S. W. IMMIG. CO. —— TEXAS

TEXAS

HER

RESOURCES AND CAPABILITIES:

BEING A DESCRIPTION OF THE STATE OF TEXAS AND THE INDUCEMENTS SHE OFFERS TO THOSE SEEKING HOMES IN A NEW COUNTRY.

ISSUED BY THE

South Western Immigration Co.

AUSTIN, TEXAS.

E. D. SLATER,
GENERAL BOOK AND JOBBING PRINTER,
153 & 155 FULTON STREET, N. Y.
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OFFICERS AND EXECUTIVE COMMITTEE

OF THE

SOUTH WESTERN IMMIGRATION COMPANY.

INCORPORATED 1880.

Officers.

WILLIAM W. LANG, - - - - - - PRESIDENT.
(Late Master Texas State Grange.)

B. G. DUVAL, - - - - - - - - SECRETARY.

JAS. H. RAYMOND, - - - - - - - TREASURER.

Executive Committee.

WILLIAM W. LANG, EX-OFFICIO.

H. M. HOXIE, A. A. TALMAGE,

GEO. NOBLE, A. W. SOPER.

THE STATE OF TEXAS.

HISTORY OF THE FORMATION OF THE SOUTH-WESTERN IMMIGRATION COMPANY AND ITS PURPOSES.

THE Constitution of Texas, adopted in 1876, and which is now the organic law of the State, contains the following provision:

"Art. XVI., Sec. 56.—The legislature shall have no power to appropriate any of the public money for the establishment and maintenance of a Bureau of Immigration or for any purpose of bringing immigrants to this State."

Prior to that time there had been in existence a Bureau of Immigration for the support of which considerable appropriations had been made, but its labors, from various causes, had been of little public benefit, and a feeling of hostility was engendered, not to *immigration*, but to the modes and methods employed by the bureau to encourage it, resulting in the adoption of the above constitutional provision.

The real intention of the framers of the constitution was to prevent the squandering of public money. The fear grew upon the public mind that a reckless extravagance might be indulged, in an over-anxiety to populate the State, and at that time the financial condition of the State was such that economy seemed to be imperatively demanded in every department.

All this was very well, and rightly understood, would receive the approval of thoughtful people; but unfortunately the constitutional provision above quoted has been construed abroad as an evidence of hostility on the part of the people of Texas to those coming among us seeking homes. Nothing can be farther from the truth, but that opinion has gone abroad and done much to retard the growth and prosperity of the commonwealth. Industrious paid agents from the Western and Northwestern States, stationed at every railroad centre and seaport, have pointed with triumph to this provision in our organic law, and vehemently impressed upon the unsuspecting immigrant that "Texas didn't want him!" Besides, our State has been persistently maligned throughout the civilized world as the very "hot-bed of lawlessness and crime."

Absurd as these stories seem to us who are "native and to the manner born," and to those thousands of good people who have found prosperous homes among us since the beginning of the past decade, they have had an immense and overpowering significance for thousands of others who would have turned their faces this way but for the fear engendered by their frequent repetition.

Recognizing the necessity of some cohesive and organized effort to make known to the world the resources of Texas and the advantages she offers to those seeking homes in a new land, on the 22d of July, 1880, the "Southwestern Immigration Company," incorporated under the laws of the State of Texas, was organized at the City of Austin, the capital of the State, by the election of Hon. Wm. W. Lang, of Falls County, late Master of the Texas State Grange, as *President.*

The general objects of the company are defined in the by-laws to be—

ART. V.—GENERAL OBJECTS.

"SEC. 1. The general objects of this corporation shall be to induce immigration to the State of Texas, and such other localities as may hereafter be determined upon, and the mode and manner of accomplishing these objects may be determined from time to time by the Board of Directors.

"SEC. 2. That, as it is the purpose of this company to supply the needs of a State Bureau of Immigration, and not subserve the purposes of any railway or corporation or individual of this company as against another member thereof, therefore, every officer, agent or employee of this company is prohibited from using his own or the influence of this company, or the funds or publications thereof, to promote the special interest of any stockholder of or subscriber to this company, but shall endeavor by all means to promote the interest of all alike; and any officer, agent or employee of this company who shall violate any part of these provisions shall be summarily dismissed from the service of the company."

In an address issued by the President shortly after the inception of the enterprise, he used the following language, referring to the above extract from the by-laws:

"These purposes of the company will be strictly pursued, and its rules, regulations and restrictions rigidly enforced. No sectional, corporate, local or individual interest will be specially subserved. Prejudice or partiality on the part of any officer or employee of the company will not be tolerated.

"The object of the company being to introduce labor, industry, skill and capital into the State, by collecting, collating and disseminating correct information in relation to the natural resources, facilities and advantages that may be found in her borders, thus contributing to her material development, the progress, convenience, wealth and prosperity of the entire citizenship, the energies and efforts of

the company cannot and will not be directed to advance any particular or individual interests. With this common object in view, substantial aid and active co-operation is earnestly solicited from all corporations, enterprises and individuals who desire to hasten the development of our country.

"No dividends of profit can be declared except the common results which must necessarily follow, and those are proportioned to each and all according to the interest represented in the State. Expending large sums of money for the sole object of populating the State with a thrifty and industrious inhabitancy, the company will expect that support from the public which will give a vivifying impulse to its efforts.

"All persons, corporations and associations in possession of statistical and historical information calculated to promote the purposes of the company are requested to furnish the same to the President of the company at his office in Austin, for arrangement and publication. The officers of government, municipal, county and state, are urgently requested to co-operate in the movement, by furnishing such official information as may be sought from time to time. Corporations, associations and individuals desiring to take stock in the company will make application to the President.

"Recognizing the necessity for more strenuous efforts to induce immigration to the State, to develop its resources and increase its wealth, this movement was inaugurated to take the place of a State Immigration Bureau, and, forbidding all speculations, its labors will be confined strictly to the laudable purposes of its inauguration. We invoke the good-will and God-speed of all good citizens of the State. Communications in relation to Texas and her resources are solicited."

In a subsequent address as further explaining the objects of the company, the President used the following language:

"The Southwestern Immigration Company is not a land agency. It has no interest in lands, and will acquire none. It is separate and distinct from the land departments of the railroad companies. They will conduct their land business in their own way. The means they have furnished to this company are to be used for the common good. The object of this company is to people the Southwest—to fill up her vast unoccupied spaces, so that the rich stores of wealth that now lie locked in her bosom may be made subservient to the uses of man; to increase her commerce; to double her transportation; to establish industries that will manufacture her raw products into useful fabrics, and, in short, to put her on the advance ground of civilization. To this end we labor. Certain railroads have gratuitously placed a large sum of money at the company's disposal, to be expended in the accomplishment of this object. Their conduct in this deserves the good feeling of a grateful public, and solicits its support in a work so praiseworthy. The inauguration of this company, being a voluntary offering for the public good, I feel at liberty to call upon the people for assistance, and therefore urge them, in their

several counties, to form immigration or agricultural societies to aid in the collection of such statistical information regarding crops, stock-raising, commerce, transportation, etc., together with such descriptive matter as will set forth the advantages of their respective counties as fit homes for immigrants. In this we want nothing but truthful statements, without exaggeration or fanciful painting. Overdrawn descriptions, reaching far beyond reality, can do no good, but, on the contrary, will disappoint the new settler who has been led hither by them, and in the end cause dissatisfaction, discontent, and hinder immigration to that section.

"When such societies are formed and properly organized, they are requested to furnish this office with name and post-office address. Upon reporting to this office, the company will furnish blanks and formulated questions, to enable them to collect such information as may be of value in a systematic way.

"I further submit to the public the propriety of erecting a suitable building at the important railroad connections, where an immigrants' home may be kept, furnishing immigrants with shelter and reasonable comfort at a low rate, until a location or employment may be obtained."

Those who refer to this publication for information can rest assured that our object is simply to present to the people of the world the resources and advantages of Texas, and that our information will be derived from the most truthful sources, using the practical experience of those best informed and actively engaged in her industries.

To sum up: this company has no lands and will acquire none. It has nothing to sell; nothing to buy. It has no interest, directly or indirectly with the land department of any railroad, nor with any private land agency, nor other business or speculative enterprise. It will be responsible alone for representations emanating from this office or its accredited agents, and we will scrupulously watch the statements of our agents, and if any gross misrepresentation is brought to the notice of the company, the offender will be promptly dealt with. We seek to convince all who apply to us for information that there is no question of interest to bias our judgment, and that our only object is to aid immigrants in every possible way to acquire trustworthy and intelligent information about the country we represent.

Inquiries respecting special localities or special subjects will be promptly answered with such information as we have at our command.

Actuated by no other design than that indicated above, we gratuitously tender our services to all those desiring to locate among us, and invite correspondence. Inquiries addressed to the President or Secretary at Austin, Texas, will receive prompt attention.

CORRESPONDENCE BETWEEN PRESIDENT LANG AND GOVERNOR ROBERTS, OF TEXAS.

THE GOVERNOR'S VIEWS ON IMMIGRATION.

"OFFICE SOUTHWESTERN IMMIGRATION CO.
AUSTIN, TEXAS, Sept. 8th, 1880.

"TO HIS EXCELLENCY O. M. ROBERTS,
Governor of Texas:

"SIR,—Doubtless you are aware that Section 56, General Provisions of the Constitution of Texas (which reads as follows, viz.: 'The legislature shall have no power to appropriate any of the public money for the establishment and maintenance of a Bureau of Immigration or for any purpose of bringing immigrants to the State') has been construed as indicating a spirit of hostility by the people to immigration. Knowing your familiarity with the sentiments of the people over whom you rule, I desire to ask if it is correct that the feeling of the mass of the people is averse to immigration.

"You are also cognizant of the fact that you have been represented as being opposed to immigration. Will you please answer whether you have been misrepresented or not?

"It is well known that these representations are used to prevent immigration to our State.

