaller fruits are indigenous to the soil and climate of the southwestern part of the state.

Let it not be understood that fruit will grow only in the above sections. Orchards are found anywhere and everywhere from Texarkana to Corpus Christi, in locations where the soil and other conditions are favorable, but the sections mentioned are distinctly fruit regions—regions where fruit culture can be carried on on a commercial scale and made to pay as it does in the fruit regions of California.

At present eastern Texas has the lead as a fruit country. The red lands, impregnated with iron, the warm, sandy loam soils and the lay of the land, rolling and well drained, all combine to make this the natural home of many fruits.

THE PEACH.—The peach seems to take the lead, marked success having been achieved in its culture, and now hundreds of acres of young orchards are seen on every hand.

The peach country of Texas has an advantage over that of California by being near the great fruit markets, not only of the interior, but of the Atlantic coast. And before many years the California peach will have to take a back seat in the presence of the red-cheeked beauty from eastern Texas.

In competition with the fruit growers of Arkansas and Missouri, those of Texas have an advantage of at least one month in getting to market—and it is the early market that pays the profit in the peach business.

THE FIG.—The fig is attracting much attention among Texas fruit growers. And well it may, for it all but grows wild in the coast country, where the soil and the climate are peculiarily adapted to its culture.

There is money in figs, but the market will have to be courted, sometimes created. For immediate use the fig should be left on the tree until fully ripe. For shipment it has to be picked somewhat green. It is very perishable, lasting but a few days when fully ripened. So far it has not made its way into the northern market to any extent as a table fruit. A Texas grower, by way of experiment, shipped a few crates to a commission firm in Chicago. In a few days he received a message by wire: "Fruit arrived in good condition. What are they?" And before that question could be answered and the public convinced that it wanted them the fruit spoiled.

With proper handling the market for figs should be unlimited. Picked slightly on the green side and shipped in refrigerator cars by fast freight Texas figs should find ready sale in the

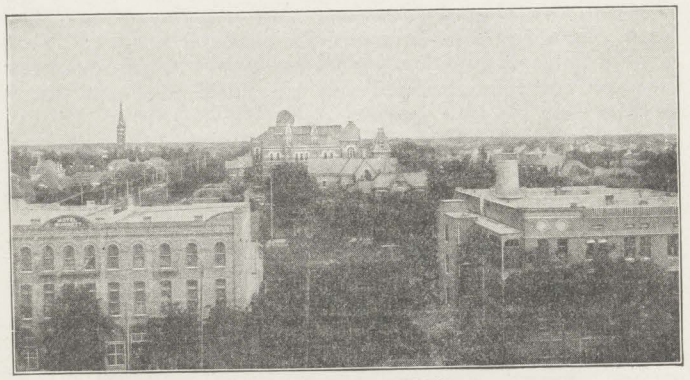
SWEET POTATOES—CORPUS CHRISTI.

Missouri river cities, St. Louis, Chicago and even New York. As to the surplus, there is no reason why it cannot be disposed of by evaporation or canning with profit.

PEARS, PLUMS AND APPLES.—Pears are found in every county of the fruit zone. In some places the tree does well, the fruit grows large, but it is hard as a stone. This seems to be owing to some unfavorable condition of the soil. You can find magnificent pear orchards in certain localities of the coast country abandoned—the fruit not being marketable. But this is local. When we know more about the soil in that vicinity the reason for the failure of the pear will be made clear.

The plum has a wide range, both native and foreign. It will grow anywhere, but prefers the sandy loam soils of the eastern section. The wild plum is found in the river bottoms where the soil is rich and the drainage good.

The apple, being a fruit adapted to the north temperate zone, is more particular in its choice of location and soil. To do well,



A GLIMPSE OF HOUSTON.

to bear well and at the same time to have a good flavor and good keeping qualities, the soil on which it is grown must be just right. It grows best on the lands in eastern Texas, where the timber has been removed. On the beech, ash, and hickory lands the best results have been secured.

GRAPES AND SMALL FRUITS.—Why should not Texas in time export as much wine as France? The only thing that will prevent the growth of the wine industry will be a prohibition amendment to the Constitution of the state—and that consummation seems a great way off.

Where the forest trees along every stream are covered with vines from which hang clusters of wild grapes, vineyards attended by the hand of man ought to flourish. The experience to date has been that wherever an attempt has been made to raise grapes, no matter what variety, the results have surpassed expectation. The grape is such a prolific fruit that where it is cultivated for commercial purposes, unless there are provisions made to utilize the surplus after the market for table use is supplied, the enterprise may meet with failure. When grapes are ripe they must be used. The Texas grape enjoys the same

advantage of being able to get into the early market that the peach does. But large grape vineyards cannot depend entirely upon the market. There must be provisions for making wine.

On June 17 I ate strawberries from a patch in the open field near Corpus Christi, which had been bearing continuously since the previous November. The soils of east Texas and the coast country, warm, sandy loams of alluvial origin, are especially adapted to the growth of this queen of small fruits. The market for Texas strawberries is as big as the whole north—it cannot be glutted, not even supplied, and the profit from an acre of strawberries in enormous.

The blackberry and the dewberry are both native and to the manner born. They grow where they are planted and where they are not planted. They seem to be the favorite small fruit for home consumption. They not only grace the table in their original form, but appear as a delicious wine and in the preserved from. Shipment to the northern market, however, is increasing rapidly. The blackberry can be placed on the northern market in May and kept there until the northern varieties come in.

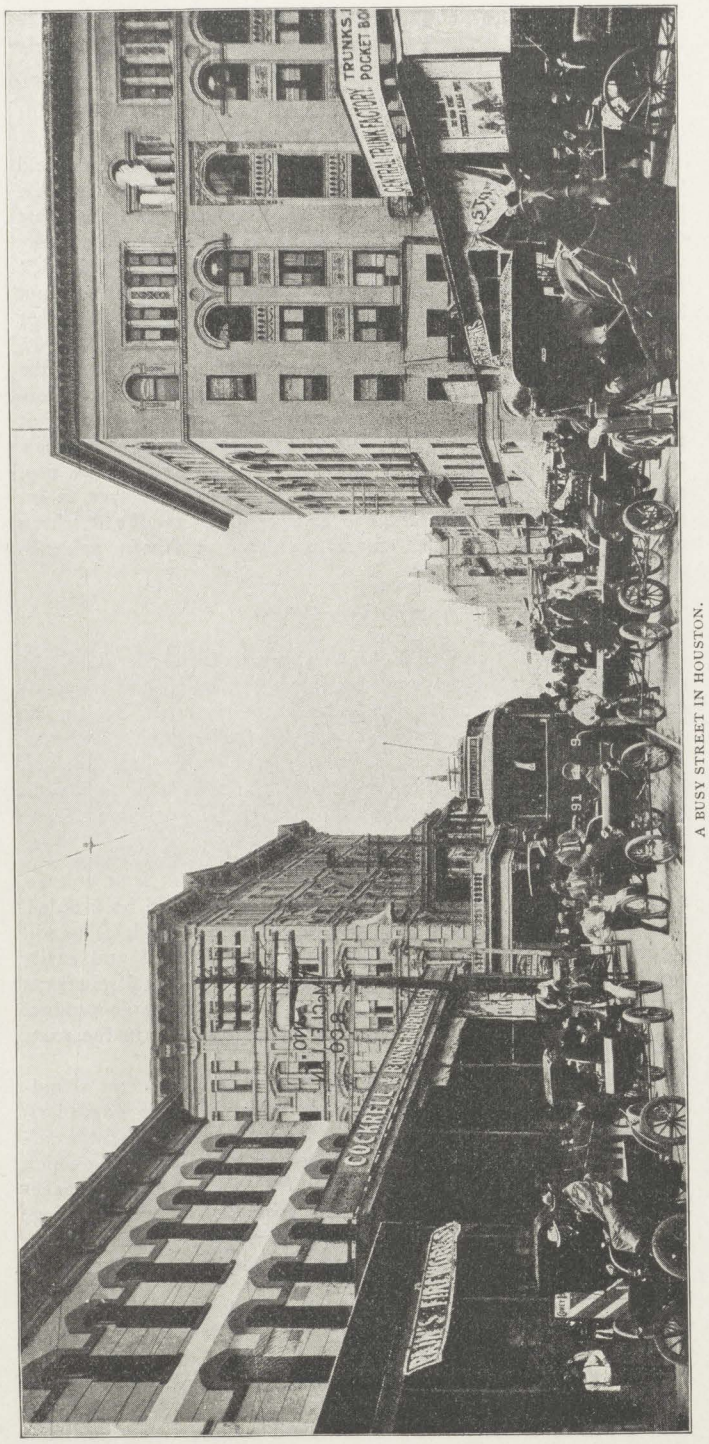
GARDEN TRUCK.

While garden truck will do well anywhere in the state, the regions best adapted to commercial truck farming are the eastern and southwestern portions—the fruit regions. So similar are the conditions necessary to successful fruit growing and successful trucking that the two industries twin each other. In fact, they cannot well be separated. Between the rows of the growing fruit trees should be planted cucumbers, canteloupes and strawberries.

PROPER SOILS.—In the choice of soils, as in fruit culture, as a general rule clays and black waxy soils should be avoided. They retain moisture too long and are slow and cold. The soil for trucking should be a sandy loam, well drained and easily worked, and should contain the necessary chemical elements demanded by the plant which is to be made the staple product of the farm. Such soils are found in the fruit zone in the parts of the state above mentioned.

The eastern part of the state has the advantage of an abundant and reliable rainfall, but the southwestern sections where irrigation is employed, and often absolutely necessary, has the advantage of a season at least two weeks earlier. The crops which seem best adapted to the conditions of soil, climate and market are, for early spring shipment, Irish potatoes, onions, cabbage, cucumbers, watermelons, canteloupes, tomatoes, peas and green corn. For winter market, lettuce, radishes, asparagus, cauliflower and young onions.

IRISH POTATOES.—There is money as well as starch in potatoes. The yield is small, but that is offset by the fact that two crops can be grown on the same land each season. The yield is from 100 to 200 bushels per acre, according to the soil and attention in cultivation. This yield can be increased from



A BUSY STREET IN HOUSTON.

20 to 30 per cent by the judicious use of fertilizers. The soil in which the tuber does best is a dry, rich, sandy loam.

The first crop is planted in February and matures in May. The second crop is planted in July and matures in November.

The great difficulty with the Texas potato is it will not keep through the summer. The first crop must be marketed at once and a second crop planted to secure a supply for fall and winter use and seed for the next spring. Under present market conditions this is of little consequence, as the first crop matures in time to get into the northern markets when the price of potatoes is at the maximum. The second crop can then be grown for home consumption and for the next year's seed.

The potato grower can usually count upon receiving an average of $1 per bushel for his spring crop and $0.50 for that of the fall.

TOMATOES.—The tomato is one of the most satisfactory as well as one of the best paying of the list. The demand is universal and the article being of a perishable nature the market is seldom overstocked. In the Corpus Christi district the tomato is ready for market about May 15. In the eastern part of the state at Jacksonville and Nacogdoches about two weeks later. The yield will run from 300 to 400 crates per acre and the price ranges from $1.10 to $0.50 per crate.

The growth of the tomato interest in Texas has been phenomenal. From practically nothing in 1899, the shipments in 1902 rose to 1,150 cars, not including the shipments by express. The Texas tomato has a monopoly of the northern market west of Chicago. And when this market is supplemented by local canning factories to use the surplus at the end of the season and the second-grade article that does not sell well, a tomato farm will mean not only a good living but a fat bank account.

CABBAGE.—Southwestern Texas is the home of the cabbage. It is a winter vegetable and in the mild climate south from San Antonio it is planted in November and is ready for market in midwinter. The growth is almost abnormal. The heads literally cover the ground.

The State Experimental Station at Beeville, southwest Texas, in a bulletin on tests of the various varieties of cabbage submits the following figures as the result of the experiments:

	No. heads.	Weight. per acre.	Value per acre at 1½c per pound.	Cut.
Stein's Early Flat Dutch.	10,850	40,146	$602.19	Feb. 3
Autumn King	6,981	32,772	491.58	Feb. 25
Louderback's All Year...	7,361	32,772	595.96	Feb. 25
Large Late Flat Dutch...	7,179	45,471	682.06	Feb. 28
The Lupton	6,672	38,444	576.66	Feb. 11
Burpee's Surehead	5,843	31,692	475.38	Mar. 2

This cabbage was grown on the experiment station farm at Beeville, on a light soil and was irrigated four times; this section being on the eastern edge of the dry zone. Results like these can be obtained by any one who will take advantage of the opportunities. Irrigation at Beeville is carried on by a system of wells and pumps at a very slight cost per acre.

CANTELOUPES AND MELONS.—Canteloupes and melons, like tomatoes, must be rushed to market, the price depending much on the time of arrival. The profits run from $100 to $250 per acre. Cucumbers are another paying crop, but the market is more restricted and an extensive acreage should be backed by a pickling factory to use up the surplus.

ONIONS.—As high as $800 has been realized from an acre of onions in southwestern Texas. A New York commission firm wrote a shipper: "Mark all your onion crates Texas Bermudas. They are better than the imported onion; the people prefer them."

Commenting on the Texas onion, the "Fruit and Produce News" says: "It looks as though the trade had found something now which will supplant the Bermuda onion. The Texas stock can be raised cheaper and is better cured than the stock now in the market. There is no doubt that if once introduced

MEAL TIME ON THE RANGE.

they will bring more money than the original Bermudas. A buyer here said that the stock was 50 per cent better than any Bermudas he ever saw. The trade will take hold of this stock because it looks well, and in another year there is no reason why Texas should not market 400,000 crates in New York alone. The market takes best to the yellow variety, although the west will pay more money for the whites."

PROFITS.—The profits of fruit culture and truck farming are no doubt greater than in any other department of soil culture, unless it be that of tobacco. The net profits depend largely upon the industry and intelligence of the farmer. The market is the great thing. The producers and the transportation companies are in partnership, and by proper organization they can control the markets. The maturity of the crop must be properly timed and the shipments gauged according to the demand. The truck farmers of Texas are organizing for the purpose of shipment in car loads, as each individual may not have sufficient stock to take advantage of carload rates. A movement is on foot to combine all these local associations and place the control of

the shipments in the hands of one man who will watch the market and distribute the output where it will meet with the best market. This superintendent will keep in touch with the market in all the cities and will issue instructions for just so many cars to go to the various points so the market may be kept active.

The following statement from a farmer near Nacogdoches is a fair sample of what is being accomplished in both east and southwest Texas in the fruit and mixed farming districts:

"To comply with your request to furnish you a statement of the produce raised on my farm last year, 1902, I herewith hand you a list of what I grew and sold from my place, 45 acres in cultivation at the time. These are net prices after all expenses are paid:

SOLD FOR CASH.

50 plum trees brought	$ 55.25
4 acres bearing peaches, 1,212 crates, 72c	872.64
4½ acres tomatoes, 1,180 crates, 46c	542.80
2 acres Irish potatoes, 240 bu., 78c	187.20
1 acre strawberries	175.85
3 acres sweet potatoes, 375 bu., 55c	206.25
3 acres of cabbage, beans, peas, beets, onions, turnips, mustard, lettuce, egg plants, radishes, peppers, carrots, squash, cucumbers, watermelons, canteloupes	202.45
5 beeves	70.00
4 pigs	20.00
Total	$2,332.44

Produce raised for home consumption not sold.

Corn, 185 bu., 3 acres oats, 15 tons crab grass, pea vine and peanut hay, 65 gallons cane syrup, 800 pounds pork, 135 pounds lard, 300 pounds beef, 85 gallons preserves, jellies, and canned goods; all the fruit and vegetables, poultry, eggs, milk and butter our family and labor could use; 2 young mules, 4 young cows, 10 pigs, etc. Estimated value of the above $50.

This is better than raising 60c wheat in the northwest.

SHIPMENTS IN 1902.

It must be remembered that the fruit and truck industry in Texas is in its infancy—that it has hardly begun. And yet there was shipped from the state in the season of 1902 nearly 6,000 carloads of fruit and vegetables with a total value of $1,734,337, and apportioned as follows:

Peaches	1,280 cars	Beans	34 cars
Tomatoes	1,149 cars	Cucumbers	25 cars
Potatoes	1,406 cars	Pears	11 cars
Watermelons	917 cars	Plums	6 cars
Cabbage	226 cars	Apples	3 cars
Canteloupe	164 cars	Mixed	221 cars
Berries	171 cars		
Onions	34 cars	Total	5,657 cars

In addition to these freight shipments there were about 250 carloads sent by express. The total value was in the neighborhood of $2,000,000.

Carload Refrigerator Charges on Fruits and Vegetables from Tyler, Tex.

[Rates in dollars per carload.]

TO	Peaches, Cantaloupes, and Vegetables, straight or mixed.	TO	Peaches, Cantaloupes, and Vegetables, straight or mixed.
Boston, Mass	95	St. Paul, Minn	80
Buffalo, N. Y.	85	Winona, Minn	80
New York City, N. Y.	95	Burlington, Iowa	65
Philadelphia, Pa	95	Cedar Rapids, Iowa	65
Pittsburg, Pa	85	Council Bluffs, Iowa	65
New Orleans, La	50	Davenport, Iowa	65
All Texas points, Texas	50	Des Moines, Iowa	65
Louisville, Ky	70	Dubuque, Iowa	65
Cincinnati, Ohio	80	Keokuk, Iowa	65
Cleveland, Ohio	80	Mason City, Iowa	65
Columbus, Ohio	80	Sioux City, Iowa	80
Dayton, Ohio	80	Kansas City, Mo	60
Springfield, Ohio	80	St. Joseph, Mo	60
Toledo, Ohio	80	St. Louis, Mo	60
Detroit, Mich	80	Atchison, Kan	60
Indianapolis, Ind	75	Leavenworth, Kan	60
Terre Haute, Ind	75	Witchita, Kan	65
Bloomington, Ill	65	Lincoln, Neb	70
Chicago, Ill	65	Omaha, Neb	70
Galesburg, Ill	65	Sioux Falls, S. Dak	80
Peoria, Ill	65	Colorado Springs, Colo	70
Springfield, Ill	65	Denver, Colo	70
La Crosse, Wis	80	Pueblo, Colo	70
Milwaukee, Wis	80	Montreal, Quebec	95
Duluth, Minn	80	Toronto, Ontario	95
Minneapolis, Minn	80		

The freight rates presented in the above tables cover special fast freight service. This service is invariably used in transporting fruits and vegetables, some of the roads running these trains on virtually passenger schedule time.

From the Jacksonville, Palestine and Tyler districts in Texas to St. Louis, Mo., an approximate distance of 643 miles, the run is made in thirty-six hours. From these districts to Chicago, Ill., 926 miles, the run is made in time for second morning delivery; to St. Paul, Minn., 1,120 miles, for third morning delivery, and to New York, N. Y., 1,523 miles, for fifth morning delivery. Shipments originating in the coast country, adjacent to Galveston, Tex., are on the road one day longer.