"Yours truly,
"WM. W. LANG, *President.*"

REPLY OF THE GOVERNOR.

"EXECUTIVE OFFICE,
AUSTIN, TEXAS, Sept., 1880.

"W. W. LANG, Esq.,
President of the Southwestern Immigration Co:

"SIR,—I received your letter of the 8th instant, requesting my views about immigration, and what I regard to be the views of the people of Texas on that subject.

"The most appropriate answer that I can give you is what I said in a public speech at Dallas, on the 10th of July last, which was extensively circulated over the State, in condensed form, previous to my renomination on the 11th August last, by the Democratic Convention at Dallas.

"To this may be added the declaration of that convention in regard to immigration, as contained in the platform adopted by it.

* * * * * * * *

"Respectfully yours,
"O. M. ROBERTS, *Governor.*"

EXTRACTS FROM A SPEECH OF O. M. ROBERTS, GOVERNOR OF TEXAS, DELIVERED AT DALLAS, TEXAS, JULY 10, 1880.

It has been charged that Governor Roberts is opposed to immigration. He declared this charge false and unfounded. He never knew a half-dozen men in Texas opposed to immigration. Surely he was not one of that number, and never had been. Texas has always welcomed good citizens from all parts of America and Europe, and he was in favor of any and every practicable means of encouraging it. Good public free schools, cheap lands, offers of pre-emptions to settlers, and the faithful execution of the laws for the protection of person and property, with our excellent soil and climate, need only to be made known abroad to draw to Texas a good population to fill up its vacant territory.

EXTRACT FROM THE PLATFORM, ADOPTED BY THE CONVENTION OF THE DEMOCRATIC PARTY ASSEMBLED AT DALLAS, TEXAS, AUGUST 11, 1880.

"The Democratic party of Texas in convention assembled declare—

* * * * * * * *

"4th. We regard the maintenance of a practical system of public free schools of the utmost importance, and to this end favor the largest appropriation within constitutional limits justified by the financial condition of the State. And we favor the adoption by the next legislature of appropriate measures looking to the fulfilment of the constitutional requirements for the organization and maintenance of 'The University of Texas.'

"5th. We repudiate as false the charge that the Democratic party of Texas has been opposed to immigration, and while the constitution prohibits the use of public money for the support of a bureau of immigration, we urge the next legislature to make ample provision for the collection and dissemination of statistics pertaining to our agricultural and other resources, to the end that all seeking new homes, knowing our great advantages, may settle in our midst, extending to them a most cordial welcome."

It will thus be seen that with regard to the chief executive officer of the State, the charge that he is opposed to immigration has been met with the most emphatic public condemnation by that functionary, and the sentiment of the great mass of the people of Texas is equally unmistakable as expressed in their solemn declaration of principles in the Democratic platform, as well as in the Republican and Greenback platforms, both of which have been equally emphatic.

And now that the financial condition of the State is such as to admit of a liberal appropriation of the public money to the compilation and dissemination of statistical information, it is reasonable to anticipate that, at the next session of the legislature, which convenes in January, 1881, active measures will be taken looking to that end.

INTRODUCTORY STATEMENT OF THE GENERAL ADVANTAGES OF THE STATE AS A FIELD FOR IMMIGRANTS.

THE State of Texas offers inducements to immigrants which cannot be surpassed in many respects, and are rarely equalled by any other country on this continent. These comprise excellence of climate, soil and water, agricultural, grazing and commercial advantages, and educational facilities; and in addition to all these cheap lands. The settler who comes into this State now, has not necessarily to undergo the hardships of pioneer life, as was formerly the case. He can, if his inclinations point that way, still find large areas of uncultivated pasture lands in the extreme west and northwest, where his flocks and herds may roam at will, but at least one-third of the territory of the State is about as well populated as many of the States east of the Mississippi River. Mills, gins, stores, schools and churches are met with almost everywhere, and opportunities for social intercourse are at the command of even those in the most sparsely settled neighborhoods. But a glance at the accompanying map will show what an enormous extent of fertile and productive land is still open to settlement. Within a few years past, the country west of longitude 98°, was the home alone of the Indian and an occasional hardy frontiersman, who stubbornly disputed his sway. Now the area of population has pushed westward to the 100th degree of longitude, and even beyond that. But there yet remains the "Panhandle" section, having an area of about 31,000 square miles, which is much more than an average-sized State of the Union, almost entirely unoccupied, and which has been shown by recent surveys, to be in general a very rich and fertile section, well adapted to agricultural purposes. South of the "Panhandle" and west of the 100th degree of longitude, stretches a vast extent of country, suitable for sheep, horses and cattle, and, along the streams, for agricultural purposes. The mineral wealth of a great part of this sparsely settled country, from the limited examinations so far made, is believed to be very great, and to promise, in the near future, a fine field for the pioneer prospector.

The facilities for travel, and the transportation of produce and supplies over the greater part of the State, are now ample. There are at present in operation over 3,000 miles of railway, five hundred and sixty-five miles of which were completed during the year ending September 1st, 1880. And the extension of these roads in every direction, is being rapidly and energetically pushed. No country on the continent seems to present the same attractions for railroad capital that Texas does, judging from the number of new enterprises of this sort that are being inaugurated, and the rapid extension of the lines already in process of construction.

All along these lines of road, towns are springing up, and population increasing sufficient for the establishment of schools and societies; and stores, where goods are sold at no greater advance of prices

than the cost of additional freight, are found at the railway stations, and here also the farmer finds a ready market for his produce.

The farmer is invited to a country of unsurpassed fertility and health, where upon the same land he can produce the great staples, cotton, wheat, oats, rye, corn, tobacco and sugar; the grazier, to the broad prairies or rolling uplands, where cattle, sheep and horses, feed the year round on the native grasses; the artisan and mechanic, to thriving, growing towns, where his skilled labor is in demand at remunerative prices; the capitalist, to the inauguration of the many industrial and manufacturing enterprises demanded by a vigorous and growing population. In short, the immigrant who seeks "natural advantages," can scarcely go amiss for them, and must be hard indeed to please, if in our great diversity of soil, climate and production he can find no spot to suit him for the establishment of a home.

The design of this chapter, however, is merely to introduce the subject, leaving the several attractions of the State to be especially treated under appropriate headings, but it is not out of place to add here that the utmost care has been observed throughout, in the preparation of these pages, to avoid exaggeration. It must be borne in mind that this pamphlet is not the production of an individual or company interested in the sale of lands, but a publication made solely for the purpose of attracting immigration by a truthful and unbiased statement of facts. But while its object is to set forth the inducements which Texas offers to immigrants, and invite the latter to settle within her borders, those having charge of its publication, fully appreciate that, if mutual benefits are to flow from immigration, new settlers must not be attracted by representations which their future experience will not verify. Should they be deceived they may become dissatisfied, and results may follow alike injurious to themselves and to the State. For this reason it has been deemed of utmost moment that no assertion shall find a place in these pages unless it is entirely true.

And just here one word to our own people. The people of Texas cannot be too careful as to the manner in which they receive new comers. A civil word, a little politeness, or an act of kindness, costing nothing, may be the means of favorably impressing a stranger, who, in turn, may be the cause of turning hundreds of immigrants in this direction. On the other hand, a short, uncivil answer and gruff manners will, in a measure, confirm the unfavorable reports given him by the enemies of Texas, and he returns or goes, disgusted, to other portions of the country and uses his influence against us. It would require an almost superhuman effort of philosophy for persons coming to a strange land where things are found so entirely different from their accustomed surroundings, not to feel a natural "homesickness," and when to this is added a cold and surly reception, it is not strange that sometimes disgust supervenes; and he who might have been a good citizen and a good neighbor becomes a bitter enemy. We who are "native and to the manner born" know that there is as much hospitality and kindly feeling among the people of

Texas as can possibly exist anywhere, and these suggestions are not made with the idea that immigrants coming into the State are likely to receive "a cold shoulder," but our people should see to it that such persons have extended to them not only the common courtesy due to strangers, but that hearty welcome and active sympathy and assistance that no man appreciates so much as he who finds himself "a stranger in a strange land."

LOCATION AND AREA OF TEXAS.

TEXAS is situated between Latitude 25° 50′ and 36° 30′ North, and Longitude 93° 30′ and 106° 40′ West; greatest length from the mouth of the Rio Grande River to the northwest corner, about 825 miles; greatest breadth, along the 32d parallel, about 740 miles. Area 274,356 square miles. It is bounded north by New Mexico (west of the 103d meridian), the Indian Territory and Arkansas, the Red River being the dividing line east of the 100th meridian; east by the Indian Territory (north of lat. 34° 30′), Arkansas and Louisiana, from the last of which it is mostly separated by the Sabine River and Lake; southeast by the Gulf of Mexico; southwest by Mexico, from which it is separated by the Rio Grande; and west by New Mexico. The map which is attached shows its form. As stated its boundaries enclose an area of 274,356 square miles or 175,587,840 acres. An idea of its extent may best be formed, perhaps, by comparing it with other countries; for instance, it has 34,000 square miles of area more than the Austrian empire, 62,000 more than the German empire, about 70,000 more than France, is nearly as large as Sweden and Norway together, and twice the size of Great Britain and Ireland. Coming to this side of the Atlantic the comparison is no less startling. The area of all the Eastern and Middle States, including Maryland and Delaware, is 100,000 square miles less than Texas. It is six times as large as New York, seven times as large as Ohio, four times as large as all New England. The area of Ohio, Indiana, Illinois, Wisconsin, and Michigan, taken together, falls short of that of Texas by some 40,000 square miles, or another state as large as Ohio. If you cross the Mississippi you must consolidate Kansas, Nebraska, Iowa, and Minnesota to equal the area of Texas.

This vast territory is cut up into 226 counties, some of which are in themselves quite equal in size to many of the States. The counties of Tom Green, Presidio, and Pecos are each larger than the State of Maryland, nearly double the size of Massachusetts, and nearly three times as large as Connecticut.

The territory of Texas is, in truth, of magnificent extent, and the term "Empire State of the Southwest," sometimes used in reference to it, is not inaptly applied.

GENERAL FEATURES OF THE STATE.

TEXAS is a vast inclined plane, with a gradual descent from the northern and northwestern boundary to the Gulf of Mexico. The coast counties are nearly level for sixty to eighty miles inland ; the surface then becomes undulating, with alternate gradual elevations and depressions, and this feature increases as we proceed toward the northwest, until it becomes hilly and finally mountainous in some of the far western counties. The highest ranges, however, do not attain a greater altitude than 5,000 feet. In the coast counties the soil and climate are especially adapted to the culture of sea-island cotton, tobacco, rice, sugar, and many semi-tropical fruits and vegetables. Nearly all this level coast country, from the Sabine River on the east to the Rio Grande on the west is prairie, only broken here and there by "motts" (isolated islands) of timber, or the bottoms of the streams. Over these vast prairies countless thousands of cattle roam and keep fat the year round on the natural pasturage.

The eastern portion of the State, or that east of the 96° of longitude and north of the 30th parallel of latitude, comprising about forty counties, is heavily timbered, and from this section are drawn nearly all the immense supplies of pine lumber required in the prairie portions of the State. The natural resources of this section are varied. In it are vast deposits of iron ore of excellent quality. Large crops of cotton, corn and other grain are grown in its valleys, and its uplands are noted for the production of fruits and vegetables. It is generally well watered by pure streams and fine springs, and everywhere wells of the best drinking-water are found at moderate depths.

Central and Northern Texas, though generally a rich rolling prairie country, are by no means devoid of sufficient timber for ordinary purposes, its numerous streams being fringed with a large growth of forest trees. It is also traversed by the upper and lower "cross timbers," an extensive belt of oak, elm, and of other timber, beginning on Red River, in Cooke and Montague counties, and running in a southwestern direction diagonally across the State, nearly to the Rio Grande. Western and Southwestern Texas are the great pastoral regions of the State. The surface is generally a high rolling tableland, watered by numerous creeks and small streams, but with little timber, except along the streams and on some of the hills and mountain regions of the western part, where forests of cedars, mountain juniper, oak, etc., exist.

The luxuriant growth of rich native grasses found in this section renders it pre-eminently a stock-raising country, and as such it is unexcelled by any other portion of the continent. The precious metals and other mineral deposits are known to exist in this section of the State, and it is believed their development will be rapid and successful as the country becomes more accessible, when the railroads now in process of construction shall have been completed.

NATURAL DIVISIONS OF TEXAS, SOILS, PRODUCTS, ETC.

TEXAS divides herself naturally into six grand divisions, each differing from the others in a marked degree in physical features and soil, and to a less degree in climate and productions.

These natural divisions are: 1, South Texas ; 2, East Texas; 3, Central Texas ; 4, North Texas ; 5. West Texas; and 6, the Panhandle.

SOUTH TEXAS.

This division embraces that portion of the State lying along the Gulf of Mexico and reaching from 20 to 100 miles into the interior. It is a vast plain, sloping with a scarcely perceptible descent to the Gulf ; for the most part treeless, except along the streams, where it is heavily timbered. Islands or motts of timber occur also frequently on the plain, of small extent, consisting mainly of elms and live-oaks. These "islands" serve not only to give fuel and building-sites to the ranchmen, and shade and protection to the herds of cattle and horses, but add a singular beauty and amenity to the scenery. The limbs of these trees droop with the long gray moss so characteristic of the semi-tropical forests, and so valuable to the upholsterer. The plain is covered at all seasons with a great variety of rank-growing but nutritious grasses, and, during spring, wild-flowers of almost every conceivable form and bloom please the eye and fill the air with fragrance.

This great plain is, with a few local exceptions, of the most recent geological or post-tertiary formation. It may be strictly called alluvial. It has been formed from the drifted materials of the regions contiguous to it on the north, from the rich mineral sediments of the great rivers which empty into the Gulf, from the shells and sediments of the receding sea, and of the decaying vegetable matter which has been mingling with these for ages.

On this alluvial plain of Texas, perhaps the richest lands in the world occur. Certainly it is not possible that any lands can be richer. This is easy to say, but it is also easy to prove. Let us take the valley lands, often ten miles in width, lying along the lower Brazos, the Colorado and Navidad, and along the whole course of Oyster Creek and Old Caney. From what are those lands derived? From decayed vegetation, mixed with the drift of the surrounding country ; the earthy sediments of the rivers and the rich mineral matters brought down by the rivers from their sources, and all along their courses. And what are those mineral ingredients brought down by the rivers? They are sulphate of lime, derived from the great gypsum beds in which the Brazos and Colorado have their sources ; muriate of soda derived from the salt plains through which they pass ;

carbonate of lime, from the limestone mountains and hills; magnesia from the magnesian limestones; phosphates from the granitic rocks, and oxide of iron from the permian rocks; and the great beds of iron ores which are frequent along the upper courses of these rivers and their tributaries. Thus we have a soil already rich in decayed vegetable matter, thoroughly permeated and impregnated with sulphur, lime, soda, magnesia, salt, phosphates and iron.

These are the mineral ingredients which supply the richest and most indispensable plant-food. Let the agricultural chemist answer the question, if there can possibly be a richer soil than that which is composed of such materials, and so thoroughly supplied with such ingredients?

The depth of these valley soils is something which no man has yet found out. The writer of this has often had opportunities to examine the soil at depths of 20 to 30 feet, and he could scarcely detect a difference between the soil at that depth and that at the surface. They are therefore literally inexhaustible in their plant-producing power. If the successive crops take away a part of these rich mineral ingredients, the fat soil restores them from below; and, in addition to this, when the rivers overflow their banks, which they often do, the slow moving waters spread over the valleys and leave a thick deposit of the same mineral ingredients. It has often occurred that during these overflows, which have never been known to be so violent as to do injury, the deep depressions between the rows of cane on the plantations have been entirely obliterated by this rich sedimentary deposit. We can often see in the works of nature, a motive power and a restraining power to do good, and this seems one of the most striking instances of that sort. Suppose the waters during these occasional overflows, swept violently over the valleys. They would not only bear their own sediment to the sea, where it would do no good, but would denude the valleys of that which they now hold. But instead of sweeping violently onward, the invading waters move with a slow, scarcely perceptible motion, and instead of taking away, they give all of that which they have.

Thus it may be said that these lands manure themselves; or rather, that perhaps a too beneficent nature steps in and does the manuring for the planter!

The Nile has made Egypt famous for her fertility for ages. The Brazos and Colorado bring down richer sediments than the Nile.

The soil of the prairie lands of South Texas can scarcely be said to be so rich as that of these valleys; yet it consists of the same ingredients to a less degree, and is rich enough. Give the prairies thorough drainage and deep tillage, and they are scarcely less productive than the valley lands. The writer of this has been cultivating such lands the past thirteen years, and he knows that when well treated he would not wish for a more generous and productive soil. But drainage is the great point; without that it is useless to cultivate them, except in seasons when the rainfall is unusually small.

In another part of this publication appears an article on the Alluvial Plain of Texas, in which the matter of drainage, etc., has been particularly discussed.

In the valleys the soil is generally described as of a "chocolate" color; on the prairies it is of a black, tenacious nature, except east of Buffalo Bayou, where much sand is present, giving a lighter color and looser texture

THE PRODUCTS.

The staple products of the soil of South Texas are sugar-cane, cotton and corn; and all manner of vegetables flourish exceedingly. This district, if all cultivated, could easily supply all the sugar and syrups needed in the United States, and still leave a surplus for exportation. The sugar-cane is the most favorable industry of the field. It is a crop which rarely or never fails, and the yield is from one and a half to three hogsheads of sugar to the acre, and from two to six or seven barrels of molasses. In times of slavery the planters used to say that the molasses would cover all the expense of the crop, and that the sugar was all clear profit. It is likely that this was not far from the truth then, but it is not true now. But, be that as it may, there is no question that in sugar-planting there is much money. You will never see a sugar planter of industry and intelligence, and nearly all of them are men of this character, who is ever *seedy*, or even at a loss for plenty of pocket change. They are the nabobs still.

Cotton in favorable seasons may be stated at a bale to the acre, with a great part lost on the ground for want of prompt picking. Corn may be stated at 40 to 80 bushels according to the cultivation given it. As it is a mere side issue in this rich region, so abundant in other resources, it rarely receives the attention it deserves. Rust-proof oats yield from 50 to 100 and more bushels to the acre on the prairies. It is the only forage grain, except corn, that is grown in this section. But many forage grasses, such as millet, etc., are grown.

Rice has been grown experimentally and gave very satisfactory results. There is no doubt that the revenues of this region might be largely increased by the cultivation of this grain; nor is there any doubt that it will in time become a very important crop.

Of fruits, pears of the French seedling varieties do remarkably well and attain a great size; also the early peaches, but the later peaches and the apple have not yet proved successful. The native Southern grapes, such as Scuppernong, Herbemont and Lenoir, are at home, never suffer from disease, and yield abundant harvests. Likewise the fig, which in this region often appears as a tree instead of a shrub, as in other portions of the State.

TROPICAL FRUITS.

It has been established that the orange may be grown in the tide-water district of South Texas with as much success as in Florida, and in quality the fruit is by no means inferior to the best Florida

oranges, which in New York bring the highest price. There are thousands of orange trees now in full bearing in this district, and it is the observation of the writer of this, who has had considerable practical experience in this culture, that after the trees have reached the bearing age and once borne fruit, they are safe from injury from any degree of frost which has been known to visit that region. In December of 1879 the mercury fell in Houston for two or three days in succession as low as 18° above zero, and the result was that while the young trees, which were not protected, were cut down to the ground, the old trees which had borne fruit were either wholly uninjured, or escaped with the mere scorching of a few of their tender shoots.