The time made between Fort Smith, Ark., and St. Louis, Mo., 415 miles, is about twenty-three hours, while trains running from Indian Territory trucking points reach St. Louis in about thirty hours.

Carload Freight Rates on Watermelons from Arkansas, Indian Territory, Missouri, Louisiana and Texas.

[In cents per 100 pounds. Minimum weight, 20,000 pounds.]

TO	FROM		
	Decatur, Ark.; Flint, I. T., and McElhany Mo.	Perry, I. T., and Texarkana, Tex.	Cooper, La., and Port Arthur, Tex.
Chicago, Ill	25	35	39
East St. Louis, Ill	21	25	32
Peoria, Ill	23½	31	39
Quincy, Ill	21	32	36
Milwaukee, Wis	27	37	39
Minneapolis, St. Paul, Minn	28½	42	44
Cedar Rapids, Dubuque, Iowa	21	35	39
Des Moines, Iowa	21	35	36
Keokuk, Iowa	21	34	36
Sioux City, Iowa	28	42	44
Kansas City, St. Joseph, Mo	15	25	27
St. Louis, Mo	21	25	32
Atchison, Leavenworth, Kan	15	25	27
Lincoln, Omaha, Neb	23	33	36

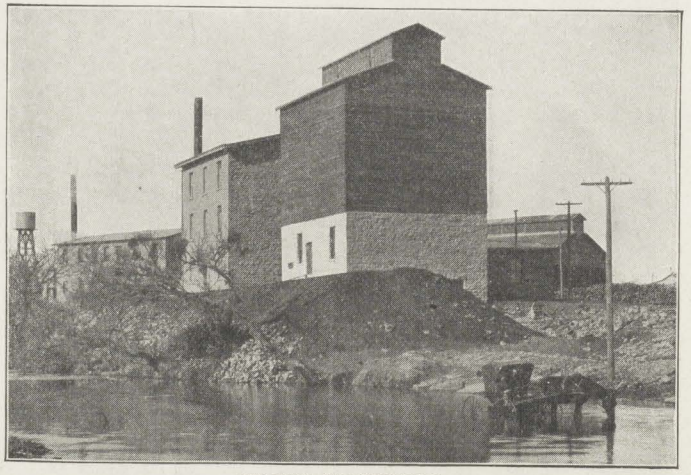
Carload Freight Rates on Fruits and Vegetables from Points in Texas East of Dallas.

[In cents per 100 pounds. Minimum weight, 20,000 pounds, except on potatoes, 24,000 pounds.]

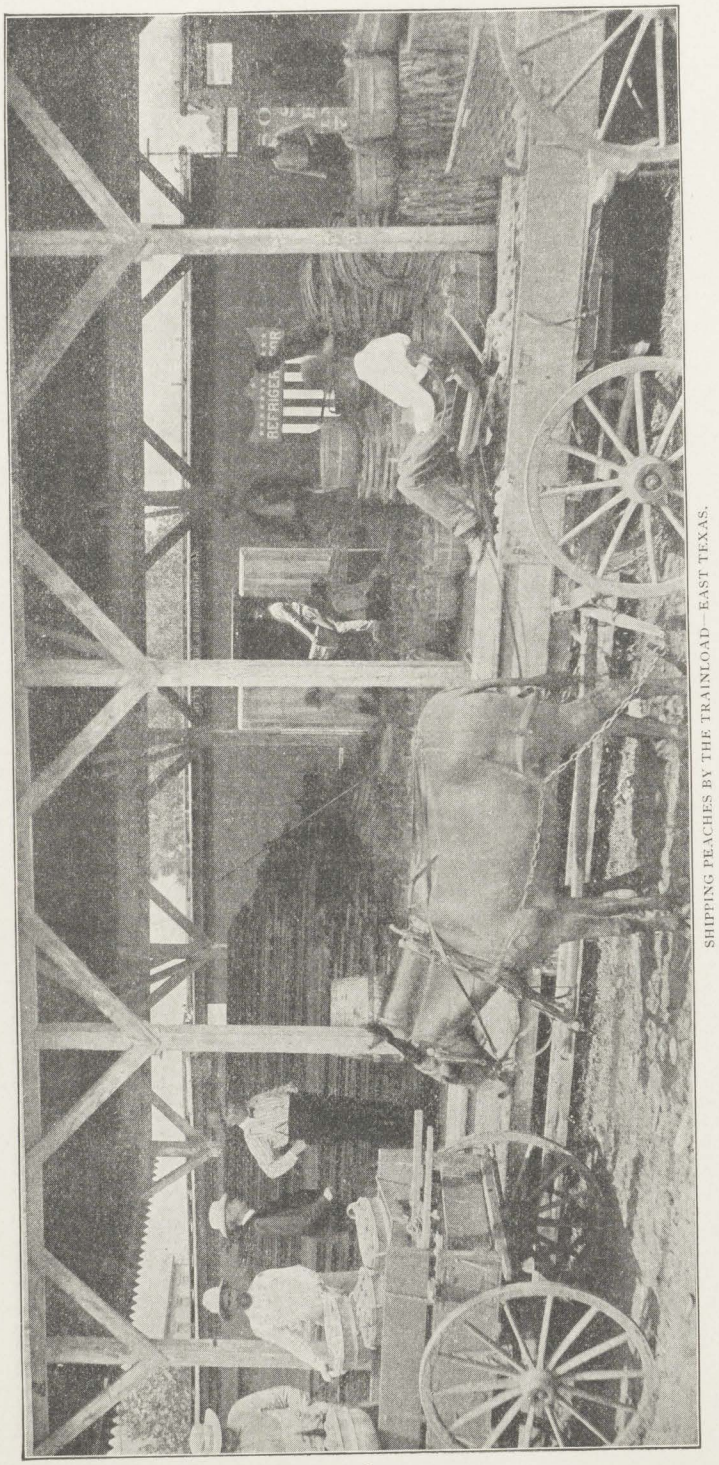
From producing points on International & Great Northern Railroad to	Watermelons, straight carloads.	Vegetables, carloads.	Cantaloupes, straight carloads, or when mixed with Watermelons and Vegetables, carloads; also Watermelons and Vegetables, mixed carloads.	Vegetables, carloads. Applicable from points specified in item 4 only.	Potatoes, straight carloads.	Strawberries, Raspberries, Blackberries, and Grapes, straight; or mixed with Peaches or Pears, carloads.	Pears, Plums and Peaches, straight or mixed.
New Orleans, La	29	34	37	.....	29	68	43
Little Rock, Ark.; Memphis, Tenn.	30	35	38	.....	30	68	43
Nashville, Tenn	37	42	45	.....	37	78	53
Cincinnati, Ohio	42	47	50	.....	42	84	59
Chicago, Ill	42	47	50	45	42	84	59
East St. Louis, Ill	35	40	43	.....	35	75	50
Joliet, Peoria, Ill.; Milwaukee, Wis	42	47	50	45	42	84	59
Duluth, Minn	57	62	65	.....	57	102½	80½
Minneapolis, St. Paul, Minn	47	52	55	50	47	91½	66½
Burlington, Iowa	39	44	47	.....	39	80	55
Cedar Rapids, Iowa	42	47	50	45	42	84	59
Iowa City, Iowa	39	44	47	.....	39	80	55
Hannibal, Mo	35	40	43	.....	35	75	50
Atchison, Leavenworth, Topeka, Wichita, Kan	35	40	43	38	35	75	50
Beatrice, Lincoln, Omaha, Neb	39	44	47	.....	39	80	55

MINERAL RESOURCES.

When the mineral resources of Texas shall have been fully exploited it will be found that the state contains paying quantities of nearly every commercial mineral, while of many of those most essential to the industrial development of the country, such



OIL MILL AT JACKSBORO.



SHIPPING PEACHES BY THE TRAINLOAD—EAST TEXAS.

as iron, coal, oil, marble, and granite, the deposits are already known to be inexhaustible.

GOLD AND SILVER.—So far, the precious metals have not been found in paying quantities, except in the trans-Pecos region, where the output averages about $1,000,000 annually—mostly silver. Copper ore and galena, carrying traces of gold and silver, are found in the Llano district. Placer gold has been found in many of the streams of the Central Mineral Region, as well as along the Rio Grande and the Pecos, but not in sufficient colors to warrant systematic work. What will be ultimately developed in the trans-Pecos mountains, time alone will determine.

COAL.—The question of fuel is so closely related to the industrial development of a community that in many localities, and Texas is one of them, it assumes the position of primal importance. The coal supply of Texas is ample for all purposes of power and domestic use, and with the oil supply seems almost superfluous.

Bituminous coal, of a good cokeing quality, is found in workable deposits in three distinct areas in central Texas, west of the Upper Cross Timbers, and extending in a line from the Red River to the Rio Grande.

In this field there are nine seams of coal, three of which are of sufficient thickness to work. The quality is similar to that found in the Indian Territory. It is good steam coal, cokes well and the seams which are from 26 to 32 inches in thickness render mining profitable. The total area of these measures is estimated at 2,500 square miles.

Mines are in operation in Earth, Parker, Wise and Montague counties, with others opening up in Coleman and McCulla counties.

The second field is in the region of Eagle Pass. This coal is of the same age as the Colorado bituminous variety. The vein is from 4 to 6 feet in thickness. Mines are worked at Eagle Pass and on the Mexican side of the river.

The third field is in the trans-Pecos, in Brewster and Presido counties. Mines are in operation at San Carlos.

From Texarkana to Laredo, across the entire state, is a deposit of lignite or brown coal, varying from one foot to 15 feet in thickness. This coal has good steam producing qualities, but like all lignites is apt to slack when exposed for a time to the weather. The output at Laredo, although of the same formation, has many characteristics of the true cannel coal and is of great value for domestic and gas purposes.

The total area of lignite coal beds in the state is estimated at 40,000 square miles. The output in 1900 was 1,030,000 tons. Owing to the industrial conditions of the state, there has never been a great demand for coal for power purposes. This, coupled with the sharp competition from the outside, has so delayed the development of the coal interests that now, with the discovery of vast oil fields yielding an oil peculiarly adapted to steam production, the coal fields are apt to remain in a state of "innocuous desuetude" for another decade, or until the development of the iron deposits demand a supply of coke.

OIL.—The discovery of oil in Texas was one of those surprises which the state is forever springing on the balance of the world.

The location and development of the Beaumont, and later of the Sour Lake oil fields, is one of the many industrial romances of the 20th century. So far, it has meant fortunes to the individuals concerned in its exploitation. In the future it will mean tens-of-millions to the industrial interests of the state.

TRADITION AND HISTORY.—The sailors of the Gulf (so they say) had known for many years of the existence of two seas of oil, one off Sabine Pass, the other off the mouth of the Rio Grande. Into these smooth seas of oil, the navigators would steer when pressed by rough weather. How came these wide areas of oil-covered water? The average sailor did not bother himself about their origin so long as they afforded him a haven in times of danger. Now, however, the wise ones trace a relation between these "oil seas" and the great reservoirs known to exist under the surface of Texas.

For many years oil has been known to exist in Nacogdoches county. Indeed, wells were bored which yielded fifty barrels of oil per day, pipe lines were constructed to the railroad and for some time active operations were carried on. But, for some reason which no one seems able to know, the wells were plugged and further development abandoned.

The discovery of oil in commercial quantities at Corsicana revived the old traditions, and speculators began to investigate. It was found that government reports had noted the existence of oil indications at Nacogdoches, at Sour Lake and at Brownsville.

The oil business at Corsicana progressed. A thousand or more wells were put down, about one-third of which proved to be producers. Tanks and a refinery were erected, and the boom was in full blast when the whole proposition was eclipsed by the gusher at Spindle Top, three miles from Beaumont.

When the news of the first great gusher was given to the world, people did not realize the importance of the event. Land adjacent to Lucas' well which was throwing 75,000 barrels of crude oil per day, sold for $250 per acre. But this condition did not last. Land went from $250 to $100,000 per acre in the oil area which was found to be confined to about 160 acres. This 160 acres has been covered with wells leaving barely space for operation. Although the estimated yearly output is 10,000,000 barrels, the supply seems exhaustless.

Refineries have been erected and pipe lines laid to Sabine Pass and Port Arthur on tide water, as well as to other interior points for facilities in shipment.

The wells average from 960 to 1,200 feet in depth. The origin of this deposit and the cause of the pressure under which it lies, will be mysteries until the world is further advanced in oilology than it is now.

The Texas oil differs from the Pennsylvania product in that it has an asphaltum base while that of the latter is paraffine. The tests show 50 per cent illuminating oil, 20 per cent lubricating oil, and the balance asphaltum.

The recent find at Sour Lake promises to surpass even that at Beaumont.

There is doubtless oil in many other parts of the state. The indications are that it lies in two well-defined zones, one extending southeast, the other extending southwest from a common point in the north center of the state.

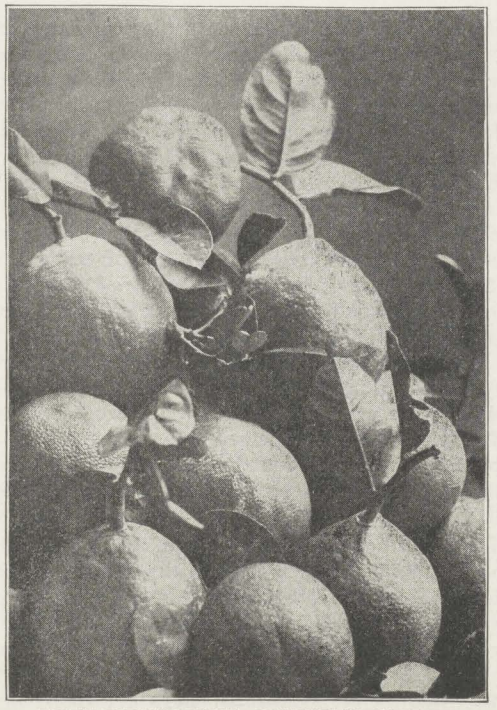
IRON.—Texas might well be named the "Iron State." Iron gives color to the soil in the Red Lands and chocolate plains. It adds character as well as productive power to the soil of the fruit and tobacco belt in the eastern part of the state.

Out-cropping in the east central part of the state are vast deposits of soft ore containing from 35 to 70 per cent metallic iron, with low tests of sulphur and phosphorus. The ore is similar to that of the famous Messaba range of Minnesota. These deposits appear in horizontal beds and cover at least 1,000 square miles. This ore is being smelted at Rusk and used among other things in the manufacture of car wheels at Houston. A severer test could not be applied.

In the central mineral region, about twelve miles from Llano, is a mountain of hematite ore with smaller deposits of magnetites and lemonites in the surrounding counties. This is a very high grade of ore and has been shipped to Birmingham at a profit after being hauled by mule power 12 miles to the railway station.

Owing to the absence of coke, transportation facilities, capital, and market, together with the static inertia of the iron industry of the United States, these great deposits have never been exploited.

That Texas has enough iron to supply the furnaces of the United States for a century, there is little doubt. But Texas iron will have to await its turn in the long line of development. There are forces at work on the great problem of industrial evolution in the southwest which before long will cause a demand for the iron ore and its products.



CORPUS CHRISTI LEMONS—11 INCHES IN DIAMETER.

A 600-ACRE WHEAT FIELD IN THE WICHITA VALLEY.

MARBLE AND GRANITE.—A geological disturbance in the Llano, or Central Mineral Region, resulted in the formation and exposure of extensive quarries of marble ranging in color from purest white to blue. But the greatest curiosity of this most wonderful region is the mountain of pink-gray granite a few miles from Marble Falls, Llano county. This mountain is in the shape of a huge turtle, or the back of a whale. It rises above the normal level of the land surface some ninety feet, and covers forty acres or more. This is solid granite with an irregular cleavage which aids in quarrying. A test of this granite at the United States arsenal at Rock Island showed a crushing resistance of 11,482 pounds to the square inch, placing it at the head of all known granites in resisting power.

The state capitol at Austin and the jetties at Galveston are made from this granite. And 800,000 tons are being placed as rip-rap before the great sea wall now under construction along the Gulf beach on Galveston island.

In the Pecos region is found a black marble of fine quality. Both lithograph stone and slate are found in the Llano district.

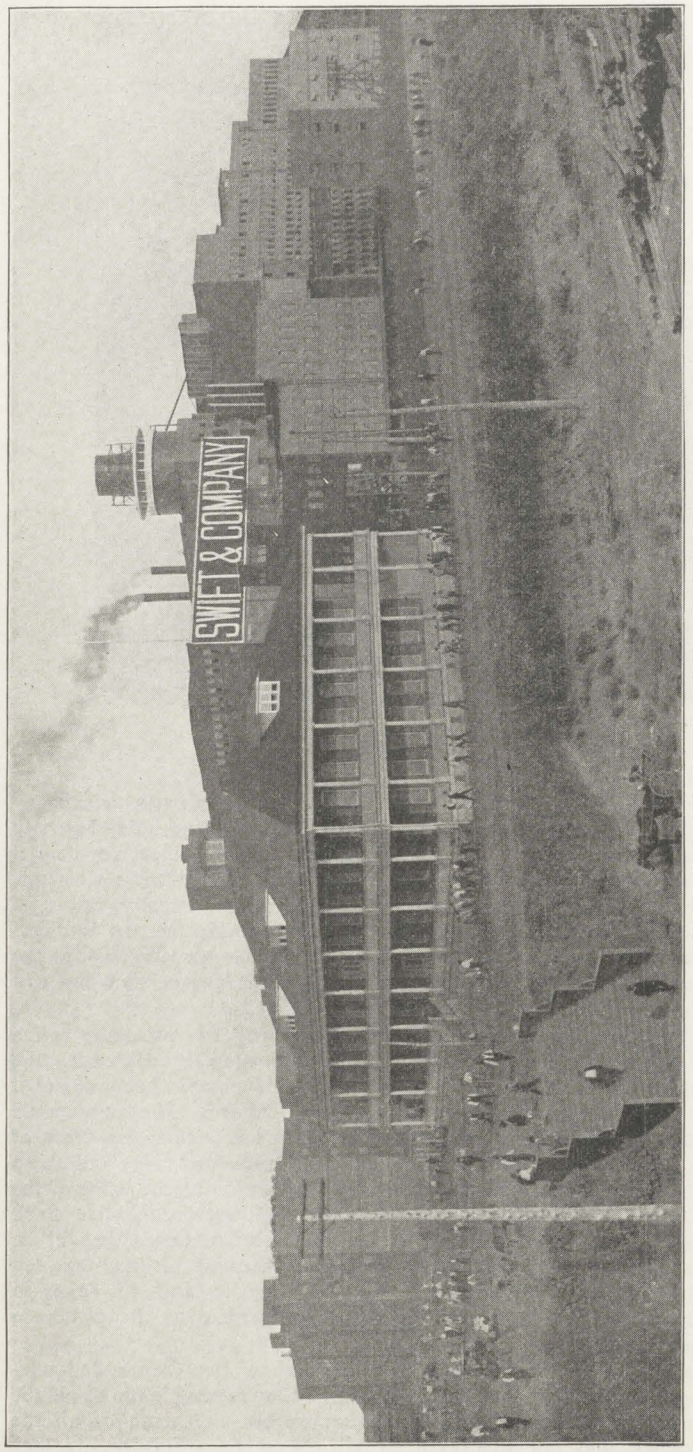
OTHER MINERALS.—Gypsum beds are found at various points in the northern part of the state. Oil sand and asphaltic limestone are found attending the oil belts. In the eastern part of the state, notably in Nacogdoches county, are found beds of green sand and marl, the latter having a value of $3 per ton as a fertilizer. In Edwards county, in the southwestern part of the state, is found Koalin of the finest quality, while beds of fire clay and other varieties of commercial clays are found in different parts of the state.

LIVE STOCK.

The word Texas has been so long identified with the idea of vast herds of cattle—cattle of the wild-eyed, long-horned variety—and limitless plains, that the public is slow to accept any mental pictures as at all accurate which do not contain these elements. But the Texas of to-day is not the Texas of twenty years ago. The "Texas steer" has vanished and in his place are herds of sleek, pure-bred stock; the silent plains are receding before the breaking plow and irrigation, and the picturesque cow-boy will soon be singing his swan song.

Nevertheless, Texas is, and always will be, essentially a live stock state. By climate and production it is adapted to the growth of animal life. One-third of its area is better adapted to pastoral pursuits than to pure agriculture. The great cattle ranches will disappear, but in their stead will come hundreds of smaller ones—farm ranches on which cattle and hogs and sheep will be grown under modern methods, increasing the value of the output ten and twenty fold. This evolution in the live stock industry has been going on over the entire west. It will be complete when the public domain is exhausted. It may take ten to fifteen years for the leases of the public lands in Texas to expire, but with their expiration the regime of the cattlemen will end.

The live stock statistics of 1901 show that Texas had one-sixth of all the cattle in the United States, one-eighth of all the mules, one-twelfth of all the horses, one-eighteenth of all the hogs, and one-nineteenth of all the sheep. This on its face



SWIFT & COMPANY'S PACKING HOUSE AT FORT WORTH.

appears to be a good showing. But when the size of the state is taken into consideration, the figures are not so startling, inasmuch as the state embraces one-seventeenth of the area of the United States.

With the segregation of the large ranches, the rapidly increasing acreage of alfalfa and the inevitable development of the dairying industry in both the central and western parts, the state will soon be able to produce one-half the cattle of the Union.

THE HOG.—The Texas hog in his native state is not a thing of beauty. He wears the facial expression of the chronic pessimist. He seems discontented, is suspicious, and has that lean and hungry look which seems so foreign to his race.

Why the hog has been neglected is a mystery. He is an omnivorous feeder and during a large part of his allotted life needs but little attention. He will consume all the left-over rubbish and give good returns for being permitted to live a year or even eight months. He will thrive, be happy and grow fat on alfalfa. All he wants is a chance. The climate is most favorable, the market beyond question, and yet Texas in 1901 produced for market and home consumption only 804,508 head of swine.

That a community with every facility for the growing of swine will prefer to import bacon and ham for every-day consumption, paying the original cost with the tariff of trade and transportation added, is one of those economical conundrums so often found in an undeveloped country.

It is to be hoped that the great packing houses recently established in Fort Worth will, by affording an active home market, stimulate the raising of swine to its proper place among the farm industries.

SHEEP AND GOATS.—The bulk of the 3,000,000 sheep found in the state are in the Pan Handle and the extreme western part where the altitude and the latitude are most favorable to wool-growing.

While sheep do well in other parts of the state, the climate is not adapted to wool-production. But this same climate, with its mild winters, is just the thing for growing spring lambs for the northern market.

The Angora goat, however, seems to be at home in this state as he is everywhere else. Mr. R. E. Smith has a large flock on his alfalfa farm near Sherman. A few have been introduced into eastern Texas and also into the coast country. But it is in a rugged country where the Angora thrives best. Like the honey bee he likes to work for a living. A Burnet county farmer who has a large flock in the Central Mineral Region says: "If you have a cheap, hilly range you can raise nothing better than Angora goats. Where you have rough bush, you really need them to help clear out the brush. You can shear from $1.50 to $2 worth of mohair from each goat per year, and the kids will bring you from $2 to $10 each. Angora goat venison is the best on earth."

HORSES AND MULES.—There are about 1,300,000 horses in the state. The horse seems to be bred solely for carriage use and shipment. The mule dominates the work-a-day life. In the country he plows the fields and hauls the produce to market. In the city he bears the burdens in the heat of the day. He is

slow, patient, wise and tough. The mule and the "nigger" are inseparable—they seem to understand one another and have about the same views of life. They work when they have to, but would much rather doze in the sun. England owes her final victory over the Boers to her ally, the Texas mule. No other animal could have endured the hardships of the Transvaal with such equanimity. With these qualities, it is not strange that there is a demand for mules. Mule culture is one of the best paying industries of the state.

DAIRYING.

Closely allied to the live stock interest is that of dairying. But dairying in Texas is only a name. From end to end of the state you may travel without seeing a dozen creameries. On every hand are to be seen herds of the finest dairy stock, Herefords, Durhams, Short Horns, and Jerseys. What becomes of

SHIPPING PEACHES—EAST TEXAS.

the milk and cream that ought to come from these herds is a mystery. It is not fed to the hogs—there are none. It is not made into butter and cheese, for the state imports 75 per cent of the butter consumed. Creameries have been started in various parts of the state and failed for want of patronage. This dairy condition is one of those industrial anomalies found only in Texas.

No section of the United States presents better conditions for successful dairying than does Texas. True, the native grasses are not so favorable to milk flow and the production of butter fat as are those of Minnesota, Wisconsin and Upper Michigan. But the winter climate is more favorable, and with alfalfa, sorghum and the cow pea for spring and early summer, backed by the silo to tide over the dry season of mid-winter, the conditions average up well with the best dairying states of the north.

The dairy products of Iowa and Wisconsin have made more clear money for the farmer than all his other products combined. A glance at a dairy map of the north central states will show

the counties literally dotted with creameries and cheese factories. Every railroad station has either a creamery or a skimming station.

In Nebraska the creameries are redeeming the semi-arid half of the state by making it possible to combine stock raising with dairying. This is the method: Cream stations are established at convenient points on the railroad lines; hand separators are furnished to the farmers having a few cows and to the small ranchers who will agree to milk a part of their herd, a part of the time, say once a day and in the morning. Immediately after milking the cream is separated and a boy with a horse and buckboard takes it to the station. The warm skimmed milk is then thickened with oatmeal or some other addition and fed to the calves which are then allowed to run with the cows until night.

In this combination of dairying and stock raising, the monthly check from the creamery supports the family while the annual turn-off of beef cattle is profit. The effect of this system can scarcely be appreciated. It reduces the size and increases the number of herds. It brings about better care of the individual of the herd and thus, while increasing the milk production, the value of the animal for beef is equally increased. And last but by no means least, by rendering it necessary to raise alfalfa or other forage crops to supply the deficiency of pasturage, it makes possible a home life with small farms and neighbors in the place of the desolate ranch.

As mentioned above, the state has already the stock—the very best stock. All that is needed now is properly-conducted creameries, managed by men of experience and of sufficient enterprise to establish the necessary connections with the farmer and his cows.

The effect of the establishment of an up-to-date system of dairying in the state would be far-reaching. It would bring about an increase of forage products to be consumed on the farm, thus renewing the fertility of the soil. It would encourage, and in a way compel diversified farming, thus increasing the potential products of the land four fold.

The backward condition of the dairy interests of the state is largely owing to a lack of knowledge of the business on the part of the farmers. Cotton and corn and beef have been the staple crop. The tenant knows how to raise nothing else—and the landlord will not take the risk of experiments.

The real estate men and the pushers all over the state appreciate the situation. Wherever you go, the demand is: "send us dairymen—we want dairymen from the northern states who understand the business."

INDUSTRIAL.

Raw material, transportation, markets, power and labor are the prime factors of the industrial problem. Under favorable conditions one of these factors may be absent, sometimes two, and still a community may make fair progress along industrial lines. On the other hand, all the prime factors may be in evidence, but owing to the subtle influence of legislation, either local or national, the natural equilibrium is disturbed and the wheels of industry refuse to turn.

Possessing all the primal elements necessary to the development of an industrial commonwealth; with an unlimited supply of raw material, and an ever-hungry home market, Texas is to-day twenty years behind the industrial procession. Why is this? The first cause may be found in our national economic system—a system the benefits of which, while universal in theory, have been sectional in practice—a system that has built up the industries of the east at the expense of the west—a system that has compelled Texas to exchange her raw cotton and her beef-on-hoof for eastern-made goods and pay the freight both ways. Another, but minor cause, is found in the character of local legislation which has had a tendency to discourage foreign capital.

Let it not be understood that the state is without industries. It has many, and very successful ones, too. And many more are constantly working in under the handicap of established competition.

As rapidly as the actual conditions existing in the state can be made known, capital will seek investment in the various openings in the industrial field. For, with everything at hand, material, markets and transportation, the results can be calculated to the point where the element of speculation will be entirely eliminated.

A GREAT MANUFACTURING STATE.

That Texas will become a great manufacturing state, no one who is familiar with its natural resources and its commercial location can for a moment doubt.

It is too far from the great centers of industry and trade, says some one. Yes, but to be far from one place is to be near to another, and isolation has its advantages. Removed from the great industrial centers of the nation, the state has a market all its own—a market protected by the ever-present tariff of transportation. West, lies the rapidly developing territory of New Mexico and Arizona. Then there is Mexico, in the very commercial gateway to which sits Texas. Nor is this all. The markets of Cuba, Central America, and, for that matter, the world will be open to Texas through the deep-water harbors of Galveston and Corpus Christi.

A discussion of the industrial situation in Texas will partake more of the nature of a prophecy of what is to be than a description of what is. If a wall were to be built about Texas shutting out the world, the state would be able to produce, and that cheaply, too, everything needed to furnish her 3,000,000 people with all the demands of a twentieth-century civilization.

LUMBER SUPPLY.—Among the chief sources of raw material are the forests. These lie mostly in the eastern part of the state, between the Sabine and the Trinity rivers, and cover an area of about 36,000 square miles—an area equal to the state of Indiana. The entire timbered area of the state is estimated at 64,000 square miles, but that includes the cross-timber belts, the timber along the rivers and in the Central Mineral Region. This timber, while of value for fuel, fencing and other domestic use, has little commercial value.

The 36,000 square miles of the timber region proper is covered with pine and hardwood having a commercial value on the stump.

The pine, composed of the short and long-leaf variety (southern or Georgia pine), covers about two-thirds of this area, and the hardwood forests the balance. The hardwood belts are composed of oak, beech, elm, ash, sweet gum, and magnolia.

A marked characteristic of these forests, both pine and hardwood, is the absence of underbrush. They are gigantic parks, kept clean by nature's gardeners.

PINE FORESTS.—The present stand of pine is estimated at 80,000,000,000 feet, with an average of 4,500 feet, board measure, per acre, seven-eighths of which is owned by lumbermen.

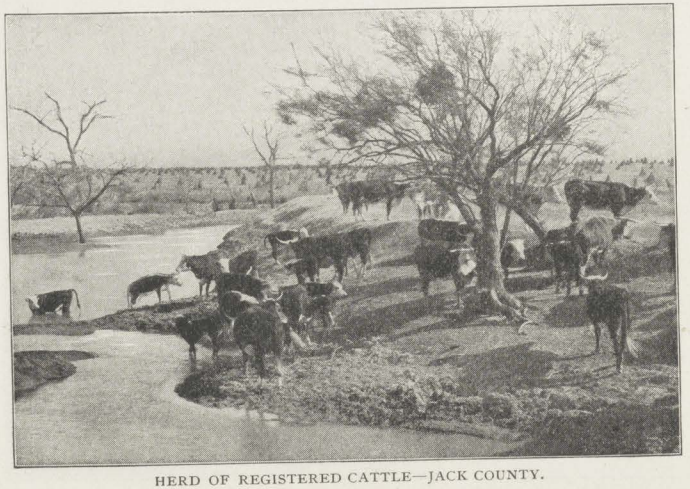
This vast forest of pine was until the last few years practically untouched. But with the passing of the northern pine and the introduction of the dummy locomotive and the railroad track into the logging business, men with an eye to the future saw fortunes lying loose in the pine timber of the south.

The pine woods of Texas, lying shoulder to shoulder to the vast prairies, was a golden apple ready to drop into the hand of him who had the shrewdness to see and the nerve to act upon what he saw. It has not been five years since lands in eastern Texas covered with pine, clean and straight as a ramrod, were bought for from $1.50 to $5.50 per acre.

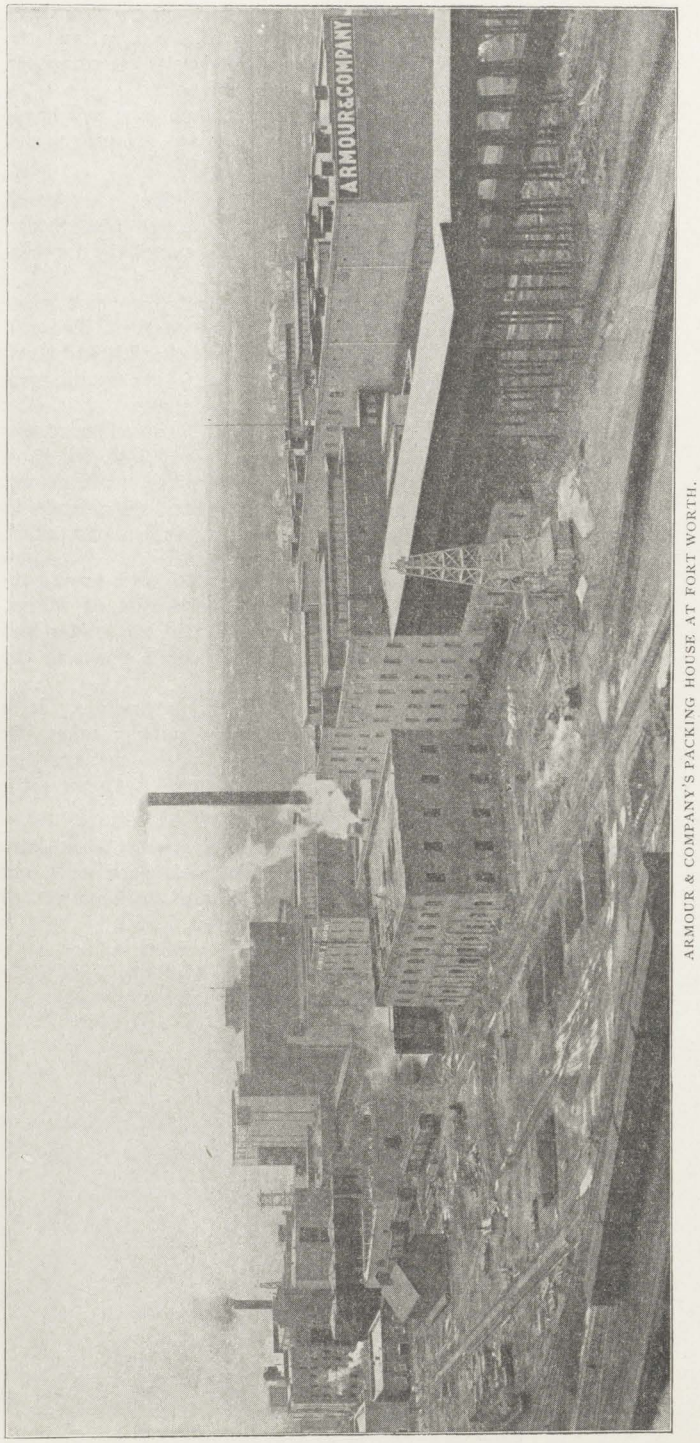
In the popular mind lumbering is associated with snow-covered forests and ice-roads. The great pine woods of Maine, Michigan, Wisconsin and Minnesota were cut in the winter and hauled on the snow to the streams to be floated down to the mills.

Logging in the south is quite a different proposition. It is an all-the-year occupation. The temporary railway takes the place of the logging road and the river. And the snorting locomotive does the work of the straining teams. Even the loading is done by a crane and engine.

HARDWOOD FACTORIES.—While the pine lands have been pretty well bought up by lumbermen and speculators, the hardwood lands which are of greater value have been passed



HERD OF REGISTERED CATTLE—JACK COUNTY.



ARMOUR & COMPANY'S PACKING HOUSE AT FORT WORTH.

over. Here is one of the best opportunities for profitable investments in the state. These forest lands make the very best of farms, and the timber is worth twice the price of the land.

Throughout this entire region opportunities are beckoning to the man of small or large means. Wanted—Portable saw mills, stave factories, box factories to supply home demands, chair factories, factories for the production of wagon wood-work, and wood novelties. Every stick of timber can be worked up into stock that brings a good price. Ties, both pine and oak, are always in demand. Piled along the railroads can now be seen cords of oak staves cut and worked out by hand to be shipped to Europe to make wine casks. Why ship them to Europe?

Orange and Beaumont are the chief centers of the lumber industry, which employ, all told, about 10,000 wage earners, mostly in the pine woods and the saw mills. With the development of the hardwood industries, twice that number will find employment.

IRON INDUSTRY.—Although iron ore has been known to exist in great quantities in the state, the industry has hardly made a beginning. The state has been doing some successful work along the line of smelting the soft ore of the eastern part of the state, in its furnaces at Rusk. Beyond this nothing worth considering has been done. One drawback has been the absence of coke and the popular opinion that the native coal will not make good coke. Whether coke and oil can be combined in the smelting of iron ore is yet to be demonstrated. Doubtless there is plenty of coal in the state that will meet the requirements of coke ovens. But it will take time to develop these co-ordinate industries—coal, coke ovens, ore mining and smelters.

The iron market is developing so rapidly in the southwest that in a short time coke can be imported and used with a profit in the production of Texas pig iron. Of course the static inertia of capital and the influence of the great iron and steel industries may delay the iron industry of the state still another decade, but the shifting of the market to the west, the ever increasing domestic demand, and the proximity of this great wealth of raw material to tide water and the markets of the world, will in time overcome the artificial barriers and the iron industry of Texas will be second only to that of Pennsylvania.

TEXTILE FACTORIES.—It is the old story of the hewers of wood and the drawers of water. With one-third of the cotton of the United States and one-fourth of that of the world produced within her borders, Texas has until recently manufactured no cotton goods. She shipped her cotton in bales to the eastern states and England, and then bought part of it back. Why has this tribute been paid to Cæsar? Why? Because it has been the custom to pay tribute to Cæsar. Is there any reason why Texas should not manufacture a portion of this raw material, at least enough to supply the home demand, and that of the immediately adjoining territory? None that enterprise and business sense can not overcome.

There have been built and put into operation in the state during the last two years nearly a dozen cotton mills. This is not a great number when compared with the mills in Lancashire, but it is the beginning of a vast industry that is peculiarly indigenous to the state.

Failures may be expected—there are always failures in the inauguration of any industry under new conditions, but the ultimate success of textile manufacture in the southwest is certain.