The new settler should not fail to plant at least a few orange trees about his house; for while yielding their delicious fruit, they are certainly also a thing of rare beauty. There is nothing so beautiful in all the vegetable world as an orange tree in bearing. The contrast between the hundreds of golden fruits and the dark, glistening evergreen foliage is most striking.

The lemon also succeeds in the tide-water district, but is not so sure as the orange. It is more tender. It is held by many that the banana will prove a success, and many are growing a few plants, but the results remain yet to be seen. The guava flourishes on Galveston Island and perhaps other points along the coast.

TRUCK FARMING.

With special facilities of transportation by the railroads, this region of Texas should be a very remunerative one to the truck-farmer. The land is so admirably adapted to the production of vegetables, melons and berries, and they ripen at so early a date. Thus strawberries become abundant in February, when the Northern fields are frozen as hard as stone; dewberries in March; potatoes in March and April; green-corn in May and June; tomatoes in June; sweet potatoes in June; cabbages, cauliflower and celery from November to March. All of these are at seasons far in advance of the Northern farmers. The railroads take great interest in developing this industry, and when the truck-farmers become numerous enough to make the trade an object, doubtless very low rates of transportation will be given.

It is not uncommon for three crops of potatoes to be made on the same land in this region in one year. Thus, Irish potatoes planted in January mature in March, and are out of the ground in April; then sweet potato slips being planted, the crop is out of the ground in August, or about the first of September; then plant Irish potatoes again, and they are matured and gathered in November. Then, if you choose, plant early cabbages or peas, for spring eating, and you have almost four crops in one year, from the same land, instead of three.

THE GULF COAST AS A RESIDENCE.

The Gulf coast of Texas, especially along Galveston and Matagorda bays, is peculiarly attractive as a place of residence. Winter can scarcely be said to exist in that region, as the mercury rarely falls below 40° Fahrenheit, the winter average being much above that figure. The summer is tempered by a continual brisk breeze from the sea, which always restrains the heat within comfortable bounds. So much so is this the case, that the Gulf coast is indeed a delightful summer resort. It may strike the observer as somewhat curious, yet if he will consult the daily meteorological reports of the U. S. Signal Service, he will usually find that it is much cooler on the coast of Texas in summer than in Chicago, New York and Boston. It is owing to the constant breeze from the Gulf. The nights are so refreshing that it is usually pleasant to seek the comforts at least of a quilt. In addition to the attractions of the pleasant *climate*, if the resident have a mind for sport, the waters swarm with gamy and toothsome fishes, among which the red-fish, the sheepshead, the flounder, the whiting, the sea-trout, the pompano and the Spanish mackerel may be mentioned; and during the fall and winter he cannot go amiss for geese and ducks. To procure a supply of oysters, he need only hoist the sails of his pleasure-boat and sail a little distance into the bays. He can soon obtain his surfeit. It is the paradise of the sportsman and the epicure. Two thriving cities, Galveston and Houston, are near at hand, to which he can readily resort in his own craft if he choose, to sell his products, or to take in the pleasures and follies of city life.

METEOROLOGY.

This district of Texas, being situated just on the verge of the tropics, its meteorology naturally assumes much of the tropical features. Sometimes a purely tropical condition prevails for months. Thus the tropics have a distinctive wet and dry season. The tropical wet season frequently invades South Texas, and "holds the fort" precisely as it does in its native land. It then rains in South Texas nearly every day, sometimes two or three months in succession. This rainy season sometimes comes on as early as July, but generally not until September or October. As in the tropics, the rain falls in the day, the clouds clearing away in the evening, followed by a brilliant sunset and a night resplendent with stars. The next morning the clouds come again, and the same story is repeated day after day, week after week. There is no regularity in these tropical visitations. They have sometimes been known to be absent a number of successive years, but they may be expected any year. For some years they have been the rule, only missing a year now and then. The present year—1880, they came in July, and at this writing, September 30, there is nothing to indicate that the work is done.

It is a little remarkable that this distinctive tropical rainy season

hardly ever extends beyond the alluvial plain of Texas. The upper edge of this plain seems to be the uttermost boundary of the tropics. Yet while it prevails over the plain, it produces atmospheric disturbances in the adjacent regions, and rains are then frequent all over the State, some of them so heavy as to appear almost phenomenal.

They are often succeeded, but not always, by the distinctive dry season of the tropics, and it is in such years that the crops of the alluvial plain are most abundant. So rich are the unctuous lands that when well cultivated they do best with very little rain. During such seasons the cotton worm never comes, and the cotton planter rejoices. Thus it often happens that when other portions of the State may be suffering from drouth, the alluvial plain is putting on her very best airs.

HEALTH.

Nearly all coast countries are healthy, and that of Texas is pre-eminently so. In the rich timbered bottoms, however, particularly where there has been great and continuous rainfall, there must be and is, an unhealthful exhalation of carbonic acid gas. It is not therefore well to dwell in these bottoms at any time during a very wet season, and even in a dry season it would be better not to sleep in them from June to October. The better plan is to have your residence on the open prairie. There you are safe from the exhalations of the fat carbonaceous soil, and if you have the land about your house well drained, you can have as good health as anywhere else in the world. The brisk breezes from the Gulf will always keep you supplied with the purest air. In addition to this, drink water from the clouds caught in cisterns ; and cisterns above ground are the best, because they cannot be percolated by the water from the soil. This was the plan of the planters before the war. Nearly all of them had their residences on the prairie, within easy access to their plantations in the bottom ; and no people ever raised prettier daughters and handsomer sons than they. It is entirely healthful at any season to spend the day in the bottoms.

After being thoroughly seasoned or acclimated, the white man can stay in the bottoms all the time and enjoy good health, but the stranger may find the process of acclimation inconvenient and sometimes dangerous. The negroes seem to be peculiarly adapted to the bottoms, and are hardly ever sick.

Immediately on the coast or on the high prairies, there is hardly any sickness at all, except that which may be brought on by imprudence, there as well as elsewhere.

Even at the worst, the types of the diseases common to South Texas are not severe. They consist for the most part of chills and fevers, and intermittent fevers in summer and fall, and pneumonia in winter. The low typhoid fever so destructive in other States, is almost unknown in South Texas, and when it does occur, is of so mild a form that it never kills. Yellow fever has not visited the cities of South Texas since 1867. It has never spread among the rural population.

POPULATION.

This region is for the most part as yet but sparsely populated. The richest lands in the world may yet be had at very low figures, and generally on plenty of time to make the payments entirely convenient to the poorest. Immigrants are wanted, and they cannot find a nobler field.

EAST TEXAS.

This division of Texas embraces the territory east of the Trinity River as far north as the northwestern corner of Henderson county ; thence the imaginary line runs northeast to Red River. The lower portion of this district, from the Gulf to thirty or forty miles inland, more properly belongs to South Texas, or the Gulf or alluvial plain. It is distinctly marked from all other divisions of Texas, in that it is a district in which timbered lands largely prevail. Indeed, in several of the counties of Eastern Texas there are no prairies whatever, and in none of them are the prairies extensive. It is the great timbered region of Texas, and indeed, there are few regions anywhere which can excel it in the quantity, quality and variety of its timber. In some districts the pine prevails almost exclusively on the uplands; in other regions the pine, of gigantic growth, is mixed promiscuously with white-oak, cypress, magnolia, hickory, pecan, cedar, and a vast variety of other timber. The pine is the "short-leaf" and the "long-leaf;" the latter predominating in Hardin, Tyler, Jasper, Newton and most of the counties along the Sabine. The "short-leaf," but of an excellent variety, containing a very large *fat* "heart," prevails on the uplands of most of the other counties of this district. Although hundreds of saw-mills along the lines of the railroads are engaged in cutting this timber, the immense forests may as yet be considered almost virgin. Immense areas of these forests have never yet been touched by the log-cutter. It is the great region from which the vast prairies of Central, Western, and North Texas receive their supplies of lumber, and, doubtless, before long it will be largely exported to other portions of the United States, the West Indies and Europe.

All that delays exportation now is the want of a deep harbor convenient to the timbered region. Sabine Pass is probably capable of being made one of the best harbors on the Gulf, with little expenditure. When this expectation is realized, railroads will rapidly penetrate the pine forests from that point, and the lumber exportation will begin.

In addition to its forests of pine, Eastern Texas also abounds in white and red cypress, which heavily fringe most of the streams, and cover almost every swamp and low tract. While this tree is quite as easily accessible as the pine, its lumber usually commands a much higher price. It is used almost exclusively for shingles, and entirely so for barrels and hogsheads for the sugar planters. The white-oak

also abounds in most of the pine districts, especially in the valleys, and this furnishes a superior lumber for staves and cooperage. In an extensive district of country known as the "Big Thicket," extending through Montgomery, Liberty, San Jacinto, Polk, Hardin and other counties, this grand forest-tree is everywhere conspicuous for its enormous size. They are frequently found from six to seven feet in diameter. They are yet hardly utilized at all, the flour mills even of Houston and Galveston sending to St. Louis for their barrel stuff. A few cooperage factories would put an end to this, and at once build up a large business. If the home market should be stocked, England, which has to buy all her barrel stuffs from foreign countries, would doubtless be glad to take the surplus at remunerative prices to the manufacturers.

Cedar of very large size is also found in nearly all parts of Texas. The magnolia would doubtless furnish a very superior lumber for cabinet work, but is not readily taken to by the mill-men, owing to the great stubbornness with which it resists the saw. Often this superb tree is found in large tracts extending over miles, almost to the exclusion of other sorts. These groves, or forests, in spring and summer, when the trees are loaded with their gigantic flowers, are remarkable for their beauty and sweet perfume, which sometimes loads the air to such an extent as to be almost oppressive. The Houston and New Orleans railroad passes through one of these great magnolia forests on the west bank of the Trinity near the town of Liberty. The lumber of this wood is quite as fine-grained as mahogany, and takes a silk or "satiny" polish, and is very durable.