Mills are now in operation at Denison, Dallas, Corsicana, Waco, Waxahachie, Bonham, Cureo, Gonzales, Pittsburgh, Itasca, West and Brenham.

Every factor necessary to the production of cotton goods seems to be present with the possible exception of labor. There is abundant raw material, power in the shape of cheap fuel, an unlimited market and the best of transportation facilities. Labor is the one unknown factor. It may and doubtless will cause trouble at first, but the law of supply and demand will in time overcome the difficulty.

One of the best features of this movement is that it has been inaugurated and is sustained largely by home capital. The following from a report of the Waxahachie mill speaks for itself:

"The mill has been in operation day and night and the product sold faster than it can be made. The balance sheet of the treasurer shows a net profit of 12 per cent on the paid-up capital stock, which is $95,000. The capital stock of the mill is $125,000 and the shares are held by Ellis business men and the farmers. The mill has 5,000 spindles and it would take twice that number to supply the demand. No dividends have been declared since the mill went into operation, the profits going into improvements of the plant."

PACKING HOUSES.—For thirty-five years the packing industry has been moving steadily west—getting closer to the source of the raw material. The time was when Cincinnati was the great meat packing center. Then came Chicago, which is giving way to Kansas City, Omaha and Sioux City on the Missouri river.

It is less expensive to ship dressed beef than cattle on the hoof. Cattle have to be attended and fed. Then, too, the shrinkage on live stock amounts to several per cent of the gross weight. Why then ship one-sixth of the cattle raised in the United States from Texas to Kansas City to be worked up into beef? The answer is found in the establishment by Swift and Armour of large packing houses at Fort Worth, which no doubt will be followed by others still nearer the cattle ranges to the southwest, probably at San Antonio.

COTTON SEED OIL AND CAKE.—The by-products of cotton, cotton seed oil, cotton seed cake, lint, and hulls are important items in the list of industrial products of the state. The combined annual revenue derived from these amounts to $20,000,000. To take care of these products there are 176 oil mills in which are invested $12,000,000.

The cotton seed cake, or meal, brings $22 per ton at the mill, the oil 30 cents a gallon, the hulls $5 per ton, and the lint 2½ cents per pound.

The oil is used in combination with beef fat for making oleomargarine, and in combination with olive oil for packing sardines.

It is estimated that two-thirds of the American product goes to Europe—to Rotterdam, Hamburg and Marseilles. The lint is used in this country in the manufacture of furniture and in Europe in making cheap carpets.

CANNING FACTORIES.—With an unlimited supply of oysters and shrimp along the coast from Sabine Pass to Corpus Christi, and tons of fruit and vegetables that go to waste, there are not a dozen canning factories in the state. There is a fish and oyster packing plant at Corpus Christi, and fruit and vegetable canning factories at Jacksonville, Lindale, Olive, College Station, San Antonio and a few other points—that is all. There is room for hundreds along the coast and in the fruit zones in the eastern and southwestern parts of the state. The late tomato crop can not be marketed with profit. And if shipped at all serves only to lower prices. Here is the work of the cannery. The same thing is true of peaches, pears and figs.

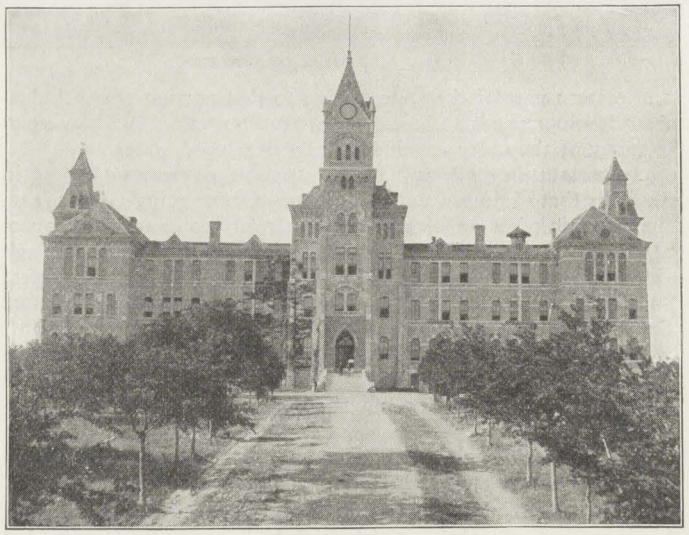
What does a cannery cost and what profit can be expected?

A plant employing four hands and turning out 500 cans daily will cost $150. With capacity of 2,000 cans, $500; with capacity of 5,000 cans, $750; with capacity of 20,000 cans and employing 75 hands, $1,500. These estimates are without steam plants or buildings. It is suggested that inasmuch as the steam plant and the house are large items of expense it would be economy to establish them in connection with the cotton gins which are always idle during the canning season. The profit ranges from 20 to 30 cents per case—two dozen cans to the case.

Professor Price of the experiment station at the A. and M. College gives the following account of the cannery at the station, showing profit:

THE COLLEGE CANNERY.

	Dr.
To cost of products canned, cost of cans and labor.....	$ 842.48
By 5,864 3-lb. peaches at $2.10 per doz.....	1,026.20
By 1,672 3-lb. cans corn at $1.20 per doz.....	167.20
By 1,302 3-lb. cans tomatoes at $1.20 per doz.....	130.20
By 18 3-lb. cans grapes at $1.20 per doz.....	1.80
	$1,325.40
Profit.....	$482.92



UNIVERSITY OF TEXAS, AUSTIN.

"The fruit and vegetables canned were of the best quality, and the goods canned were pronounced equal to California canned fruits and vegetables. The above statement is given in detail to show the result of operating the cannery from a financial standpoint, valuing the product at wholesale prices prevailing at the time."

TRANSPORTATION.

The second factor in the industrial problem is transportation. If I am rightly informed, Texas has now more railroad mileage than any other state in the Union. This is by reason of her great area. Taking the United States as a whole, it has 6.38 miles of railroad for every 100 square miles of territory. Texas has only 3.76 miles of railroad to each 100 miles of territory. It must be remembered that most of this mileage is in the central

ROCK ISLAND STATION, FORT WORTH.

and eastern part of the state, giving to that portion where industrial development is to be expected, transportation facilities equal to many of the older and industrially developed states.

Important beyond any other question of transportation in Texas is that of deep water navigation. Ocean going vessels from the Atlantic ports and from Europe already come to the wharves at Galveston. Work is in progress to dredge a channel through Galveston bay and to deepen Buffalo bayou to a depth of 26 feet so that ocean vessels may come to the vicinity of Houston. Sabine Pass is being improved and in time vessels of deep draft will take cargoes at the docks of Orange and Beaumont, on the Sabine and the Neches rivers. Government work is being done at Aransas Pass opening up the finest harbor on the Gulf—Corpus Christi Bay.

One million spent in dredging will bring Corpus Christi and the whole of western Texas within the circle of ocean commerce.

MARKETS.—As has been stated, the industrial interests have not only the home market made by 3,000,000 people, but

the markets of the growing territory to the west and south. These markets, with proper transportation rates, the manufacturers of Texas can absolutely control. And there is no reason why this trade should not be extended north into Oklahoma and east into Louisiana. On this subject, the committee of the Merchants' Association of New York which visited the state two years ago said:

"As the country west of the Mississippi river is settled and developed the traffic to the southwestern Gulf ports will become greater. Then, too, the possibilities of the development of Texas itself must be considered. It has 265,780 square miles of territory, about one-half of which is fertile soil capable of producing almost anything that grows in other parts of the country, is rich in mineral resources, in timber, in cattle and sheep, looks forward naturally to a great increase in manufactured products for which it has an abundance of raw material, is capable of supporting a vast population, and, taken all in all, is one of the states of greatest possibilities within the limits of the Union.

Several of its railroads already connect with the railroads that have been built in Mexico, and further development in Mexico must, in the very nature of the surroundings, favorably affect the traffic of these roads in Texas. Texas is naturally the route through which a large part of the products of Southern California going eastward and all going by way of the Gulf ports must pass. Between California and Texas are the intervening territories of New Mexico and Arizona, rich in minerals and which have by no means been fully developed."

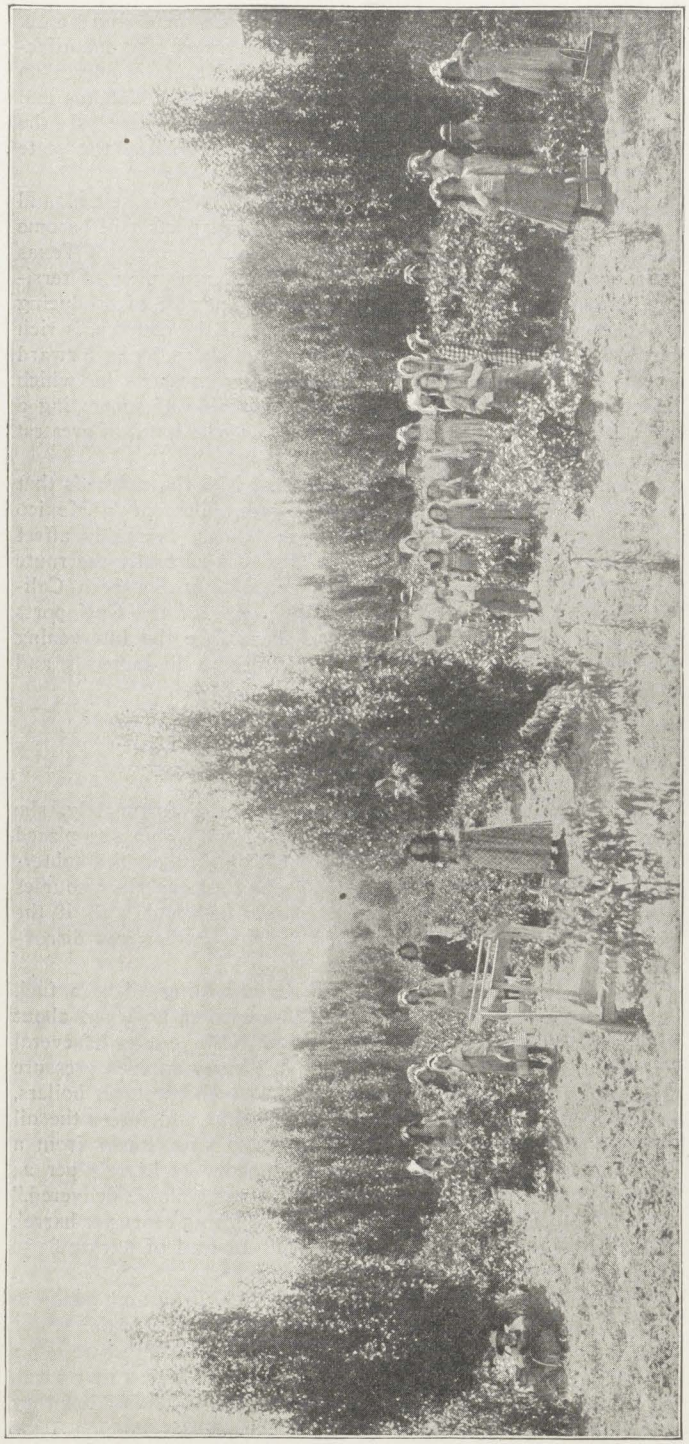
POWER.

Texas has no available water power, and, fortunately, she needs none. Nature was more kind to Texas when she placed beneath her surface vast deposits of coal and filled the subterranean reservoirs with oil, than if she had set the river courses with waterfalls. The question of cheap fuel and with it the question of power was solved when the first gusher was discovered at Beaumont.

Ex-Governor Hogg, in an interview regarding oil as a fuel, is reported to have said: "There is no question, however, about its being a fine fuel oil. We have used it in our mill several months with most gratifying results. We carry an even pressure of about 100 pounds of steam on our two 100-horsepower boilers, fed by a pump which runs slowly all the time and forces the oil through the nozzle burner where it mixes with steam from a small pipe from the boiler. We burn about 45 barrels per 24 hours. This costs 44 cents per barrel of 42 gallons, delivered."

"The oil can be laid down in St. Louis for 45 cents per barrel. Three barrels are equal to a ton of coal. Instead of paying $3.50 for coal the oil costs $1.35."

The question naturally arises, why ship Texas oil north to build up manufacturing centers there? Why not use the power derived from this natural product of Texas to manufacture other natural products of Texas? The oil supply of Texas may mean something to the industrial interests of other sections, but they mean much more to the industries of Texas.



FRUIT PICKERS AT WORK.

LABOR.

The most serious question that confronts the industrial as well as the agricultural interests of Texas is that of labor. At the entrance to every city, on the door of every factory, on the gate of every farm and plantation, might be placed the placard, "Wanted—At all times men who can and will work." There is no use in trying to disguise the fact that the negro labor in the south under present conditions, and Texas is no exception, is inefficient and unreliable. What is left of the old slave generation can be depended upon to do the work that they were used to do under the old regime. They can and will work faithfully in the corn and cotton fields. But the generation now on deck will work only when it is forced to do so. The average negro will not earn his salt working alone. It is only in gangs, under the eye of an overseer or a head man, that he will perform sustained labor. On the farm he may work a few days, or a few weeks, until he gets a few dollars ahead, then without warning he gets "sick" and retires to the shade of his shack, leaving his employer to wrestle as he may with a growing or a maturing crop. The same difficulty is experienced in the industrial lines. The cotton mills have to run short handed during the cotton picking season because a majority of the employees go to the cotton fields where the wages are better. This disregard for contract seems to be contagious, for the imported labor from the east is apt to fly the track in the same way. The cotton mills find it difficult to keep their skilled labor, so great is the demand from other sources.

In the southwestern part of the state where Mexican labor can be secured the situation in the agricultural line is somewhat better. The Mexican is steady, faithful, but stupid to a degree. He must be shown how to do every new thing required of him. He is without initiative. But to even things up he works for little and boards himself.

TEXAS AS A PLACE TO LIVE IN.

Most people are content to live where they can do well in a financial way. All have individual preferences as to climate and social surroundings. Our inherited tendencies have much to do with our likes and dislikes, especially as to climate. This is seen in the broad fact that world-emigration usually follows isothermal lines. Those who were born and bred north of Mason and Dixon's line prefer the stimulating air and ozone-freighted breezes of the north, while those who first knew life in the south, love that south with its beauty, its warmth, its delicious languor.

THE CLIMATE.—How about the climate of Texas? It is warm—semi-tropical. But it is not so warm as you would think from the geographical location—it differs from that of other southern states of the same latitude. This difference is caused by the prevailing winds.

During eight months of the year, including the long summer, a wind blows from the Gulf of Mexico to the north. It is cool, gentle and never-ceasing. The result is that the summers, though long, beginning in May and lasting till October, are not only endurable, but pleasant.

The United States weather bureau reports show that the temperature of the southern part of the state seldom rises above 86° in the summer, and when it does it is only for a short time —and then 100° is usually the maximum. The days are hot, especially in the sun, but the nights are cool. Get a south room, travelers will advise you, and no matter how warm the day, you will sleep like a top. The nights of Texas are a marked contrast to those of Illinois and Iowa, where the heat "doth make the night joint laborer with the day." Who has not lain awake nights and cussed the summer climate of the middle Mississippi valley? You will suffer more from the heat in Peoria, St. Louis, Kansas City and Omaha during the summer than you will in Dallas, Houston or San Antonio. And if you go to the Gulf at Galveston or Corpus Christi in mid-summer, you will need an overcoat as you will sometimes at Duluth, but you will always be able to keep comfortable.

COURT HOUSE, FORT WORTH.

The one great objection which the southern as well as the northern people offer to the Texas climate is the length of the summer. They get tired of the unvarying temperature, just as many of the north tire of the constant cold of the long winters. As a relief from the monotony those who can go to the Gulf and to the mountains for a change.

The autumns and winters of Texas are delightful. They make up for the shortcomings of the summer. There is no time when the farmer can not plow. He is not obliged to hibernate for five months and hustle the remaining seven.

Does not this mild climate rob you of your energy and undermine your ambition? Yes, if you allow it to. If you are constitutionally lazy, a shady tree and a hammock look mighty inviting just after dinner. But there is about as much evidence of energy in the cities of Texas as can be found anywhere else. A large portion of the business men are from the north and so far the climate does not seem to have injured them permanently.

It is true that the lazy and the unambitious find here a climate suited to their taste—a climate where they have to work but a few months of the year to secure enough to sustain life.

AS TO HEALTH.—In the matter of health the state is far above the average. The coast country and the eastern portion being low and humid are somewhat malarial, but the constant Gulf winds mitigate this tendency, except in the low timbered sections. The general conditions affecting health improve with the altitude as we go west and north. People affected with asthma or predisposed to lung troubles should avoid the low country and seek the higher altitudes. A large portion of the state—that lying above 1,000 feet—is recommended for persons suffering from various diseases that require a pure, dry atmosphere. There are a number of resorts where mineral waters combined with atmospheric conditions are known to work radical cures. Some of these health resorts which deserve favorable notice are Wooten Wells, Lampassas Springs, Marlin, Burdettville, San Antonio and the mineral wells of Palo Alto county. El Paso, with an altitude of 4,000 feet and an annual rainfall of less than nine inches, has a climate sought by persons suffering from pulmonary complications.

THE SCHOOLS.—One of the first things that a prospective settler from the middle west or eastern states wants to know is—how about the schools?

The state of Texas has set apart to the common school fund all told about 38,000,000 acres of land. Of this there is about 22,000,000 acres remaining. The value of this land in connection with the accumulated funds amounts to $40,000,000, the largest school endowment possessed by any state in the Union.

The state pays out annually $5 for each child of school age against $1.35, the average of the United States.

The enrollment of the common schools is 18.32 against 17.21 in Massachusetts. This indicates the general interest in education.

The State University as well as the institutions for the education of the blind and the deaf and dumb are located at Austin, the Agricultural and Mechanical College at College Station near Bryan, the North Texas Normal School at Denton, and the Southwest Texas Normal School at San Marcos. Besides these institutions of higher learning there are fifty-six private and denominational schools in the state with an attendance of about 12,000 pupils.

Separate schools are maintained for white and colored children. The report of the State Superintendent of Schools for 1901 gives the following statistics:

The number of schools in the state.....	12,092
The number of teachers employed.....	14,814
The number of school children.....	739,400
Amount paid teachers.....	$3,886,454
Amount expended for schools.....	4,469,015
Value of school property.....	9,166,550

SOCIAL CONDITIONS.—A majority of the 3,000,000 people in Texas came from the southern states, or, at least, their parents did. A great many came west after the war. Springing from such a stock, we find what we would expect to find, a people

courteous, genial, cultured and hospitable. There is a charm, a subtle, seductive influence about the manners of the southern people that is irresistible. Come from where you may, you soon fall under its dominion, and offer your tribute.

The Texan of cheap literature, the swaggering border ruffian, with pistols and bowie knife, is conspicuous by his absence. He may once have had a material existence, but he has long since retired over the border of Texan mythology.

Is there no prejudice against northern people? Not any. The war is over in Texas. The old and the new join in welcoming this new invasion from the north.

Supplementing this dominant southern element is the contingent from the north, young, active and shrewd. They are one and all making money and seem well content to live in Texas.

JACK COUNTY, TEXAS.

A section of Texas in which the Rock Island System is specially interested is that along its Bridgeport-Graham Branch. Bridgeport is 44 miles north of Fort Worth and Jacksboro, with a population of about 2,000, is the most important town on the Jacksboro Branch.

Jack County, containing 870 square miles, was organized in 1857, being formed from Cook County, and is one of the second tier of counties from Red River, being separated from it by Clay County.

The surface is undulating timber and prairie land, with low valleys, traversed by the West Fork of Trinity River and its tributaries; also tributaries of the Brazos River, thus being provided with good drainage and an abundant water supply for any and all purposes.

The soil varies from a light sandy to a dark loam, approaching the "black-waxy," and is of unsurpassed fertility, void of swamps and marshes. The atmosphere is pure and healthful—the climate mild and agreeable, and the health of the citizens is hardly surpassed by any place in the United States, as shown by the government reports, made while the troops were stationed at Fort Richardson in the southern portion of the city of Jacksboro, the county seat, there being but one other station that equaled this in health, and that was Port Union, New Mexico.

Two-thirds of the county is prairie land, which in its natural state is covered with Mesquite grass, indigenous to this state, nutritious and hardly surpassed by the famous blue grass of Kentucky for grazing purposes, affording excellent pasturage for an innumerable number of cattle, horses, sheep and other stock, which graze upon it, requiring but little attention even during the winter season. The existence of such favorable conditions enables the farmer of moderate means, who owns seventy-five, one hundrd and fifty, two hundred or more acres of land, to keep a few head of stock at but little expense, and at handsome profit; the higher the grade kept, the more remunerative. An instance in point: a farmer came to this country, bought eighty acres of land and four cows of ordinary grade, and by frugal management has within fifteen years, with the increase of the stock and the income of the farm, bought 320 acres of land and now has a nice herd of about thirty-five head of cattle, and

is now having an easy time. Such is the experience of many others of like means.

The larger per cent of the cattle now raised in the country are high grade, there being many herds of registered Durhams, Herefords, Aberdeen Angus, etc., special attention being given to high graded and registered stock, some fine herds being owned by James W. and D. L. Knox, Oliver Loving, W. P. Stewart, W. R. Green and many others.

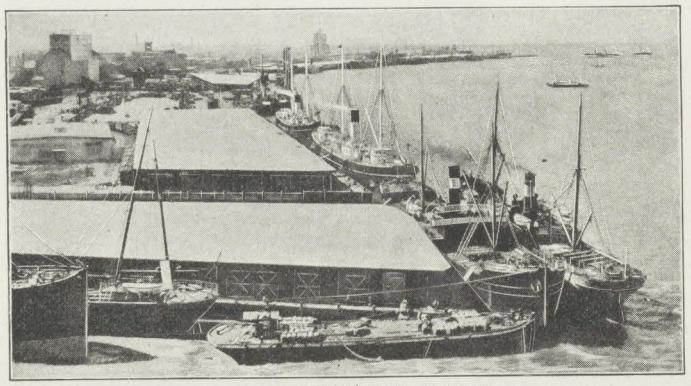
The timber of the country consists principally of post-oak on the high lands, spotted oak, ash, elm, cottonwood, walnut and pecan in the valleys and bottoms, the latter yielding annually in their uncultivated state many hundred bushels of nuts, rich and palatable. The cultivation of the pecan would, and is, sure to prove a profitable industry, as the nut is preferred by many to the almond, filbert or English walnut.

Tillable land constitutes about seventy per cent of the acreage of the country, and of this not more than fifteen per cent is in cultivation, notwithstanding its fertility and productiveness offers every inducement to the farmer and horticulturist. Every berry, fruit, vegetable and agricultural product that can be grown in this latitude, 33°—10′ North, can be grown to perfection here, and of the most elegant and delicious flavor—strawberries, dewberries, blackberries, apples, pears, apricots, peaches, quinces, plums, cherries and grapes grow in abundance, as well as every variety of vegetable.

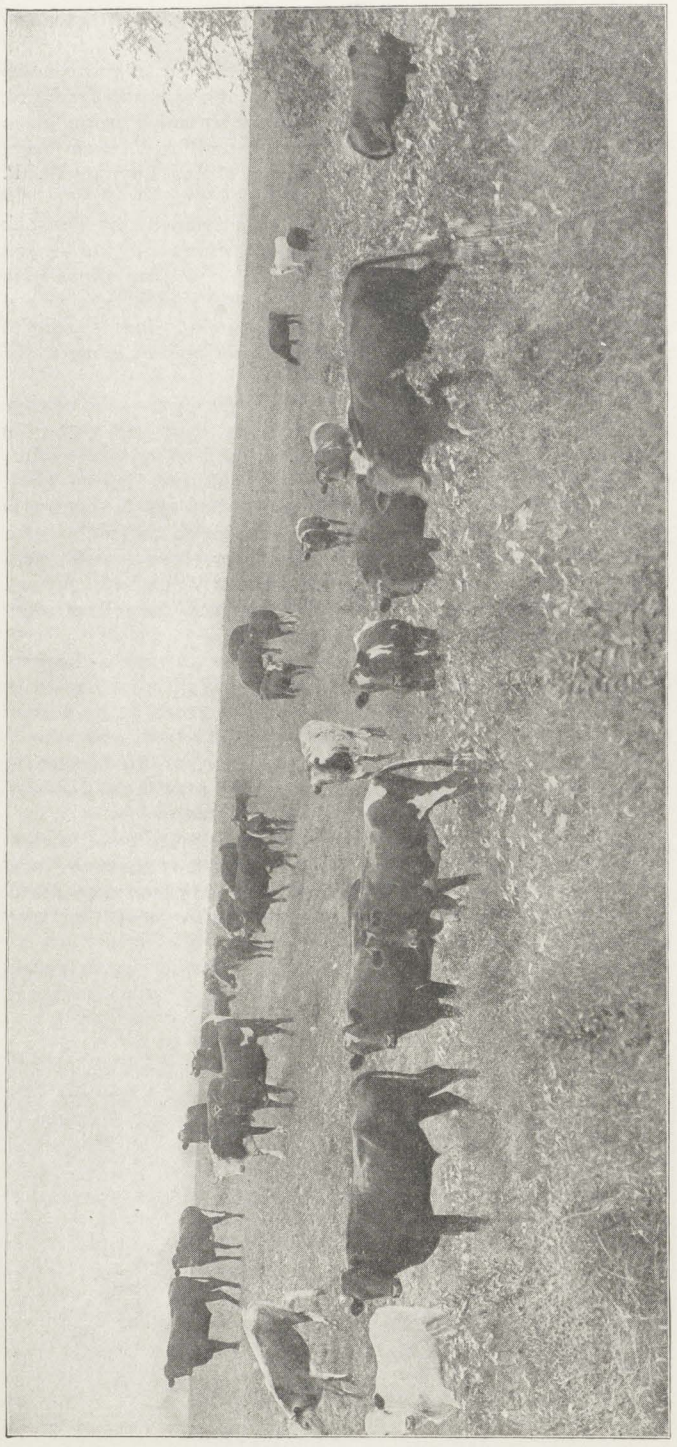
The nature of the soil permits the farmer to raise a diversity of crops, and will yield on an average, annually, from 15 to 40 bushels of wheat, 40 to 50 bushels of rye, 20 to 25 bushels of barley, 30 to 60 bushels of oats, 25 to 50 bushels of corn, 100 to 200 bushels of sweet potatoes, 75 to 123 bushels of Irish potatoes, 2 to 3 tons millet, 3 to 5 tons of sorghum cane, 2 to 3 tons of hay and one-half to one bale of cotton per acre.

Choice unimproved lands can be bought at from three to eight dollars per acre; improved lands can be bought at about the same price, plus the value of the improvements, and on most liberal terms. A small cash payment and the balance payable in from one to eight years.

JACKSBORO, the county seat, situated near the center of the county, on the Chicago, Rock Island & Texas Railway, which



ALONG GALVESTON'S WATER FRONT.



NORTHERN TEXAS CATTLE.

runs through the county, has a population of about 2,000 and is possessed of all the advantages necessary to make it an excellent market for all of the products of the county and all the conveniences necessary for the accommodation of the citizens.

BANKS.—The First National Bank, which has a capital stock of $150,000 and a surplus of $100,000, and the directors cheerfully extend to its customers every courtesy consistent.

STORES.—There is one wholesale grocery house and numerous dry goods and grocery stores, carrying excellent and up-to-date stocks, varying in value from $1,000 to $30,000.

MILLS.—Jacksboro boasts of as fine a mill and elevator as there is in the state, which has a capacity of 100 barrels of meal per day; capacity of elevator, 25,000 bushels. This mill handles 200,000 bushels of wheat per annum.

The Jacksboro Oil Milling Co., with a capacity of 60 tons, last season used 10,000 tons of seed.

The Jacksboro Light & Power Co. has an excellent plant and supplies the city with electric lights and ice.

CHURCHES.—There are four churches—Methodist, Baptist, Presbyterian and Christian—each with a large congregation and owning commodious buildings, having regular services, Sunday schools and young people's societies. The various denominations have organizations in almost every community and village in the county with regular services.

SCHOOLS.—There are four schools in the city. The City High School is incorporated and owns a large three-story stone building, and has a corps of efficient teachers, with an enrollment of over four hundred pupils. There are sixty-four village and rural public free schools in the county, with an enrollment of 2,500 pupils, with an average term of six months each year.

These schools employ efficient teachers and are convenient and of easy access to the pupils in every part of the county, and furnish excellent educational advantages, equal, if not superior, to those of the northern and eastern states.

SOCIETY.—The citizens of the county are intelligent and progressive, equal in culture and refinement to those of any other county or state in the Union—law-abiding, peaceful and prosperous, and are ever ready to extend a hearty welcome to every one of good character and industrious habits who may desire to locate in their midst.

VINEYARD, 15 miles east of Jacksboro, and also in Jack County, is another place well worthy of a visit. It is situated in a pretty valley and the grass for stock range is excellent. Much of the country hereabout is covered with oak timber. It is only a matter of a few years before the land in the neighborhood of Vineyard is cleared and when this is done it will bring the price it is worth and be used for purposes for which nature intended it.

GRAHAM, the terminus of the Jacksboro line is at the present moment receiving a great deal of attention at the hands of homeseekers. Land in the vicinity of Graham is exceedingly cheap.

ALONG THE EL PASO LINE.

The Rock Island system has two lines to and through Texas. One, at present, terminates at Forth Worth; the other at El Paso. The territory traversed by the first of these two lines as

well as that part of Texas south of Fort Worth, is very fully described in the foregoing pages. It is now in order to say something about the country along the El Paso line. This line on its way from Kansas City to El Paso leaves the Forth Worth line at Herington, Kas., and continuing in a southwesterly direction, cuts across the northwestern corner of Texas. After a run of about 75 miles, it crosses the state line, separating New Mexico and Texas, re-entering Texas only a few miles north of El Paso. There are several prosperous towns in New Mexico located along the El Paso line—Tucumcari, Santa Rosa, Carrizozo and Alamagordo. Dalhart and El Paso are the largest of the Texas towns along the El Paso line. Amarillo, a few miles east, is also a prosperous and rapidly growing community.

Amarillo is the western terminus of the Choctaw, Oklahoma & Texas R. R., a continuation of the Choctaw, Oklahoma & Gulf R. R., from Memphis and Little Rock. (It is here suggested that the reader refer to a good map in order to get the "lay" of these places.) It is the most important town in the Texas Pan Handle, having a population of about 4,000. It has two railroads—the C., O. & G. and the Fort Worth & Denver City. It is 560 miles from Kansas City, 468 miles from Denver and 336 miles from Fort Worth. It has 39 business houses, about 500 railroad employees and the usual complement of mechanics and artisans; three weekly papers, seven churches, three banks, a commercial club, six hotels, three lumber yards, seven wholesale establishments, waterworks, electric lights, etc. Nearly 300 new buildings have been erected during the last two years; the school system is excellent and there are no saloons.

Dalhart is a flourishing town of about 2,000, a division station of the Chicago, Rock Island & Mexico Railroad and the junction point of that railroad with the Fort Worth & Denver City. It it the supply point for a considerable portion of the Pan Handle, and is growing rapidly. It has one national bank, a wholesale grocery house, 33 retail stores, two lumber yards, two livery stables, waterworks, electric light and ice plants and a commodious schoolhouse. Land in the neighborhood of Dalhart sells for $2.50 to $5 an acre.

THE TEXAS PANHANDLE.

For a fair, honest and expert expression of the actual conditions to be confronted in the Texas Panhandle the following, written by Mr. George Findlay, is frankly typical of the whole region outlined. Says Mr. Findlay:

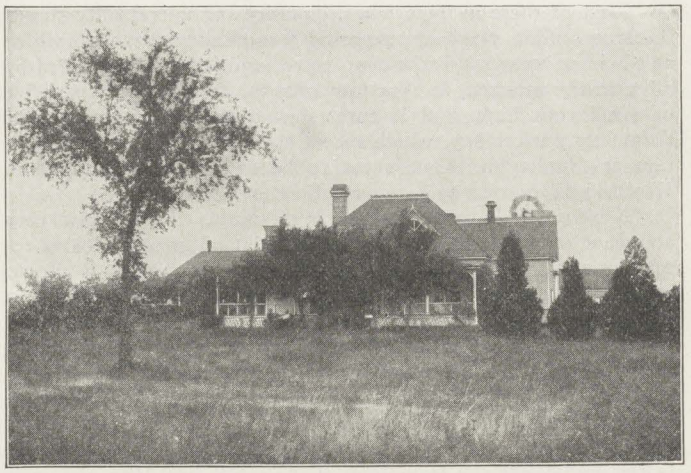
"The land lying in the extreme northwest corner of the Panhandle of Texas comprises approximately the following proportions of the counties named: Dallam, two-thirds; Hartley, one-half; Oldham, five-eighths; Deaf Smith, one-half; Parmer, nearly the whole; Castro, one-seventh; Bailey, one-fifth; Lamb, one-half, and Hockley, one-fifth. Dallam county lies thirty-four and one-half miles south of the corner of the states of Kansas, New Mexico and Colorado, and the other counties named lie south of Dallam, being the western tier of counties in the Panhandle, and, excepting Castro, Lamb and Hockley, which are in the second tier of counties on the west side of the Panhandle, about the line between Texas and New Mexico.

"The soil of the land lying north of the valley of the Canadian river, which crosses the tract from west to east in Oldham county, varies from chocolate loam to chocolate and clayey loam, red sandy loam, red and light sandy loam and red sandy clayey loam; the soil of the Canadian valley comprises red clayey and sandy loam, red and light sandy loam, deep red clayey and sandy loam, rich red loam and chocolate loam, and south of the Canadian valley, beginning at the brakes of the Llano Estacado or Staked Plain, and stretching south about 100 miles to the end of this tract the soil is of a rich red loam, rich red clayey loam, deep rich red clayey loam, red clayey loam, red sandy and black sandy, and chocolate loam and light sandy loam. These soils are of most excellent quality, and the materials of which they are composed are the sediments of a great lake, which is believed to have existed here in late tertiary times. The sub-soils are practically of the same porous materials as the soil itself, and under these lies an impervious bed of clay.

"North of the Canadian valley it may be described as rolling, gently rolling, high rolling and gently undulating; the Canadian valley as rolling, gently rolling, broken, an occasional rocky bluff, pebble knoll and gravel ridge, and south of the Canadian valley it is remarkable for its uniformly rolling, gently rolling, undulating or gently undulating character.

"The north boundary line of the Llano Estacado or Staked Plain crosses this tract in Deaf Smith and Oldham counties, and is marked by a ledge of precipitous rocky bluffs varying in height from 30 to 200 feet and often of much greater elevation above the plain below, and at a distance has the appearance of a range of flat topped mountains. The territory south of this precipitous boundary is an elevated plateau that would seem to have been forced up from the surrounding plain by some great convulsion of nature.

"The altitude above sea level in Dallam county at the north end of the tract is a little over 4,700 feet (Denver, Colo., is 5,170 feet); at the Canadian river, in Oldham county, between 3,200 and 3,300 feet; at north edge of the Staked Plain in Deaf Smith



A RANCH HOME—NORTHERN TEXAS.

county, probably about 3,800 feet, and from this point to the south end of the tract in Hockley county there is a gradual decline to about 2,000 feet.

"The Staked Plain is dotted every few miles with circular depressions or lake basins, sometimes several miles in circumference, which after heavy rainfalls contain large quantities of water.

"The drainage is toward the east, and every five to fifteen miles a grassy ravine or 'draw' traverses this land, sometimes wide and deep, sometimes narrow and shallow.

"The large proportion of crisp, bright, bracing, sunshiny days makes it a salubrious and delightful climate to live in. Outdoor work can be carried on here almost every day in the year, sunstrokes are unknown, the nights are always cool, and this section is destined to become the abiding place of a vigorous, healthy, hardy race of people; and a climate that conduces to that condition in the human race will also conduce to a good healthy condition of all the domestic animals.

HARVEST SCENE—JACK COUNTY.

"The wealth of this tract in its natural state lies in the abundant supply of its excellent grasses. There is probably nowhere else such a fine sward of valuable grasses as is found here.

"First of these in importance, quantity and universality stands the true buffalo grass, unsurpassed for grazing purposes, which as a winter forage is without an equal, and is greatly relished by all grazing animals. It is a low growth, rarely more than five or six inches high, and it cures during the dry season on its roots into perfect hay, which recent tests at the experiment station at Manhattan, Kan., show to be considerably superior to Kentucky blue grass and very much better than timothy.

"Next probably comes the curly mesquite, which is also very abundant on these plains, and in the habit of growth closely resembles the true buffalo grass; matures on its roots and affords excellent pasturage for all kinds of stock in the fall and winter. No grass stands drought better than this; at such times it dries up and appears dead, but in a few hours after a warm rain it becomes green to the ends of the smallest branches.

"The different varieties of grama grass are also very abundant here and make excellent pasturage. The blue and white grama are unsurpassed for grazing purposes, and no other grass better withstands the trampling of the stock, and they also cure

in the turf into splendid hay. Other valuable species of grass abound here, among which may be mentioned the blue stem and bunch and sedge grasses (which are most in evidence where there is a large proportion of sand in the soil) and many others which afford excellent grazing and are more or less mixed with those already mentioned.

"It is our firm conviction that no country under the sun is better adapted than this is to the stock farmer. This conviction is grounded on fifteen years' experience in raising cattle on it. The present owners came into possession of it before any wells had been bored or fences built or improvement of any kind made upon it. Now there are over 300 wells, about 1,500 miles of splendid barbed wire fences, eight division headquarters buildings, and numerous line riders and windmill greasers' camps on it, besides general headquarters, two town sites, several farms and other improvements, and everything necessary for the proper care of the immense cattle herds now occupying it.