Black walnut and mulberry are also among the valuable forest-growths of this great timbered region of Texas. Indeed, the lumberman in this region has a very various and extensive group to select from. It would be difficult to give a bill of lumber which he could not readily fill.

The general face of the country in Eastern Texas is rolling, the swells becoming higher as we move to the north, but there are no mountainous districts, or even semi-mountainous. The highest elevations occur in the iron districts of Cherokee, Smith, etc.

The soils of this district of Texas are, of course, very various, but it may be said that the arenaceous character prevails throughout. All the soils may be classed as a sandy loam or sandy alluvial, with the exception of a very few localities where the "black sticky" prevails, but not nearly so black-sticky as in other portions of Texas. The sandy loam is of two sorts, the red or "mahogany" and the gray, of which the red or mahogany is generally more prized. This should not be confounded with the distinctive Red Lands of Houston, San Augustine, etc., which will be fully discussed in remarks on those counties. Yet these mahogany lands differ from the red lands only in degree. They are both substantially of the same basis and nature, containing much oxide or carbonate of iron, gypsum and some phosphates. They are very strong and under anything like decent cultivation produce the most satisfactory and abounding crops. The gray lands differ from the red or mahogany

only in that they have not been infiltrated with iron and have less gypsum. Beneath both of these, from six inches to two feet below the surface, is a red clay subsoil, which furnishes a robust fertilizer in case the surface soil has been worn by tillage.

Of the alluvial soils of the rivers and creeks it is not necessary to multiply words. Their rich and inexhaustible nature is well enough understood. If there can be discrimination in such lands, perhaps the cane-brake lands, which are common on the Trinity bottoms, might be said to be the richest, but we can give no definite reason why they should be so. Perhaps it is a mere fancy of the people. But certain it is that these cane-brake lands are wonderful in the production of cotton, sugar and corn. And so are all the rest of the alluvial bottom lands. The alluvial lands of Eastern Texas are generally black, everywhere appearing amid the uplands of the Red Lands. They owe this to the great quantity of carbonaceous or vegetable matter rotted into them.

The great staple crops of Eastern Texas are cotton and corn, but latterly the Trinity River bottoms, in some counties, are being put to great account in the production of sugar-cane. Lands which were supposed to be too far inland to be available for this crop have been found to turn out equally as well as the famed bottoms of the Brazos, Oyster Creek, Old Caney and Colorado in Brazoria, Fort Bend, Matagorda, Wharton, etc. In the upper portion of the district, wheat does very well in some localities, and oats do well almost everywhere, producing a very large yield. The whole district, particularly in the red lands and mahogany lands, is doubtless admirably suited to tobacco, and this plant has been found to do very well wherever tried; but tobacco-growing has not yet become an industry in Texas. It is one source of revenue to the agriculturist which yet remains to be tapped. In Tyler and Montgomery counties they have been raising a very fine grade of tobacco for years: but the industry is yet limited in those counties, and has hardly gone beyond their borders. The negroes raise little patches about their cabins almost everywhere, for their own use.

One of the most successful occupations carried on in Eastern Texas is fruit growing. The red and mahogany lands are especially suited to this industry. No finer peaches or pears are raised in the world than those which the Eastern Texans grow. Indeed, we question if there is a peach grove anywhere which surpasses the "Chinese Cling" of that region in flavor, beauty and size. Perhaps the iron in the soil is the main ingredient which makes the country so favorable to the peach, that fruit being especially fond of that metal. The southern varieties of grapes, or any of the natural order *Vitis æstivalis*, are grown with much success. The almond, both the soft-shell and hard-shell, are grown quite as successfully as the peach. Wild grapes of many varieties abound everywhere in the woods.

This region is rarely or never visited with damaging drouths. The seasons are equable, subject to as little fluctuation as in the most favored regions. The general health is good, except in the

deep bottoms, and in these it is no more unhealthy than such localities generally are the world over.

For more particular account of East Texas, see descriptions of counties.

The only minerals known to exist in East Texas are iron ores, which abound, lignite, gypsum, asphalt and salt.

On the whole, and considering all things, East Texas presents to the poorer class of agricultural people, who have to depend upon their own labor for subsistence, peculiar advantages. The soil is rich, friable and easily cultivated, very productive in fruits, vegetables, corn, cotton, and indeed all the cereals of the latitude. Near at hand is timber for building and fencing—these same forests afford ample food in the shape of acorns and nuts for the farmer's hogs; good water is abundant and easily secured. The prairie country may be the most beautiful and attractive, but it is not so desirable a country for the man of very slender means.

Good land can be bought for less money in the timber region, and the timber, instead of being an annoyance, becomes a source of profit. With his axe the poor man literally hews out his own fortune. Buying one hundred acres of land at three dollars an acre, one-third cash and the balance on ample time, he pays only one hundred dollars on his land the first year. With his axe he cuts the logs, out of which he builds a neat and comfortable house. With his axe he splits out the boards with which he floors, and if he pleases, covers his house. He does the same for his stables and sheds. While clearing the land for cultivation, he thus not only obtains the material for his house, and other buildings, but he cuts the timber out of which he splits the rails with which he fences his land. In addition to this, he has a permanent and abundant supply of fuel, without any expense, and if near the railroad, can usually sell wood and ties to the railroad company, and thus easily obtain some ready money. Thus the poor man, with only four or five hundred dollars, can safely buy land and commence farming in the timber region. Usually the timber land is easily cleared and put in cultivation. Many a man has built his log cabin and cleared and fenced a field of ten or fifteen acres in from fifty to sixty days, with but little extra help. There is no intention here to underrate the prairie country, but the desire is simply to state the facts as they exist, and to show men of small means the extraordinarily favorable opportunities open to them in the timber region of Eastern Texas. When to the advantages already enumerated of the timber country over the prairie country are added the facts that the timber country is much the best watered, both as to springs and streams, and further, that the water is of the soft freestone kind, against the hard limestone water of the prairies, that the seasons are more regular, and that it is a better region for the growing of fruits and vegetables, it will be apparent that the solid advantages of the timber country have been overlooked by those who form an opinion of a country merely by what they see from the window of a car.

CENTRAL TEXAS.

This, the third grand division of Texas, extends from the Trinity River on the east to the Colorado and the 99th degree of longitude on the west; and from the 32d parallel of latitude on the north, to the Alluvial Plain on the south.

This is Central Texas as commonly defined, but the boundaries are arbitrary, and from a physical aspect not strictly correct. The real northern boundary of this division of Texas as marked by nature, would be described by a line running southwest from a point on the Trinity River in Navarro county, to a point a little south of Austin on the Colorado River, thence down that river to the Alluvial or Gulf Plain.

These lines would include a territory homogeneous, or nearly so, in geological formation, in soil, climate and products, and quite distinct in many features from all other portions of Texas. Physically and geologically speaking, Central Texas is of the tertiary formation exclusively—eocene and miocene—but under the arbitrary lines which have been adopted for convenience, it includes a large scope of cretaceous, a good deal of carboniferous, and some primary between the two last. It therefore offers a great diversity of scenery, soil and products; and all (except the latter) differing remarkably from Eastern Texas; the grand division which we have just left. These points of difference will be observed as we proceed.

Starting from the Gulf Plain, the territory immediately begins to ascend, first by slow gradations and very gentle undulations. Moving still farther north, the elevation becomes more distinct and rapid, and the undulations bold and prominent. This condition increases and intensifies until we reach Austin on the west of the line, where we enter a region of highlands and valleys, which as we move northward assumes a somewhat mountainous aspect. The distance from the Gulf Plain to Austin is about 150 miles, and we find that the elevation above the sea has risen above 600 feet in that short distance, or about four feet to the mile. In the eastern portion of Central Texas the region of easy ascents and undulations extends much farther northward, and on that line no such elevation as that about Austin occurs. The rapid elevation as we approach Austin, is due to the cretaceous formation, which from that point westward rises above the region southward much after the manner of a rampart. In all that region, also, the cretaceous seems to have received a sharp upward movement after the eocene had been deposited, carrying the latter along with it.

This easy undulating or rolling aspect is characteristic of all the eocene territory of Texas. There are undulations in the older formations above the eocene, but they are stony, shaggy, and more abrupt. The undulations of the eocene are more sea-like, soft and gentle, sometimes rising into great swells of exceedingly graceful features, and do not generally expose stones on their flanks and summits. Where these great swells occur they are due to the uplift-

ing or upheaval of the cretaceous beneath them, and it may be calculated with a good deal, if not absolute certainty, that if dug into they would soon disclose large quarries of a splendid white limestone. The eocene as developed on the prairies of Central Texas, is a region of great gracefulness and beauty.

The stone, where it exists in this portion of Central Texas, or that below the line running from the Trinity River in Navarro county to a point on the Colorado not far south of Austin, is nearly always a sandstone, usually too soft for building purposes; but still at many places quarries of a very valuable and compact sandstone are found. In the upper portion of this district, embracing the counties of Freestone, Limestone, Robertson, Lee, Bastrop, etc., a hard stone composed of limy clay and sand, thoroughly infiltrated with and colored by oxide of iron exists in large quantities, easy to quarry and excellent for building purposes, but buildings constructed of it present rather a sombre appearance for a region partially tropical in its nature. Some limestone exists at the surface in this great region, but it is soft and of little use except as a fertilizer.

The rocks being known, the predominating soils are not difficult to state, since the soils are essentially derived from the rocks. It would naturally be supposed that arenaceous soils prevail in the tertiary, which embraces all that portion of Central Texas which we are now considering. And such is the fact, but to a less degree than in Eastern Texas. In Eastern Texas the soil is generally of a reddish cast; here it is a dark or black sandy loam, very productive and easy of tillage. The tillable land is not confined to the valleys or lowlands, but covers all—valleys, undulations and hills alike. Perhaps there is no other portion of the globe, except the Alluvial Plain of Texas, where every square inch is rich, where the untillable lands constitute so small a proportion of the whole as this tertiary region of Central Texas. We think we are entirely within bounds when we state that not over three per cent. is untillable. Perhaps the proportion would not reach even so much as that.