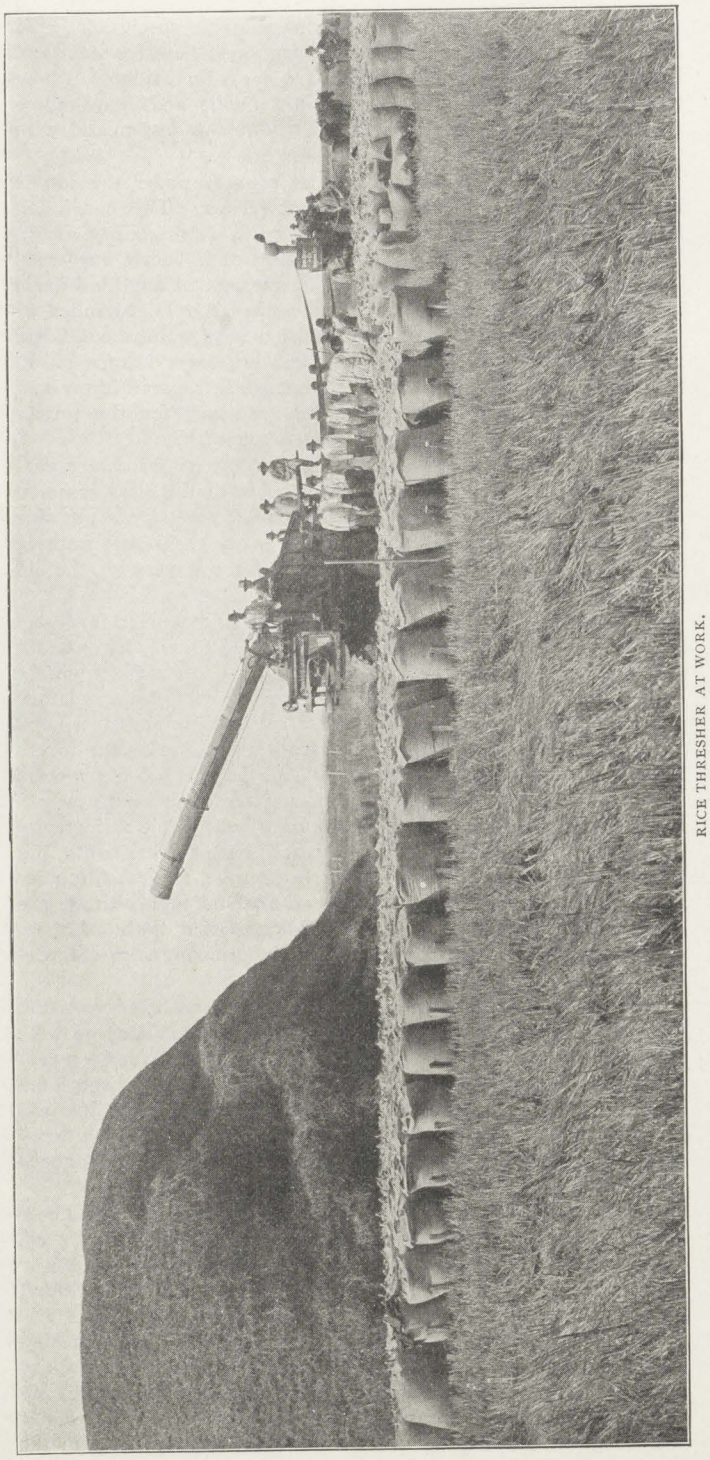
"The female foundation stocks of the present herd were purchased from about central Texas, and were of the class common to that country at that time; with these females were put fine bulls from the northern states, and for many years past nothing but pure bred bulls have been purchased for this purpose, the old inferior animals being annually weeded out.

"The breeds in use are the Aberdeen-Angus, Hereford and Shorthorn, and they have all done well here. Probably a good idea of the improvement wrought in this herd may be derived from the statement of the fact that in 1887 the aged steers (three and four years old) netted between $16 and $17 in Chicago, and steers two years of age have been netting in recent years $30 on the ranch. It is generally conceded that in cattle raising in the southwest a larger percentage of calves may be expected than in the northwest, and that on the ranges of the northwest cattle at maturity may have greater weight than they would have farther south, but here there is, because of its southerly latitude, the condition favorable to large calf crops, and because of its high altitude the condition favorable to greater weight, so that both of these favoring conditions are combined here in probably a greater degree than at any intermediate point.

"While this section is now given up chiefly to breeding stock, it is very likely soon to become a good feeding country as well. We do not advertise it as a farming land, but there have been produced for several years past excellent crops, such as sorghum, millet, alfalfa, Kaffir corn, Milo maize, Jerusalem corn, Johnson grass, etc. Kaffir corn may be depended upon to produce thirty to forty bushels per acre, and some Indian corn has produced from twenty-five to thirty-five bushels per acre.

"A field of sorghum on the high table land near the headquarters of this ranch at Channing, in Hartley county, produced, in 1900, 7,030 pounds to the acre, 'as pretty feed as anyone ever saw,' and other crops were about equally good. All this without irrigation.

"It must be remembered, too, that nearly all these farming experiments are conducted on cattle ranches in a rather desultory sort of way, the farm getting attention, as a general thing, only when the ranch work proper did not demand it. With a better knowledge of farming operations and more familiarity with the



RICE THRESHER AT WORK.

most suitable methods and times of plowing, planting, cultivating, harvesting and care for the crops which time will give, it is reasonable to expect even much better results.

"Splendid garden truck is raised here. Vegetables, such as cabbage, beets, onions, turnips, potatoes and melons of all kinds, grow in great abundance. The melons are quite as good as the Vernon or Rocky Ford melons.

"In view of all these facts we firmly believe that for those parties who have energy and means enough to engage in stock farming on a ranch of 2,000 acres or more, and who are seeking a new and desirable location where they can follow this vocation profitably, no portion of the United States offers greater inducements than this. It is equally well adapted to horses, sheep and all other domestic animals, as it is to cattle. It is undoubtedly a fact that the stock farmer in this section who has properly attended to his business of stock raising, with farming as an auxiliary, has made more money for the capital invested and the labor expended than the farmer in any other part of the United States.

URBAN DEVELOPMENT.

The urban development of Texas has been, so far, largely along commercial lines. The cities that have sprung up have been distributing rather than manufacturing centers. This one-sided development has not been due, as I have shown, to a lack of industrial resources, but rather to a combination of forces having their origin in national and local legislation, and to the peculiar labor conditions of the state.

The state is without a metropolis—a dominant city to which the other cities of the state, great and small, pay tribute. This is an anomaly in urban development. After years of rivalry we find at least three cities claiming first place in population, while three more are considered by their own citizens as being distinctly in the race. This even-handed development is to some extent due to the interstate commerce law, which gives to Texas a uniform freight rate from all points east. San Antonio and Austin get the same freight rates from Chicago and New York as are given to Fort Worth and Dallas. All towns in Texas, little and big, look alike to the interstate commerce commission.

Dallas, Houston and San Antonio are the three largest cities of the state; their population at this writing is about 65,000 each. Which will be the most populous in the year 1905 the year 1905 alone can determine.

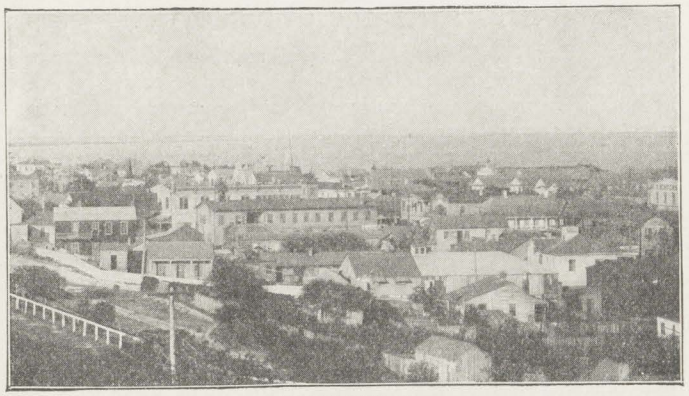
They occupy the angles of a nearly equilateral triangle, which marks out the center of that part of the state lying east of the 100th meridian. The distance between each is about 250 miles.

DALLAS.—Dallas is by location as well as by appearance the most "northern" city of the state. There is an air of up-to-date energy about it that is not always found south of a certain imaginary line. It is thoroughly modern both in its buildings, which will do credit to any city of its size, and in its street appointments. It is well lighted and the transportation service is excellent. The interurban trolley cars which run between the city and Fort Worth, 32 miles distant, give a distinctly metropolitan tinge to the life of the streets.

Dallas was one of the pioneer points to secure railroad communication with the north and east.

This gave the young city a lead in the distributing business of the southwest, which it has steadily maintained. The wholesale trade of Dallas will reach a total of $40,000,000 during 1903. It is now the largest distributing point for agricultural implements in the world, and it ranks second in the United States in the manufacture of saddlery and harness goods.

Dallas is located in the center of the most populous, if not the most fertile region of the state. Dallas county, which contains 572,000 acres, has under cultivation 430,000. A circle with a radius of 100 miles and Dallas as a center will include one-half the population of the state. The merchants have been handicapped in their struggle for commercial supremacy by the interpretation of the interstate commerce law, which allows any point south and west as far as El Paso the same rates on through freight from the east as they enjoy. In spite of this they have been able to increase their wholesale business with the increase of population.



CORPUS CHRISTI.

As a railroad center Dallas ranks second in the state and has ambitions to become an ocean port. Do not smile, for the people of Dallas do not smile when they tell you that before many years they will be able to reach tidewater with boats of 12 foot draft. This consummation so devoutly to be wished is to be brought about by clearing out, deepening and locking the channel of the Trinity river. The fall of several hundred feet between the city and sea level will be overcome by a series of locks which will make of the Trinity a grand canal. Congress will be asked to make the appropriations necessary for the work—and it may be put through. This river-canal when complete will be used in theory (not in practice) as a rate regulator, and as that it will no doubt be of some benefit to Dallas.

Dallas is a pleasant place. The surrounding are attractive. Native forests afford natural parks and pleasure grounds. The climate is healthful and it is near enough to the coast to receive the benefit of the gulf breezes in summer and still retain the benefits of an invigorating altitude.

The city has a complete complement of churches, and the educational facilities both public and private are of the best. What

the city particularly needs is better means of physical recreation —parks and lakes—but, alas! there are no lakes in Texas and the city will have to invent a substitute for the things which nature neglected to supply.

Dallas is distinctly a commercial city, a distributing point. But in addition it boasts of a number of manufacturing establishments, among which are cotton mills, breweries and packing plants.

The United States census of 1900 reports 373 manufacturing establishments of all kinds, with a capital of $6,897,000, employing 3,756 persons and producing an output valued at $11,480,000. This has increased greatly during the last two years; how much it is impossible to determine, but an estimate of 25 per cent would not be extravagant.

HOUSTON.—The commercial rival of Dallas and the acknowledged manufacturing city of the state is Houston. Located fifty miles from the port of Galveston, at an altitude of only 50 feet above mean tide, Houston is essentially a city of the great Coastal Plains. It is now one of the two largest railroad centers of the state, Fort Worth being the other. Eighty-four passenger trains enter and depart from the city daily.

Houston, like Dallas, expects to be a gulf port, but it has the advantage of its northern rival in being only 20 miles from San Jacinto Bay, from which Buffalu Bayou extends to the city.

The government has appropriated $1,000,000 of the $4,000,000 estimate to complete this channel. The first section, the channel through Galveston Bay, is completed and work is in progress in San Jacinto Bay. The third section—the deepening of Buffalu Bayou—will perhaps be done within two years. This will give Houston water navigation for ships drawing 21 feet. The fact that the channel will be narrow and through the last section somewhat crooked, will prevent large vessels from using the route extensively. The open harbor of Galveston to the docks of which vessels can come without the assistance of a tug will be preferred, especially for passenger service. But the channel will have a marked effect upon the freight rates of Houston, especially those on grain, cotton and heavy manufactured products.

Houston is built upon a level site where the grassy stretches of the coastal plain merge into the timbered regions of eastern Texas. It is known as the "Magnolia City," for pine and beautiful magnolia adorns the suburbs, forming natural parks which want only the skill of the landscape gardener to adjust and arrange.

Houston is not as well built as Dallas nor as picturesque as San Antonio, but it has large commercial possibilities and is already far in the lead as a manufacturing center. In 1901 there were 507 distinct manufactories with a capital of $7,000,000 and paying out in wages $2,500,000 per year.

Assuming that raw material, power, transportation and markets are the essentials to build up a manufacturing city, then Houston may certainly count on a future development in that direction. Raw material there is at hand from lumber to iron. It is the center of the cotton, the rice and the sugar business. It has transportation by land and sea. It has power in coal beds to the north and oil fields to the east which can be reached by pipe lines to supply power well nigh as cheaply as a Niagara. As

to markets, they are limited only by the southwest and civilization. These remarks will apply to other cities in Texas as well as to Houston, but Houston at present has the advantage of numbers, and the prestige that goes with congregated capital. If it should ever be outstripped by Galveston or Beaumont it will be because its citizens failed in enterprise at the crucial time.

The climate is that of the coast country, never cold in winter nor oppressively hot in summer. The city, like Dallas, is clean and up to date, the residence portion being especially pleasing.

The future of Houston seems to be unusually bright. Business is good and industries are coming in to keep pace with the development of the country. The fever of speculation has not yet struck the cities of Texas—not since the collapse of 1890. When it does there will be something doing at Houston.

SAN ANTONIO.—The most picturesque, the most interesting, and withal, the most beautiful city of Texas, if not of the whole southwest is San Antonio.

Here we have the old and the new civilization of the eighteenth and twentieth centuries meeting and blending in a strange but perfect harmony. The old gives dignity to the new; the new gives strength and vitality to the old.

The San Antonio and San Pedro rivers with their blue waters wind at will through the city. Hundreds of bridges span their currents and the builder respects their banks. In no other American city can be seen six-story modern structures, whose foundation walls are lapped by the running waters of a stream, along whose banks grow the willow and wild grasses, all unconscious of the tumult about them.

Narrow streets, hardly wide enough to allow passage to the noisy trolley car, open suddenly upon Plazas ablaze with tropical foliage, and about which cluster buildings erected yesterday and buildings whose cornerstones were laid nearly two centuries ago.

It is a city of plazas and parks. Twenty-one there are in all, embracing 237 acres. Breckenridge park, containing 200 acres, is the largest and has been left much as it came from the lavish hand of nature. San Pedro, the next largest, containing 40 acres, has been molded by the hand of man. San Pedro creek gushes clear and cold from the rocks of the park and after supplying the lake, meanders through the grounds, a thing of surpassing beauty.

The climate of San Antonio is delightful. The monks knew what they were about when they selected this region for their home. It is rapidly becoming known as a health resort and a most pleasant place to live. The hot sulphur springs, the water of which comes from the earth at a temperature of 104°, are said to possess unusual curative qualities.

One of the boasts of San Antonio is the educational institutions within her borders. Besides the public schools there are 29 private institutions, mostly denominational.

As a business point it will always be the center of southwest Texas. It is the initial point of the southwest cattle trade. A number of the wealthy cattle kings have their residences here. As a manufacturing point it is not on a par with its rivals,

Houston and Dallas. However, in 1900 it supported 312 manufacturing plants with a capital of $6,000,000 and a yearly pay roll of $1,779,000. It has eleven wholesale houses and practically controls the wholesale business of the southwestern part of the state.

San Antonio is in the southwestern fruit and garden truck belt. The soil of the surrounding country is remarkably fertile and abundantly supplied with artesian water for irrigation. Near the city is the famous Collins farm, which is irrigated by an eight-inch artesian well. The land brings a rental of $25 per acre.

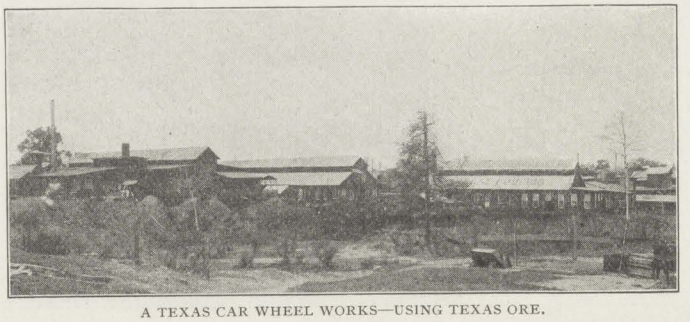
San Antonio as a place to live has no rival in the state. The city will doubtless be outstripped in population by both Dallas and Houston in the next five years; they are nearer the present center of development. But San Antonio will have a future as it has had a past.

FORT WORTH.—Ambitious to be first, but compelled by the inexorable law of numbers to occupy second places are found three more cities with populations ranging from 30,000 to 40,000 —Fort Worth, El Paso, Galveston and Beaumont.

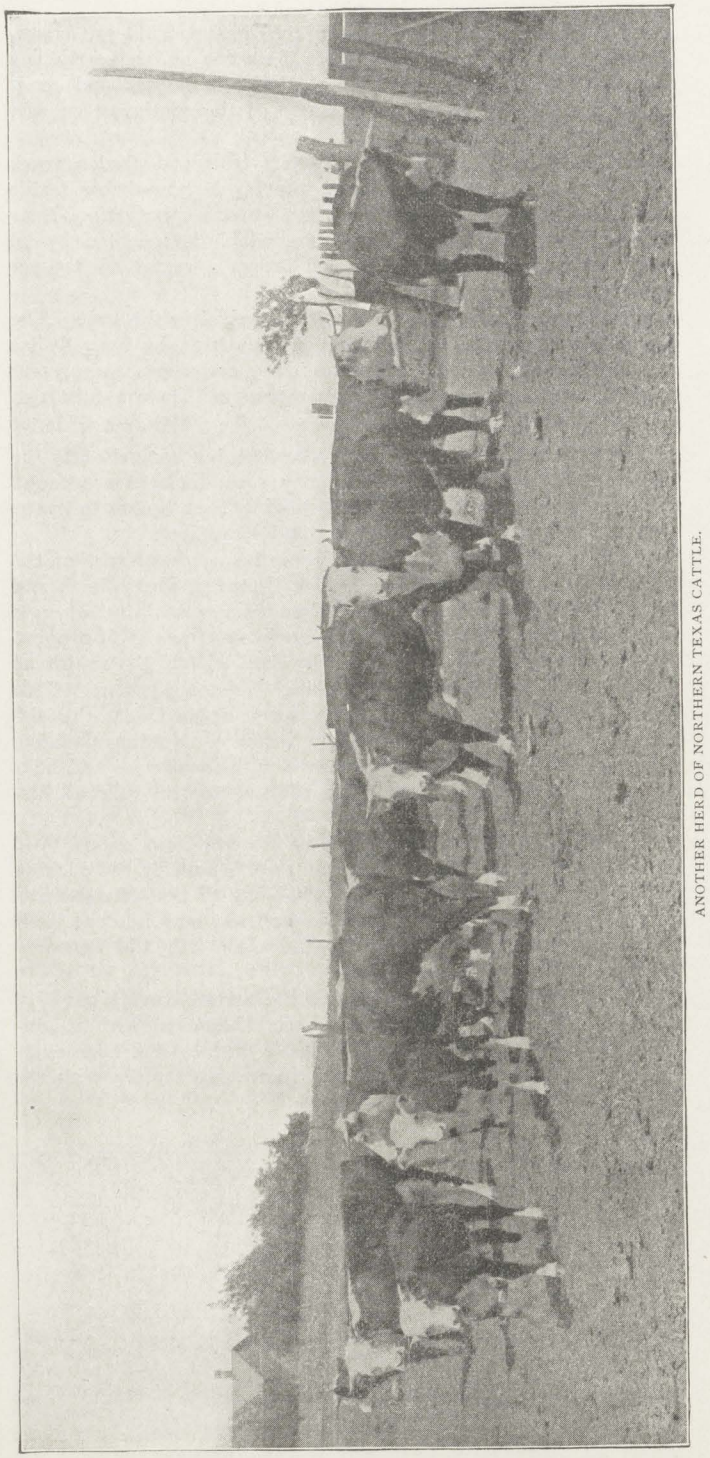
Fort Worth, the railroad center of the northern part of the state, is 32 miles northwest of Dallas. Between Fort Worth and Dallas there has been a long and sometimes a bitter struggle for supremacy. Dallas was fortunate in scoring the first point. The railroad that was intended for Fort Worth got as far as Dallas when the crash of 1873 came. It stopped there. This was a serious blow to Fort Worth, for it made Dallas the distributing point for all the southwest country. Nothing daunted, the people of Fort Worth took counsel with themselves and built the road. This was the beginning of a wonderful railroad history.