Let us take Washington county, which is a fair representative of this portion of Texas. It lies about a hundred miles from the seashore. It is a county of rolling prairies, belts of post-oak, and heavily timbered bottoms. The timbered area may occupy about a fourth of the whole. The traveller over this county is continually struck with the graceful beauty of the landscape, and praising the never-ceasing fertility, he rides on and on, seeing nothing but the richest soil beneath his feet, and asks in admiration, "Where will this fertility end? When shall I see a little poor land?" He observes that the crops grow equally as well on the summits of the undulations and on their flanks as in the valleys. Through the foliage of the growing crops he sees the soil of the prairies everywhere of an almost jet black or brownish color, and in the valleys or bottoms he sees the "chocolate" of the alluvial. He wonders how these richly colored soils can contain sand as a considerable ingredient; but he takes up a handful of earth almost anywhere and detects that it is the case.

A black sandy loam, filled as this is with carbonaceous matter, is a most charming land to cultivate. It works "sweetly" both in dry and wet weather.

In the belts of post-oak, our traveller finds the soils usually less rich in color, and more arenaceous, yet they are still productive. Often in these post-oak belts, extensive tracts of a remarkably rich soil occur. They are usually slight depressions in the midst of these belts, often assuming a linear shape and running many miles. The soil here is again a jet black, a color derived from the washing in of the finer material from the more elevated tracts contiguous, and from the decayed leaves and other vegetation. Such tracts as these in the post-oaks are admirable seats for a farmer's residence, particularly if he be fond of raising hogs as well as cultivating the soil. The grunters here grow enormously fat on the free offerings of the post-oaks, and need scarcely any corn except to gentle them and "harden their fat" at killing time. If their fat is not thus hardened, the lard is very sure to be of an oily consistence, like bear's lard.

As you behold Washington county you see in it nearly the whole of this portion of Central Texas. The two are but the same, more or less.

The staple products of this portion of Central Texas, by which, let us state again, we mean all below the line running from the Trinity in Navarro county, to a point on the Colorado, a little below Austin, are cotton, corn, oats, millet, etc. Such a soil is very superior for potatoes and all root crops. In the upper portion of this district wheat is grown, but it is a very variable crop. Often it yields in great abundance, but perhaps more generally it totally fails. It is liable to be attacked by rust, caused by the too rank growth, and utterly destroyed. Again, this crop requires a good deal of lime in the soil, and the arenaceous soil of Central Texas, like most arenaceous soils everywhere, does not in general contain enough lime to help wheat on to a healthy development. Perhaps some variety of wheat will one day be found which will be thoroughly suitable to this rich region.

We believe that, probably, such a wheat has now been found, though the experiments with it, while for the most part highly favorable, have not yet positively established it to be so. This is called the Nicaragua wheat. It is a very large-grained and handsome wheat, has escaped rust, while other varieties in the same field were destroyed, and turns out from 20 to 50 bushels to the acre. Yet it is so fearfully hard that the millers make a great fuss about it; say that they can't grind it without great trouble; that at best it makes a very dark flour; and, lastly, that it is no true wheat, but more of a rice. They have done all they could, in this way, to discourage its production; and to a great extent they have disheartened the farmers, and many of the latter have thus been compelled to feed their wheat to stock.

The truth is that this wheat is by no means a bad one for making bread. It makes a dark but very healthy and nutritious bread. The trouble is that the Texas millers, with perhaps a single exception in

the State, have not the proper machinery to handle it aright. We have eaten bread of it which was excellent, though robust and dark. If it continue to prove as favorable to the soil of South-Central Texas, as it has so far done, and the millers will prepare to grind it properly, it will undoubtedly be a great boon to the country. So far we know of nothing against this wheat, and all that is in its favor.

The fruits and grapes of this portion of Texas are scarcely, if at all, inferior to those of Eastern Texas, which has already been discussed.

This region is finely watered. The Trinity, Brazos and Colorado flow through it, and their numerous tributaries extend over it in every direction. Health and climate may be readily inferred from the general features and the elevation. Its prairies feed immense herds of cattle and horses on the wild grasses.

It is the most populous region of Texas.

The only minerals of importance in South-Central Texas are iron ores, immense beds of hard coal, and at least one large deposit of a very pure kaolin. These will be more fully treated under the heading, Texas Minerals, etc.

NORTH-CENTRAL TEXAS.

This division of Central Texas, includes all above the line running from the Trinity River in Navarro county to the Colorado near Austin.

Crossing this line going north, we enter a totally different region physically, and to some extent in productions. It is a lofty region of highlands, sometimes assuming mountainous phases, of deep valleys, and immense rolling prairies. The highest swells on these prairies are capped and flanked with stone, and sometimes they rise into isolated mountains, so called, or groups of mountains. Often a solitary mountain looks over an immense area of rolling prairie. Sometimes two stand side by side. Sometimes they are scattered singly in a very promiscuous way. It is not necessary to add after this, that this is a region of very varied landscape, and nearly always of beauty. In spring and early summer, when vegetation is all green, it is particularly beautiful.

For the most part this region is of the cretaceous formation, in which limestones are the only rock. In Burnet and Hamilton there is an outburst of granitic rocks in the midst of the cretaceous, a dozen or more miles in width, which crosses the Colorado and extends westward toward the Rio Grande, and probably crosses that stream into Mexico. Above this granitic region the cretaceous appears again, and rolls off northward, with its highlands and prairies, until it meets the carboniferous and permian. It is a region of numerous rapid and sparkling streams, well stocked with excellent and gamy fishes. It is a region of short, sweet, nutritious grasses, unsurpassed for sheep and horses. The valleys and lowlands have ranker and taller grasses, and on these the cow delights to graze.

The country here has ceased to be the region of plantations. It is distinctively the region of the farmer and stockmen.

The soil of this varied region is nearly altogether a very strong "black-waxy" soil, charged with lime and having very little sand. Indeed it is often difficult to detect the presence of any sand whatever. Such a soil might readily be expected from the prevailing limestone rocks. In the valleys, particularly along the great rivers, the peculiar "chocolate" of the alluvial prevails.

Here we find the famous "hog-wallow" prairies. They are so called from the multitudes of small saucer-like depressions which characterize them. These depressions are from two to five or six feet in diameter, from a few inches to a foot in depth, and usually very close together. They are usually in valleys, but sometimes found on the summits of the highest hills or undulations, where they have a level surface. The explanation of these "hog-wallows" would lead into speculation, but they have very much of the appearance of a swamp that has been drained. It is not improbable that the hog-wallow prairies were once low depressions of the surface covered by water, and that the land was afterwards elevated, and thus drained. The soil of them is always about as black as tar, and after they have been subjected to a good rainfall it is about as sticky, and not very far from the consistency of tar. "It sticketh closer than a brother." It is very inconvenient to walk over a plowed field on a hog-wallow prairie after a rain. The weight of one's feet increases with every step, until the bulk has grown so large that it may not be readily transported. It is a noble soil for production. Though difficult to be reduced to a state of cultivation, yet when once subdued, it is very willing to remain so; and no other soil is likely to prove so generous to the farmer. It has a remarkable faculty for resisting drouth. Indeed, if it be deeply plowed at the start, and then well tilled, it will resist successfully the severest drouths we have ever had in this portion of Texas. The crops will luxuriate in vigor and green foliage on the hog-wallows, when those around them are starving for a drop of water. We would recommend the new settler to secure some hog-wallow on his possessions, if he can do so. He will find it, if he will use it well, a fast friend who will never deceive him. Such possessions are now very easily secured in Texas, for the average Texan, though he knows how rich the hog-wallows are, refuses to touch them, giving as an excuse that they are too hard to break up, and that he has plenty of land that he can plow with one mule or a poor grass-fed pony, and that he can get along very well without the hog-wallow. He throws away his best friend. Let the new-comer not imitate him.

The eastern portion of North Central Texas is not so elevated as the rest, and there are few bold prominences. The counties of McLennan, Bell, and Williamson for the most part, are easy undulating prairie and woodland, and have soils less black and sticky, but of a very productive nature. They appear to have been originally a level district of the tertiary age, which was afterwards elevated by undulatory movements from below; that the tertiary deposits were

then for the most part stripped off by denudation, and the cretaceous again brought to the surface. Their soil shows a close intermixture of the arenaceous of the tertiary and the "black-waxy" of the cretaceous.

This is a favorite region for wheat, the soil being precisely that which wheat most delights in, and the elevated dry air exactly suited to bring it to the best maturity. It is equally adapted to cotton, corn, oats, barley, etc. It is a surpassing grape country, excellent for pears and good for peaches.

It is well timbered. All the creeks and rivers are heavily timbered on their margins with various kinds of oaks, hickory, pecan, elm, ash, cherry, sycamore, plum, cottonwood, gums, etc. Extensive belts or forests of post-oak are frequent, and the mountainous regions are usually covered with immense brakes of cedar. There is nothing wanting in this region to make human life contented and happy.

The minerals are marble, superior limestone, granite, soapstone, gypsum, salt and coal in the northern part. Sulphur springs are numerous. There are none finer in the world than those of Lampasas in the county of the same name.

NORTH TEXAS.

This division of Texas embraces the northern part of the State from the line of Eastern Texas to the 99th degree of longitude on the west.

It is at present building up more rapidly than any other part of the State, and seems destined to become in a short time the seat of great population and power. Several circumstances point to this conclusion; first, in the inherent adaptability of the country to such a condition, nearly all of it being fertile and productive, and all healthful and beautiful; and second, in the rapid development of railroads, which are making all parts readily accessible and giving cheap transportation. It is already pierced and flanked by railroads, and several new lines are getting in readiness to start. The rapid advance of North Texas is one of the phenomena of our American civilization. In many counties it has increased hundreds per cent. in a few years. And still the tide flows in. And still its great area is not occupied; perhaps not an eighth or a tenth. There is abundant room for many hundreds of thousands more. And North Texas is wide awake to the importance of filling her great untilled spaces. Perhaps another reason of her rapid advance is that she works intelligently and unceasingly to that end.