The population of Fort Worth is not far from 40,000. And the city is growing. The selection of Fort Worth by the packing interests as the center for Texas will bring to that city the cattle and hog markets of the state, as well as many kindred businesses and industries. This enterprise alone will add 10,000 to the population of the city.

Fort Worth ranks fourth among the manufacturing cities of the state. It has over 200 separate establishments, with a combined capital of $3,000,000. The wholesale business has been overshadowed by that of Dallas, but is increasing rapidly with the filling up of the country to the west.



A TEXAS CAR WHEEL WORKS—USING TEXAS ORE.



ANOTHER HERD OF NORTHERN TEXAS CATTLE.

The climate is that of northern Texas, but the heat of summer is tempered by a cool south breeze and is less trying than in many a city hundreds of miles north.

GALVESTON.—It is more than probable that had Galveston passed through the great storm of September, 1900, unharmed it would now be a close fourth in the race for first place among the cities of Texas.

Three years have been spent in gathering up the threads of life and commerce that were scattered and tangled during that awful night. Never has there been a braver exhibition of pluck than that which the people of Galveston have shown. Three years only have passed and the traveler has to look sharp to detect any evidence of the ruin that devastated half the city and sent thousands to their long home.

That the future may be secure from the wrath of the gulf there is now under construction and partially completed a mighty sea wall, over three miles long and 17 feet high—a wall which will cost the city $1,250,000. Not content with this guard, the city will spend another $250,000 raising the grade from six to ten feet, and along the beach to the level of the sea wall.

Galveston is situated on an island, two miles from the mainland at the mouth of Galveston Bay. The city is reached by bridge over a shallow channel. Out from the northeast end of the island are built the United States forts and the jetties which have been constructed at enormous cost to keep the entrance to the harbor clear of the bar which forms by the action of the wind and currents.

Galveston is the only harbor on the gulf coast where deep draft vessels can find shelter and dockage. There are great possibilities at Sabine and Arkansas passes, but these passes as well as the harbors to which they lead need dredging.

The importance, therefore, of Galveston is apparent. It bears the same relation to the southwest as New York does to the east. It is purely a commercial point, and the city that is built up there will be built on commercial and not industrial lines. Galveston is a funnel through which the export trade of the southwest for a number of years yet must pass. There will be deep water channels to Orange, Beaumont, Houston and Corpus Christi. It remains to be seen what effect these will have on the business of Galveston. Ocean vessels reach points on the Delaware and Chesapeake bays and on the Hudson river, but the commerce of New York stays.

The coast-wise trade, as well as the foreign imports, has been steadily increasing. Galveston is the natural point for the breaking of bulk for the entire foreign trade of the southwest. It is the point from which the grain, cotton and iron of Texas will be shipped. As a manufacturing point it has no advantages, except the one of transportation. Yet in 1900 it had manufacturing concerns with a capital of $6,000,000.

The influence of the waters of the gulf give Galveston a most stable climate. It is an ideal winter resort, and is sought by thousands in the summer on account of the sea breezes.

The city is well and completely built. It is clean and healthful. There is every evidence of wealth and the best possible social conditions obtain. In municipal appointments the city is modern and progressive. The population is about 35,000.

EL PASO—Few towns in Texas—or anywhere else, for that matter—have grown as rapidly as El Paso. In 1880 its population was less than 800. In 1890 it had about 10,000 and at the present writing it claims, and undoubtedly has, considerably more than 30,000. Eight different lines of railroad center here. These railroads radiate in every direction—to Los Angeles and San Francisco; to New Orleans; to the City of Mexico; to the mining camps of New Mexico, and to the populous cities of the north. One of the largest smelting plants in the world is located near El Paso.

Mineral wealth is the cornerstone of El Paso's prosperity. The territory within a radius of 500 miles is extraordinarily rich in copper, coal, gold, silver and lead.

Unimproved agricultural lands in the Rio Grande valley, ten to fifty miles from the city, sell for $10 to $25 per acre and improved lands for $20 to $100 per acre, except orchards and vineyards. Unimproved lands within five miles of the city can be bought for $200 per acre. Orchards and vineyards yield $150 to $200 per acre. One vineyard of six acres pays the owner an average of $2,700 per year. A good yield of alfalfa is 4 to 5 tons per acre for the season, from four cuttings, netting the owner $30 to $40 per acre. Agriculture cannot be practiced in this section without irrigation. Water for this purpose is obtained through canals from the Rio Grande, and by the use of wells and gasoline pumping plants. An eight horse power gasoline engine and pump will irrigate sixty acres of orchard or vineyard. The projected international dam and reservoir will be of incalculable value to agriculture in the valley below El Paso.

The New Mexico Agricultural College and Experiment Station is located about forty miles north of El Paso, affording that city all the advantages of the excellent educational opportunities of the college, as well as the benefit of the extended scientific agricultural experiments under conditions identical with those of the Rio Grande valley below El Paso.

There is a distinct need at El Paso for canning factories for meat, fruits and vegetables. Factories are also required. The market is of enormous extent and competition is not overly keen.

El Paso has waterworks, sewer system, two telegraph lines, two telephone systems, gas works, two electric light and power plants, four national banks, twelve miles of electric street railway, four bridges across the Rio Grande, a sixteen-company United States military post on which the government has already expended $750,000, a large modern hospital (the Hotel Dieu), two foundries, two ice plants, several cigar factories, three harness and saddlery factories, carriage and wagon factories, large stockyards.

For two months of the year—May and June—the climate of El Paso is apt to be too warm for comfort. July, August and September also have a few days which are unpleasantly hot. But from October to May no more delightful climate can be imagined. And at all times of year the evenings are cool. As soon as the sun disappears behind the mountains the mercury drops, and it is not long before a fall of 15 or even 20 degrees is registered.

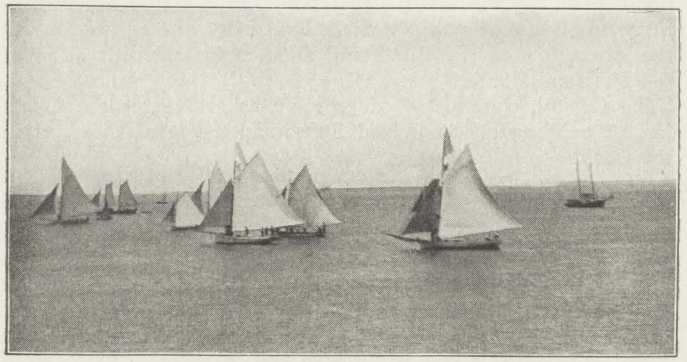
BEAUMONT.—Everyone has heard of Beaumont. Few, however, who have not been there realize that it is a city of 30,000 people and with good prospects of doubling that number within the next five years.

Beaumont came into the range of the eye of the world when oil was discovered a few miles south of the town. It was then a place of about 10,000 souls, one of the lumber depots of eastern Texas and in the new rice district of the coast country. It is located on the Neches river, which from that point to Lake Sabine is from 200 to 500 feet wide and 35 feet deep. A channel dredged through Sabine Lake from Sabine pass will give Beaumont deep water navigation. Four railroad systems reach the city from the east, north and west affording good transportation facilities.

The future of Beaumont lies in its possibilities as a manufacturing center. It has raw material, transportation and power. It is the natural center of the great lumber interests of east Texas. The Neches river flows through the pine forests, affording cheap transportation for logs to the Beaumont mills. The hardwood forests are tapped by lines of railroad converging at that point. From the iron ore of east Texas it is a down-grade pull. Fuel is there in unlimited quantities and at the lowest possible cost. With these three conditions merging, there appears no reason why there should not be manufactured at this point everything that can be made from wood and iron and which is demanded by the markets of the southwest.

As a manufacturing point Beaumont has better possibilities than any other place in the state. The markets for its products would be the southwest, reached by rail, and the adjacent countries, reached by water from Sabine pass.

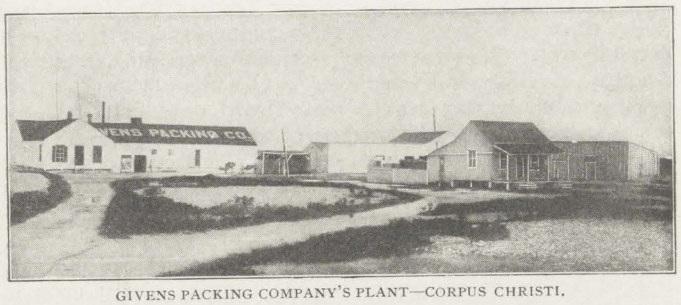
The recent growth of the city has been rapid and more or less of the mushroom order. It had notoriety thrust upon it. It woke up one morning and found itself famous. This was enough to turn the head of a youngster of 10,000 inhabitants. It has had two years of boom and speculation. But the time will come when capital will seek Beaumont, not to speculate in oil lands, but to take advantage of the industrial resources which this point and the surrounding country affords. Then will begin the true development of Beaumont.



YACHTING ON GALVESTON BAY.

AUSTIN.—Austin, the seventh city of the state, has a history peculiar to itself. It is the capital city, and, like most capital cities, is content to remain the center of political action. As a city its ambitions are not commercial, neither are they industrial. True, it has had its dream of becoming a center of trade and industry. Enterprising citizens have from time to time sought to add to the stately architecture of the public buildings, the smoking chimney of the factory and the plain substantial warehouse of trade. But—it is the capital city.

Austin, like San Antonio, has a most picturesque location. Like another capital city, it is situated on its seven hills. These hills mark the beginning of the central mineral region. Through the city flows the Colorado river, clear and fresh from the marble beds of its upper reaches. The city made a brilliant effort to utilize the power of the Colorado by the construction of a dam which was one of the engineering wonders of the continent. This dam, which cost the city a million dollars, was recently taken out by a flood—a death blow to the industrial ambitions of the city.



GIVENS PACKING COMPANY'S PLANT—CORPUS CHRISTI.

With reference to certain kinds of raw material, Austin is well located. West is the central mineral region with unknown possibilities, as well as the great cattle ranges. It is reached directly by three systems of railroads and indirectly by as many more. To the north, east and south lies a farming country—the black prairie belt, well developed and for fertility and beauty unsurpassed.

The climate is delightful, closely resembling that of San Antonio. The city has, besides the state capitol, other state institutions. It is the seat of the State University, the Institution for the Education of the Blind and another for the Education of the Deaf and Dumb.

The Capitol, constructed of gray Texas granite, is the fourth largest building in the United States and the seventh largest in the world.

The population of Austin is about 25,000. The city is well lighted, has a good system of street cars and waterworks. It will always be a delightful place to live in. It may, and probably will, never become a business city; few capitals ever do. But its prestige as the political center of the state—a point where all political roads must meet—the State University, the climate and the beauty of its location, making it a desirable place to live, are sufficient to make it one of the most important cities of the state.

WACO, SHERMAN AND DENISON.—One of the interesting features of the urban development of Texas is found in the social aspect of the smaller towns. In the north, especially in a new country, the small towns are business depots only. They exist solely to furnish supplies to the country and in turn act as a market for the surplus products. In Texas the small towns are the social centers of the surrounding country. A large per cent of the farmers—the land owners—live in town and operate their farms through tenants. The business men of the towns generally have one or more farm which are operated with more or less profit to the owner by a more or less shiftless tenant. There is an intimate intermixture of town and country interests not found in the northwest. Instead of the country dominating the villages, the villages dominate the country. The result is many nice, quiet home villages—villages that are not disturbed by too much enterprise, but places where the inhabitants live a life of contentment and ease.

As a natural result of this social condition the larger towns aspire to be educational centers for their immediate neighborhood. And others more ambitious aspire to become home and educational centers of the state.

The best example of the latter is Waco, now a city of over 20,000 people. Situated in the inclosure between Forth Worth and Dallas on the north and Houston and San Antonio on the south—in the very heart of the mixed farming region, in the fertile valley of the Brazos—Waco is a fine exponent of the beautiful country city.

Waco does a considerable amount of commercial business, but it is known more for its schools than for its industries. Seven colleges and as many business training schools attest to the justness of the appellation—The Athens of Texas.

Denison and Sherman, two ambitious towns in the northern part of the state, are rivals for the trade of their immediate locality. They are but a few miles apart, both railroad centers of some importance and have made considerable progress in industrial development. They are connected by a trolley line and have at present about 1,500 inhabitants each. With El Paso, they complete the list of cities of over 10,000 population.

CORPUS CHRISTI AND NACOGDOCHES.—These comments upon the urban development of Texas would not be complete without some reference in a somewhat prophetic vein to the new centers which are likely to be developed by the industrial forces that are now at work in the southwest.

The urban development of Texas during the next ten years will be unparalleled. Cities will double in population and many small towns will spring up where now is found only prairie grass and mesquite.

There are two locations, however, to which the signs of the times seem to point as future centers. Both are old, the oldest settlements in the state—Corpus Christi and Nacogdoches. One is situated on the gulf, or, rather, on Corpus Christi Bay, the other in the very heart of east Texas. Both are in the fruit and garden truck belts of the state; one is a seaport, the other surrounded by timber. They could not be more different in location, but they will receive new life from the same source.

Corpus Christi occupies the finest site for a city and has the finest harbor on the Gulf of Mexico. Corpus Christi Bay is in the shape of a horseshoe. From heel to heel extends the low island that separates the bay from the gulf. At one end of the island is Arkansas, at the other Corpus Christi Pass. At the toe of the horseshoe, occupying a double terrace, the lower about ten feet above mean tide, the upper rising fifty feet to the level of the back country, is Corpus Christi—the Naples of America.

The United States government is building jetties at Arkansas Pass to clear out the channel to a depth of 26 feet. At an expense of $1,000,000 a channel can be opened to accommodate ocean vessels to the docks of Corpus Christi. This is the natural port through which foreign commerce originating in, or destined for, all that region west of the 100th meridian, should pass. The harbor is absolutely land locked and free from the West Indian tornadoes that have played such havoc along the gulf coast.

A magnificent beach stretches for miles along the bay, affording splendid sea bathing. As a winter and summer resort it offers inducements which cannot be duplicated on the continent.

Corpus Christi has now about 5,000 people and is reached by two railroads. Arrangements are about complete for a $200,000 hotel for the accommodation of seekers of pleasure or health, both winter and summer. Here within the next twenty years should be a city of 50,000 inhabitants.

Nacogdoches was in the olden times a military post. It was here that General Wilkinson, the commander of the United States forces at New Orleans, was to receive $300,000 in Spanish gold as the price for betraying the scheme of Aaron Burr to the United States authorities. It was from here that Sam Houston and David Crockett issued to make trouble for the Mexican government. For a full century Nacogdoches has slumbered amid a world of resources. The time for awakening has arrived.

A glance at the map will show that there is no city or town of any size in east Texas north of Beaumont. Is it possible that a section of country as large as the state of Indiana, filled to the very cover with natural resources, will long endure without some kind of a commercial and industrial center?

Nacogdoches has at present two railroads. It is surrounded by a timbered country that has a soil as rich as any in the state. It is in the geographical center of the fruit and garden truck region. It is within fifteen miles of the oldest oil region of the state—an oil region that is bound to be developed under the pressure of the present oil excitement. It has the elements of both a trading and a manufacturing center.

Within the last six months the agricultural department has located here the experimental station and the testing department for all the tobacco of the United States. It is now known to be at or near the center of the tobacco area, which is capable of producing as fine an article as Cuba.

Nacogdoches now has a population of about 3,000. It is a country village, slow and sleepy. It does not realize what the future evidently has in store for it. But unless all signs fail, unless the great building forces reverse themselves, here will be a city. An inland city, to be sure, but a city all the same—the most important city between Texarkana and Beaumont.

Other Rock Island Publications.

The Passenger Department of the Rock Island System issues the following publications. For copies of any of them, send to

JOHN SEBASTIAN,
Passenger Traffic Manager, Chicago.

The Western Trail—A twelve-page paper devoted to the development of the great Southwest (Kansas, Oklahoma, Indian Territory, Arkansas, New Mexico and Texas). It contains true and interesting letters from people who have settled there. Is printed on good quality of paper and finely illustrated. Issued every month. Subscription price, 25 cents a year.

Business Openings—A twenty-four page booklet giving a list of the towns and cities on the lines of the Rock Island System, together with information about their needs in the way of factories, business establishments, professional men, etc. Free.

Under the Turquoise Sky—Colorado is interestingly described in this beautiful book of sixty-four pages. It is filled with useful information for the tourist and is well illustrated. Contains a list of hotels and boarding houses at principal resorts. Sent to any address for 6 cents in stamps.

Oklahoma—The Land of NOW. Forty-eight pages; illustrated. Contains a well-arranged description of those portions of the Territory which are traversed by the lines of the Rock Island System. Takes up each county separately and gives the facts about its wealth, population and products clearly and interestingly. Free.

Rock Island States Southwest—Forty-eight pages; illustrated. Contains a general description of those portions of the Southwest tributary to the lines of the Rock Island System, supplemented by a number of letters from farmers and others who have settled in the "new country" and are glad of it. Free.

The Golden State—A beautifully illustrated booklet of forty-eight pages, which tells in a very interesting way all about the wonderful State of California. Sent to any address on receipt of 6 cents in stamps.

Across the Continent in a Tourist Sleeping Car—A well illustrated folder, which goes thoroughly into detail about the advantages of "going tourist" and about the Rock Island's excellent tourist car service. Free.

Mexico in Glimpses—A booklet of eighty pages, well illustrated. Gives full information about Mexico, its climate and people. If you contemplate a trip to quaint old Mexico, it will be of great help and interest to you. 6 cents.

It is the intention of the passenger department of the Rock Island System to issue, from time to time, pamphlets descriptive of Nebraska, Kansas, Texas, Indian Territory and New Mexico. These publications are all under way.

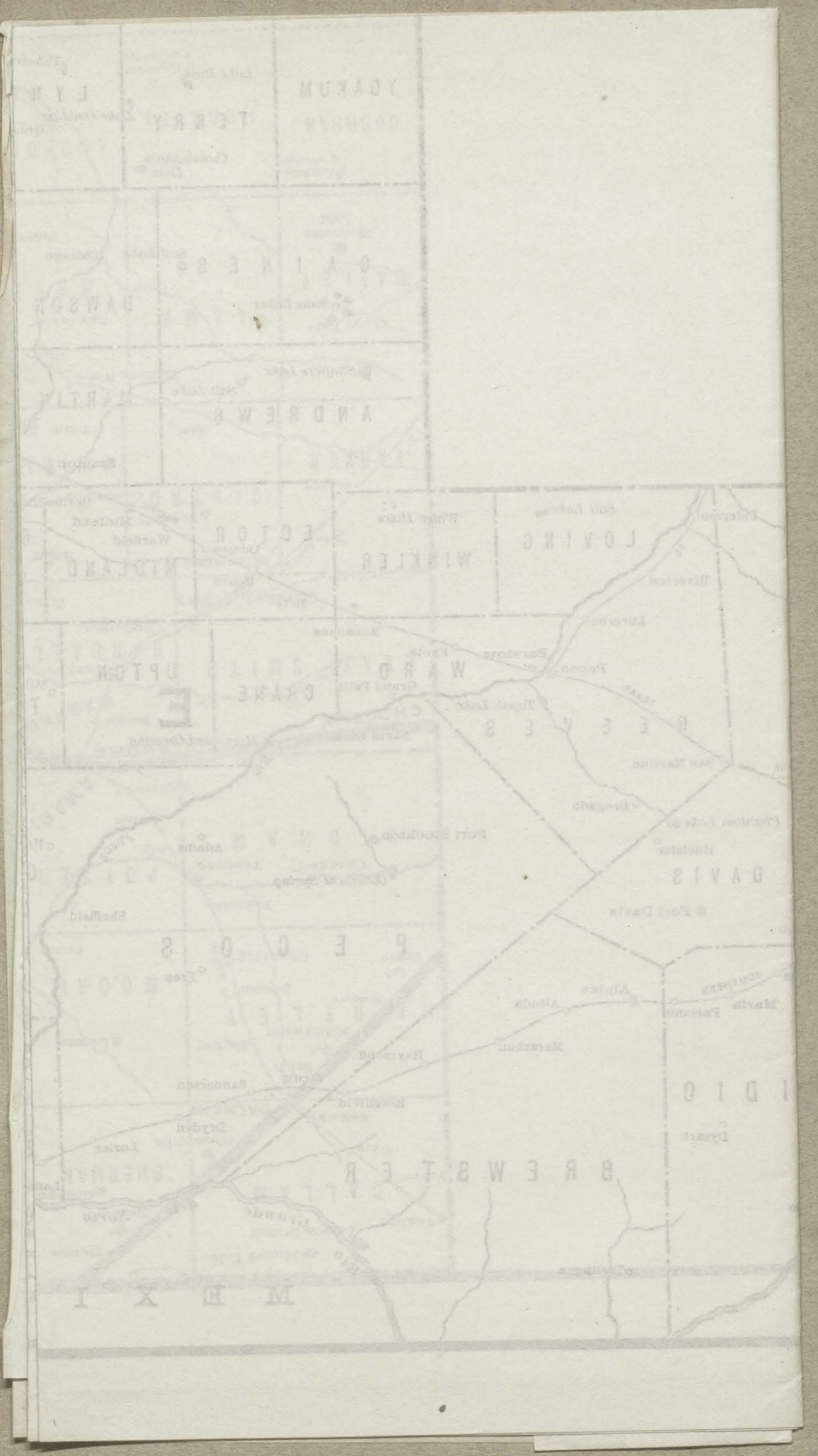
Tickets, sleeping car reservations and information about rates, train service, etc., will be gladly furnished on application, personally or by letter, to any of the following

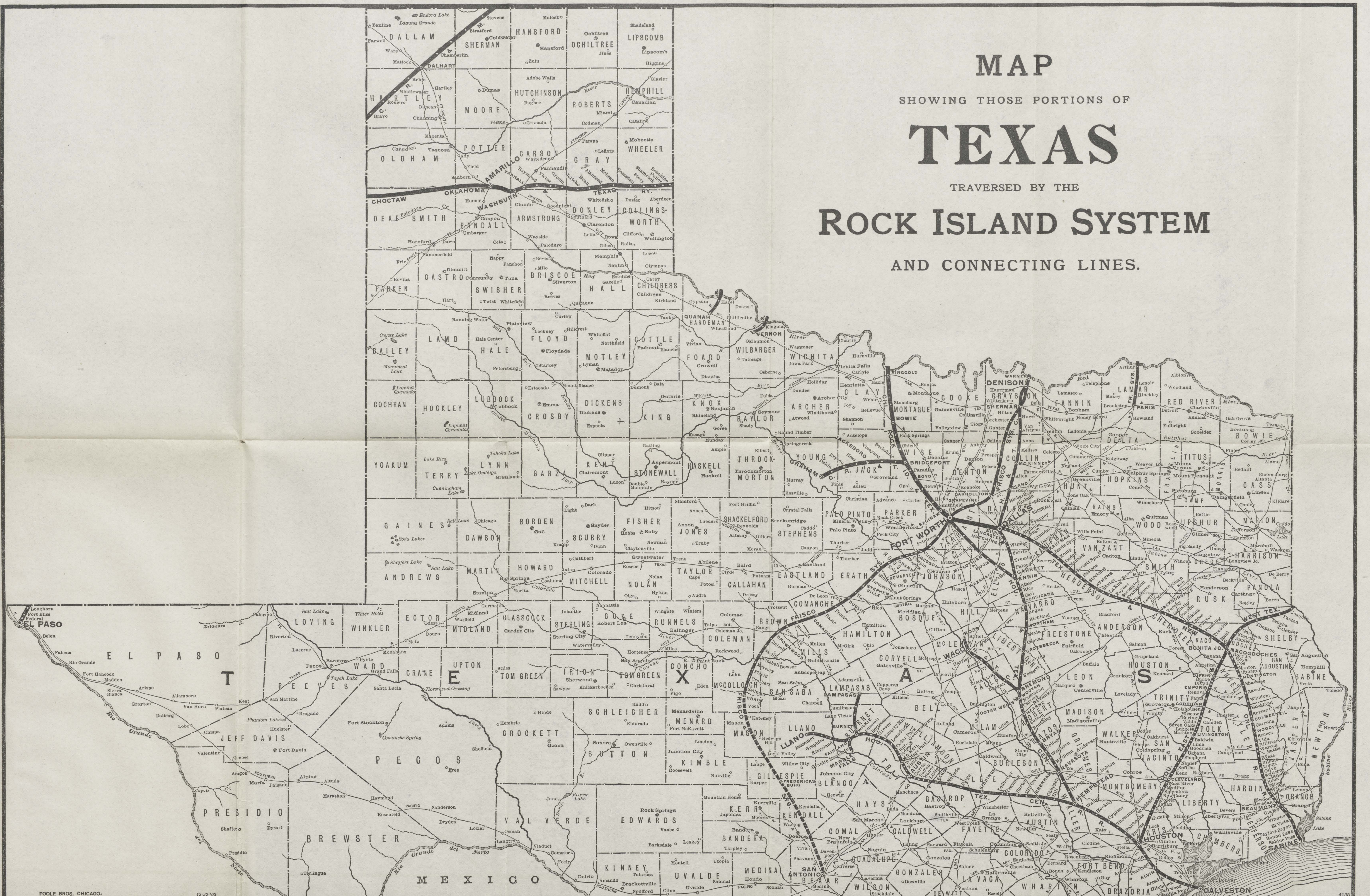
Representatives Passenger Department.

Atchison, Kan.	326 Commercial St.	J. J. KENNEDY.....City Passenger Agent
Atlanta, Ga.	6 North Pryor St.	S. L. PARROTT....Trav. Passenger Agent
Boston, Mass.	288 Washington St.	K. E. PALMER..New England Pass'r Agt.
"		H. M. BROWN ....Trav. Passenger Agent
"		G. A. FINCH.....Trav. Passenger Agent
Buffalo, N. Y.	297 Main St.	W. F. CRAWFORD.....City Pass'r Agent
Butte, Mont.	Pennsylvania Block	M. M. POTTER.....General Agent
Cedar Rapids, Iowa		JOHN G. FARMER.....Div. Pass'r Agent
		E. O. SOULE.....Trav. Passenger Agent
		A. L. STEECE.....Trav. Passenger Agent
Chattanooga, Tenn.		F. D. BLACKMAN.....Trav. Pass'r Agent
Chicago, Ill.	91 Adams St.	GEO. F. LEE....Gen'l Agent Pass'r Dept.
"		R. S. TORRINGTON...Trav. Pass'r Agent
	720 La Salle Street Station	T. J. CLARK.....Trav. Pass'r Agent
Cincinnati, Ohio	38 East 4th St.	G. D. BACON.... District Passenger Agent
"		HOWARD JOLLY..Trav. Passenger Agent
City of Mexico, Mex.	4 Gante St.	CHARLES B. CLEVELAND...Gen'l Agent
Cleveland, Ohio.	216 Williamson Bldg.	H. C. YOUNG.....City Passenger Agent
Colo. Springs, Colo.	2 Pike's Peak Ave.	W. W. WOOD.....City Passenger Agent
Davenport, Iowa	Cor. 5th and Main Sts.	S. F. BOYD.....Division Passenger Agent
"		W. M. LAVENTURE...Trav. Pass'r Agent
	307 Brady St.	C. C. GARDNER.....City Pass'r Agent
Denver, Colo.	800 17th St.	HAL. S. RAY...Gen'l Agent Pass'r Dept.
"		C. M. VAN LAW....City Passenger Agent
"		RALPH S. WALKER..Trav. Pass'r Agent
Des Moines, Iowa	423 Walnut St.	GEORGE R. KLINE.....City Pass'r Agent
Detroit, Mich.	11 Fort St. West	F. B. GILMER...District Passenger Agent
El Paso, Tex		H. F. COX.....General Agent
		T. H. HEALY.....City Passenger Agent
		THAD. VAN HORN....Trav. Pass'r Agent
Fort Worth, Tex.		V. N. TURPIN .....City Pass'r Agent
		GEO. S. PENTECOST..Trav. Pass'r Agent
Hot Springs, Ark.		HENRY HUNT.....City Passenger Agent
Indianapolis, Ind.	9 and 10 Claypool Bldg.	J. F. POWERS.....Trav. Passenger Agent
Kansas City, Mo.	412 and 413 Bryant Bldg.	J. A. STEWART..Gen'l Agent Pass'r Dept.
"		LEMOYNE MOFFET..Trav. Pass'r Agent
	900 Main St	C. W. JONES.....City Passenger Agent
Leavenworth, Kan.	230 Delaware St.	F. M. DARRAH.....City Passenger Agent
Lincoln, Neb.	1045 O Street	F. H. BARNES.....City Passenger Agent
Little Rock, Ark.	211 Main St.	JAMES HARRIS....Dist. Passenger Agent
"		JAS. E. JOYCE.....City Passenger Agent
Los Angeles, Cal.	237 South Spring St.	FRANK L. MILLER...Dist. Pass'r Agent
"		J. L. STANTON....Trav. Passenger Agent
Louisville, Ky.	83 Todd Bldg.	G. W. ELKINS.....Commercial Agent
Memphis, Tenn.	Peabody Hotel	J. N. CORNATZAR, Gen'l Agt. Pass'r Dept.
"		E. SUTCLIFF .....City Ticket Agent
"		FRANK M. GRIFFITH..Trav. Pass'r Agt.
Milwaukee, Wis.	46 Chamber Commerce	MARTIN JOHNSON....Commercial Agent
Minneapolis, Minn.	322 Nicollet Ave.	F. D. LYON.....District Passenger Agent
"		W. L. HATHAWAY, City Passenger Agent
"		FRANK H. BEACH....Trav. Pass'r Agent
New Orleans, La.	720 Common St.	V. M. CLUIS.....Trav. Passenger Agent
New York, N. Y.	401 Broadway	A. H. MOFFET..Gen'l East. Pass'r Agent
"		J. V. TEDFORD...Trav. Passenger Agent
"		E. D. SPENCER.....City Passenger Agent
	Uptown Office: 5th Ave. and 35th St.	A. H. MOFFET..Gen'l East. Pass'r Agent
Oklahoma City, O. T.		J. S. MCNALLY....Div. Passenger Agent
		E. M. DUNCAN...Trav. Passenger Agent
Omaha, Neb.	1323 Farnam St.	F. P. RUTHERFORD...Div. Pass'r Agent
"		A. O. ROWE...Traveling Passenger Agent
"		R. C. BUTLER.....City Passenger Agent
Peoria, Ill	101 South Jefferson St.	WARREN COWLES..Div. Passenger Agent
"		ADOLF LANGFELDT...City Pass'r Agent
Philadelphia, Pa.	111 South 9th St.	PERRY GRIFFIN..Dist. Passenger Agent
"		M. J. GEARY..Traveling Passenger Agent
Pittsburg, Pa	415 Park Bldg.	PHIL. A. AUER....Dist. Passenger Agent
Portland, Ore.	140 Third St.	L. B. GORHAM.....General Agent
"		GEO. W. BAINTER....Trav. Pass'r Agent
Pueblo, Colo.	226 North Main St.	C. H. SCHELL.....City Passenger Agent
Rock Island, Ill.	1829 Second Ave.	F. H. PLUMMER...City Passenger Agent
St. Joseph, Mo.	6th and Edmond Sts.	J. J. GOODRICH.....City Pass'r Agent
St. Louis, Mo.	901 Olive St.	H. P. MANTZ.....Dist. Passenger Agent
St. Paul, Minn.	6th and Robert Sts.	F. W. SAINT.....City Pass'r Agent
Salt Lake City	100 West 2d South St.	E. DRAKE.....District Passenger Agent
"		GEO. A. BIBLE....Trav. Passenger Agent
San Francisco, Cal.	189 Crocker Bldg.	E. W. THOMPSON..Gen'l Western Agent
	623 Market St.	C. A. RUTHERFORD..Dist. Pass'r Agent
Topeka, Kan.		A. E. COOPER.....Div. Passenger Agent
Wichita, Kan.		C. E. BASCOM.....City Passenger Agent

L. M. ALLEN, General Passenger Agent.....Chicago, Ill.
W. J. LEAHY, Assistant General Passenger Agent.....Chicago, Ill.
GEO. H. LEE, Gen'l Pass. Agent, Choctaw, Oklahoma & Gulf R. R., Little Rock, Ark.
A. JACKSON, General Immigration Agent.....Chicago, Ill.

JOHN SEBASTIAN, Passenger Traffic Manager, Chicago, Ill.




MAP
SHOWING THOSE PORTIONS OF
TEXAS
TRAVERSED BY THE
ROCK ISLAND SYSTEM
AND CONNECTING LINES.
DALLAM
SHERMAN
HANSFORD
OCHILTREE
LIPSCOMB
HARTLEY
MOORE
HUTCHINSON
ROBERTS
HEMPHILL
OLDHAM
POTTER
CARSON
GRAY
WHEELER
DEAF SMITH
RANDALL
ARMSTRONG
DONLEY
COLLINGSWORTH
PARMER
CASTRO
SWISHER
BRISCOE
HALL
CHILDRESS
BAILEY
LAMB
HALE
FLOYD
MOTLEY
COTTLE
HARDEMAN
FOARD
WILBARGER
WICHITA
COCHRAN
HOCKLEY
LUBBOCK
CROSBY
DICKENS
KING
KNOX
BAYLOR
ARCHER
CLAY
MONTAGUE
COOKE
GRAYSON
FANNIN
LAMAR
RED RIVER
BOWIE
YOAKUM
TERRY
LYNN
GARZA
KENT
STONEWALL
HASKELL
THROCKMORTON
YOUNG
JACK
WISE
DENTON
COLLIN
HUNT
DELTA
HOPKINS
FRANKLIN
TITUS
MORRIS
CASS
CAMP
GAINES
DAWSON
BORDEN
SCURRY
FISHER
JONES
SHACKELFORD
STEPHENS
PALO PINTO
PARKER
TARRANT
DALLAS
KAUFMAN
ROCKWALL
RAINS
VAN ZANT
WOOD
UPSHUR
MARION
HARRISON
GREGG
SMITH
ANDREWS
MARTIN
HOWARD
MITCHELL
NOLAN
TAYLOR
CALLAHAN
EASTLAND
ERATH
HOOD
SOMERVELL
JOHNSON
ELLIS
HENDERSON
RUSK
PANOLA
EL PASO
LOVING
WINKLER
ECTOR
MIDLAND
GLASSCOCK
STERLING
COKE
RUNNELS
COLEMAN
BROWN
COMANCHE
HAMILTON
BOSQUE
HILL
NAVARRO
ANDERSON
CHEROKEE
NACOGDOCHES
SHELBY
REEVES
WARD
CRANE
UPTON
TOM GREEN
IRION
CONCHO
McCULLOCH
SAN SABA
MILLS
LAMPASAS
CORYELL
McLENNAN
LIMESTONE
FREESTONE
LEON
HOUSTON
ANGELINA
SAN AUGUSTINE
SABINE
JEFF DAVIS
PECOS
CROCKETT
SCHLEICHER
MENARD
MASON
LLANO
BURNET
BELL
FALLS
ROBERTSON
MADISON
TRINITY
POLK
TYLER
JASPER
NEWTON
PRESIDIO
BREWSTER
SUTTON
KIMBLE
GILLESPIE
BLANCO
TRAVIS
WILLIAMSON
MILAM
BRAZOS
GRIMES
WALKER
SAN JACINTO
HARDIN
VAL VERDE
EDWARDS
KERR
KENDALL
HAYS
BASTROP
LEE
BURLESON
WASHINGTON
MONTGOMERY
LIBERTY
ORANGE
JEFFERSON
BANDERA
COMAL
CALDWELL
FAYETTE
AUSTIN
WALLER
HARRIS
CHAMBERS
KINNEY
UVALDE
MEDINA
BEXAR
GUADALUPE
GONZALES
LAVACA
COLORADO
WHARTON
FORT BEND
BRAZORIA
GALVESTON
WILSON
DE WITT
TEXAS
MEXICO
EL PASO
FORT WORTH
DALLAS
HOUSTON
SAN ANTONIO
AUSTIN
WACO
AMARILLO
DALHART
DENISON
SHERMAN
PARIS
BEAUMONT
SABINE
CHOCTAW OKLAHOMA & TEXAS RY.
C. R. I. & T. RY.
FRISCO SYS.
POOLE BROS. CHICAGO.
12-22-'03
4138


Rock Island
System