Her population at present is composed of about half Southern people and half Northern or Western people, with a "sprinkling" of Germans and other nationalities. The Northern and Western element is increasing with greater rapidity than the other elements, and will no doubt soon preponderate very largely. It is a region peculiarly attractive to the prairie people of the northwest. Here they

have the same grand prairies they have been accustomed to, a richer soil, a more diversified husbandry, and an infinitely better and more pleasing climate.

The Northerner and the Southerner here amalgamate so thoroughly and live together in such perfect harmony, that the keenest expert can hardly distinguish which is which. If there are any essendifferences between the people of the various sections, they are here tial completely obliterated and blended together in one harmonious whole. Nothing is more common in this section than to find a "farmer-boy in gray's" sister married to a "farmer-boy in blue," and a "farmer-boy in blue's" sister married to a "farmer-boy in gray."

So completely blended are the sections here, and in many other localities of Texas, that it has been suggested that if the North and South should ever fall together by the ears again, Texas would refuse to fight on either side, but withdraw to herself and erect her own Lone Star banner again.

North Texas, if not an empire within itself, is certainly no inconsiderable part of one.

Its general features may readily be presented, large as its area is.

Beginning from any point on the line of Eastern Texas, and moving west, we first pass through a region of forest and prairies, the former predominating. The forest is of oak, hickory, walnut, ash, elm, etc., but no pine. The soil is a sandy loam, rich in vegetable matter and easy of tillage. This is continued till the line of Hunt and Grayson is reached, where we enter a high region of rolling prairies, crossed here and there by belts of post-oak, and penetrated in every direction by running streams with heavily timbered bottoms. There are no considerable elevations as in North-Central Texas, but the country is everywhere rolling, like the billows and swells of a great sea. The prairies also contain a good deal of mesquite, but not yet assuming the dense proportions of the *chapparals* of the west. Frequently clumps of live-oak or elms dot the great rolling prairies.

Get this picture well in your mind, and you can, even without ever visiting it, paint landscape after landscape of North Texas exactly true to life. Do not forget the great swells rising against the horizon, the quiet valleys between them, and the immense lines of dark forests, sunk in depressions, which mark the courses of the rivers. Through the dark lines of forests at intervals, you perceive the flashing of the waters of the rivers in the sunlight. We could not tell you more of the general features of North Texas if we should write a large volume.

We would suggest, however, that when you come to paint a landscape of the country east of Dallas, do not make your undulations or swells too lofty. Paint gentle and subdued. When you get to Fort Worth and westward, there you can give a bolder play to the fancy; but guard against being too bold.

THE SOILS.

These are also readily disposed of. There exist but three distinct soils in North Texas. These are the alluvions of the river valleys, the dark sandy loams of the forests, and the sticky "black waxy" of the prairies. These often shade into each other, producing compounds of two or all three sorts; but the unmixed originals are largely the predominating types. The geological formations are tertiary from Eastern Texas, to and including a large part of Grayson county; thence westward they are cretaceous, containing many tertiary lines and areas; then permian and carboniferous. In the west, where these latter formations are developed at the surface, the soil of the prairies like that of the forests becomes largely arenaceous. The great belt of post-oak known as the Lower Cross Timbers, which passes through North Texas from a southwest to northeast direction, varying in width from ten to twenty miles or more, is all tertiary, though the cretaceous is discovered a short distance below the surface.

The region of the Cross Timbers, both upper and lower, gives every indication of having once been extensive lakes, whose beds were lifted up after the tertiary deposits, and thus drained. These lakes seem to have existed till quite a recent period, geologically speaking. And such doubtless was the case in most instances where extensive areas of post-oak forest exist.

A large portion of North Texas embracing part of Grayson, nearly all of Collin county, Dallas, and other extensive districts, has a soil on the prairies which is locally known as "White Rock," and is famous for its production of wheat. It is so called from the fact that a foot or so under the surface, and often cropping out, a soft white limestone is found, containing a large per cent. of magnesia. This stone is so soft that the plow cuts into it and grinds it to powder. When brought to the surface it disintegrates like a lump of quicklime, falling into a very fine dust. This mingles with the soil, and is a valuable fertilizer, yielding especially those mineral ingredients which are most favorable to wheat and other small grains. It is the same as the celebrated "corn-brash" of England, in all essential ingredients—the possession of a few acres of which by an Englishman is regarded as a great fortune. But the Texas "corn-brash" is much superior to the English, insomuch as that the English contains a large per cent. of substance which is of no value for fertilizing, while the Texas corn-brash is almost, if not entirely free from such substance.

The principal alluvial valleys are those of the Brazos, Trinity and Red River, and their numerous tributaries. These valleys often extend to great width, particularly that of Red River, which is sometimes many miles in width. The Red River alluvion is heavily charged with gypsum, so noted as a fertilizer.

There are some counties in North Texas in which no poor land can be found—*Collin*, for instance; and in general it may be said that there are few regions elsewhere, and none outside of Texas,

where the poor or sterile holds so low a proportion to the rich and productive.

The timber of North Texas is nearly similar to that of Central Texas. A new forest-tree, however, appears, attaining a large size; the *bois d'arc*, or Osage orange. The same is found in Southern and Central Texas, but does not seem to be a native growth, nor does it attain the dimensions of a forest-tree except under unusual circumstances. North Texas is its native home, and here it often occupies considerable forest spaces, to the exclusion of many other trees. It is one of the most valuable timbers in the world. Perhaps there is no timber which resists decay longer than the bois d'arc. It is doubtful if any man has ever seen a decayed piece of timber of that wood. For this reason it is in great demand by the railroads for ties, though they have to pay more than twice as much as for other ties. It is also much sought after by the wheelwright and cabinet-maker; so great is the demand for this timber, that the forests are in danger of destruction, and those which have been most accessible are already nearly demolished. Every man who owns a tract of land in North Texas should devote at least a few acres to its culture. As durable as the wood is, it is of rapid growth, and a plantation of it would soon begin to yield an interesting revenue. "Blessed is he who makes two blades of grass grow where only one grew before!" How much more blessed is he who makes a forest of bois d'arc grow where not a sprig grew before?

The cedar, also of stately growth, grows in many localities of North Texas, often in extensive forests. The valuable mulberry also. The live-oak appears mostly in the West in *motts* or "islands" on the prairies. The pecan is numerous along all the watercourses of the west. The black-walnut grows everywhere in the eastern portion, and should be cultivated for its valuable lumber.

The staple products are the same as North-Central Texas, but it is more peculiarly a wheat region than even that section. In short, it may be stated that it is a country in which you may grow cotton, corn, wheat, barley, etc., in the same field, side by side, and prosper equally with all. However, choose the prairies for cotton and wheat and other small grains, and choose the valleys for cotton and corn, potatoes, etc.

The east part of North Texas, and all that which has a considerble admixture of sand in the soil, has proved a superior country for fruits, whether grapes, peaches, pears or apples. Many of the finest orchards are found in this region, and all prove a success. In the black, tenacious soils of the more elevated and the western portions, these fruits are also grown successfully, but not to that marked degree as in the other character of soil, and in the country lying eastward from Grayson county. To secure perfect success in peach, pear and apple culture in these parts, add sand to the soil about the roots of the trees and practise mulching in summer. With this care we see no reason why the peach, pear, and probably the apple, should not be grown quite as well here as in other sections. The grape succeeds well in all parts. Certain northern varieties, as the Concord and

Rodgers' hybrids, which do not live long further south, are here hardy as well as productive. The raspberry, which does not succeed further south, is here at home. The cherry is also grown with success, particularly the hardy variety known as the "Morillos."

MINERALS.

The minerals of North Texas, as far as known, do not make an extensive catalogue. The great resources of this section are agricultural, and in these it has mines of wealth richer than the traditional Golconda. True coal is known to exist in many counties of the west, but in what quantity has not been ascertained. It has been discovered in many localities, cropping out along hill-sides, in ravines, and the beds of streams. No excavations or borings have been made for it. It is believed to exist in great quantity, and the geological aspect in connection with what has been discovered, leaves hardly any room to doubt this. Its valuable quality has been well ascertained. As railroads are now penetrating this carboniferous region, we may expect intelligent effort to be made to develop the mineral. There are also large beds of iron ores and copper in the permian rocks of the western portion of the district. In Grayson and farther east, however, brown coal has been found, of a superior quality of that sort of coal. These are all the minerals, so far as yet known.

CLIMATE.

The climate is such as would be expected in an elevated prairie region of this latitude. There are no swamps or malaria-producing causes. The same Gulf breezes which pour almost perpetually over South Texas, extend their pleasant influences here; so that the nights are nearly always delightful in summer, and the days rarely too warm for comfort. No man need shirk labor in the summer through fear of the heat. Occasionally, not more than once or twice in any winter, and rare are such winters, the mercury sinks to zero in the latitude of Denison near Red River. For the most part the winters are such that one does not require a coat while at labor outdoors. The annual rainfall is from 35 to 40 inches, well distributed throughout the season. Drouths sometimes occur, but not so severe as to destroy the crops.

WEST TEXAS.

Western Texas is a very large thing to handle. As usually understood, it embraces that immense scope of territory from the Colorado and the 99th parallel of longitude on the east, to the Rio Grande on the west, and from the upper line of Green, Runnels and Coleman counties on the south, to the Gulf of Mexico.

This immense territory contains every imaginable sort of landscape: the level pampas, the rolling prairie, deep forests, pleasant highlands, lofty table-lands, dark gorges, and deep canyons, and finally lofty and rugged mountains. It would be difficult, if not impossible to so group this vast section together that anything like a just bird's-eye view could be presented. It must be taken apart and considered in several distinct pieces, and even then we shall find that these separate areas are so vast, that they present a very varied aspect.

Let us begin from the sea-shore. The alluvial plain, as we have described it under the heading of Southern Texas, reaches along the Gulf to the Rio Grande, extending from forty to fifty miles in the interior. The soil of this level district is not in general so fertile as in the plain as described elsewhere, but very much of it is nearly so. It contains in general more sand derived from the great extent of an arenaceous tertiary soil above it, and is lacking in those remarkable rich mineral ingredients which the Brazos and Colorado have brought down from the mineral regions from which they come, and dispersed so liberally along their courses, and particularly over the alluvial plain about their mouths. To these two facts alone is due the difference in the soils of these respective portions of the Gulf Plain. Yet when we reach Cameron and Hidalgo counties, about the mouth of the Rio Grande, we find the same mineral ingredients repeated in the soil, and the plain becomes again scarcely distinguishable from what we observed it in Matagorda, Brazos, etc. The Rio Grande River is in the same region with the Colorado, Brazos and Red rivers, flows a great distance through lands charged with the same minerals, and brings down precisely the same sediments. The soils subjected to its influence may hardly be distinguished in any respect from those along those other great rivers. Yet where these influences have not reached, it must not be supposed for a moment that this continuation of the alluvial plain is poor. It is only less rich than those portions which have to so great a degree enjoyed the influences of the great rivers. It is a rule that alluvial soils are very rich, and this is no exception.

The population in this part of the Gulf plain is very sparse, and from Corpus Christi to the Rio Grande it may be said to be hardly settled at all. It is a wilderness yet to be possessed. Its productive capabilities are therefore more a matter of conjecture than observation. Wherever it has been tried it has yielded abundantly of cotton, corn, and sugar-cane. The region lying about the mouth of the Rio Grande, we do not doubt will some day be distinguished as among the very best of all sugar-lands. The soil is all that is needed, the climate tropical, and the seasons usually propitious. In this particular section two crops of Indian corn each year are raised, where the farmer, who is nearly always a Mexican, is not too lazy to do so. It is a region in which all parts of the year may be said to be a growing season of some special and valuable crop. Nature here never suspends her creative energies for a nap; or would not do so if man supplied her with the fruits of the field to practise her energies upon.

For the present this region is given up almost entirely to the herdsmen, some of whom own cattle by the hundred thousand head. These ranches are separated widely apart, and the territory lying between them is rarely ever trodden save by the vaqueros and their herds.

The aspect is the same on the Gulf plain as elsewhere described: extensive prairies crossed by heavily-timbered valleys. The timbered valleys, however, become less frequent as we proceed along the shore, and finally they disappear nearly altogether, there being none of any note between Corpus Christi and Mexico. It becomes a wide unbroken sea of grass, as far as the eye may sweep with a glass.

The tropical wet and dry seasons, spoken of under South Texas, are not so manifest in this portion of the Gulf plain. Usually they do not come, but often they do. The average annual rainfall is much lower in this section than in the region above Galveston. It is over 40 there, and about 25 in the region of Corpus Christi, and a little less as we proceed toward the Rio Grande. The reason is that the prevailing wind in this portion of the State is southwest and west. It comes for the most part over an elevated dry region, which takes away much of its moisture, leaving but little to be precipitated. In the east the prevailing winds are south and southwest, passing directly over the Gulf, spreading over the land laden with moisture. Mainly owing to this difference in the direction of the prevailing winds, it is warmer in this portion of the Gulf plain than farther east, though not so to a striking degree. Corpus Christi, with its elevated site on the sea-shore, is a pleasant summer resort.

Passing away from the Gulf plain at any point and moving north we enter a vast region of rolling prairies, interspersed with much timber in the east, and but little in the west save along the banks of the streams. The region of most timber lies between the Guadalupe and Colorado; and the region of least timber between the Guadalupe and Rio Grande. It becomes less and less as we approach the Rio Grande; but this region is compensated to some extent for this scarcity by mesquite "chapparal" of great extent, furnishing all fuel that is needed, and shade and protection to the herds.

These "chapparals" (*i. e.*, dense growth of scrubby timber) though thorny and thick, are not so dense that the herdsman, clad in his buckskin suit, may not dash through them with ease. About the only inconvenience which they give him is that he cannot see his stock unless he keeps close at their heels. These *mesquite* bushes also bear a heavy crop of beans, enclosed in pods from four to eight or nine inches in length, the beans separated in the pod by a thick pulpy matter. When ripe and dry they are highly supplied with saccharine matter, and rich and nutritious. Cattle, horses and sheep eat them with great avidity, and seem to enjoy them exceedingly. They are admirable for fattening, and there is no food in the world which is better for the milk-cow. It produces an abundant flow of milk of the richest and sweetest sort. It is a great blessing to the country. The Mexicans sometimes use the beans for human food, pounding them and making a sort of bread of them. The writer has

eaten them in various ways, but cannot say that he likes them. Their peculiar faintish-sweetish taste is not attractive, nutritious as they undoubtedly are.

A peculiar thing about this legume is this: in seasons of much moisture, when the grasses are rank and rich, the mesquite yields hardly any beans at all; on the principle apparently, that they are not then needed. But in seasons of drouth, when the grasses are parched and poor, then the mesquite is invariably loaded with an enormous crop.

The grass which nearly always accompanies the chapparal, is the excellent "curly mesquite," which Texas herdsmen contend is scarcely inferior to corn as a food.

A peculiar feature of the western portion of the region which we are now considering, is the frequency of small lakes, of pure, excellent water, scattered here and there over the whole country. Thus the herds of stock have abundant water without being compelled to confine themselves to the districts bordering streams, which they would have to do without these lakes. Thus they are enabled to enjoy and fatten on the whole country.

The soil of this great country is of course very various, but it may be said that in general, arenaceous compounds prevail. The prevailing stone is sandstone, and the soil would naturally partake of that character. Yet there are extensive limestone districts, and here and in the regions contiguous to them, the soil is "black-waxy." In the river and creek valleys, the soil is always alluvial.

The writer has often thought that the loveliest valleys in the world are those that lie along the San Marcos, Guadalupe and San Antonio rivers of this portion of Texas. They are generally wide, heavily timbered at the rivers and of the richest character throughout their whole extent. From the valleys the country slopes away in green undulations, 'set off" by frequent motts of live-oak. The soil even on those undulations is rich and productive. There are barren areas in Southwestern Texas, but in general it is a country of great fertility.

The productions are cotton, corn, oats, and where the black-waxy soil prevails, wheat is grown with perfect success, though sometimes liable to injury from rust. The reason that it succeeds better in this portion of Texas than other portions of the same latitude, is that the country is more elevated and the climate drier. The crops are often from thirty to forty bushels to the acre. The region about Goliad is now claiming the "blue ribbon" as one of the finest wheat producing districts of Texas or any other country.

It is especially a land of grapes. All the Southern varieties of the natural order *Vitis æstivalis*, are at home in this region, suffering from no diseases and delivering regular and abundant crops. Besides, the woods are filled with several varieties of native wild grapes, some good for the table and all excellent for wine. There is no reason why this section of the State should not become a great wine-producing country. It needs nothing but people having some knowledge in this business to make it so.

At present the great interest is stock-raising. It will remain distinctively so a long time, and will never cease to be a good stock country, even after it is quite settled up with farmers. That portion of it along the Rio Grande, especially in Webb county, is mainly occupied by sheep-raisers, for which the native grasses, the rolling country and the climate suit it admirably. The cheapness of the lands also is such that the sheepman can buy large areas at a very low figure.

The population in most parts is sparse, and as we go west the traveller may ride a day without seeing a human residence. What a field is here for the teeming population of other lands!

Much has been written about drouths in this land. The idea prevails among those not personally acquainted with the country, that prolonged and destructive drouth is the rule and good seasons the exception. Indeed, in some sections it is believed that practically this region is a desert, so far as agriculture is concerned, and only a garden to the stock-raiser. How far this is an error, may be readily comprehended from the statement of this fact, which cannot be disputed. For sixteen years past, that is to say, since 1864, there has been but one year of drouth, and that was in 1879. In every year since '64, except that one, the seasons have been all that could have been desired, and the crops abundant. And no country produces like this when the seasons are all right. A single year may yield to the farmers more than he can manage in two or three years, if he cultivates for his own consumption mainly. And even in 1879, when the drouth was indeed severe, as it was even in Central and Northern Texas, or all over the prairie region, Western Texas produced a good cotton crop, which brought a high price, and made it very convenient for the farmer to supply breadstuffs and such other articles as he needed. And the cows did not cease on account of the drouth to yield their crop of calves, the mares their colts, or the sheep their lambs and mutton and wool. Though the drouth was indeed severe, Western Texas did not feel itself at all pinched, and things went on, so far as the close observer could perceive, almost as if there had been no drouth. This country has so many arrows to its bow, that there is no such thing as missing the mark, if the archer be worth a row of pins. If the corn arrow fails to hit the mark, the chances are very great that the cotton arrow will not. If the cotton arrow fails, the corn arrow may not. If both the corn and the cotton arrows fail, the horse arrow, the cow arrow and the sheep arrow may be depended to hit the mark square in the bull's-eye every pop. Surely the archer who cannot bring down the game in this country, would be a poor bowman.

But the time has been when the drouth was undoubtedly the rule in Western Texas. Legends and history inform us that such was the case, and yet these drouths were not severe enough to stop or retard the growth of the native grasses. Even in those years it was the grandest grazing country in the world. The first adventurers found the vast prairies black with buffaloes and wild horses; the rich grasses waist high. Such they continued until advancing man drove the wild animals to seek a new home in the more remote parts. A

change has been constantly going on in the meteorology since the white man occupied the land, and it is becoming more and more marked. Man may philosophize on the cause as he chooses, but the fact and effect are as we state them. The drouths are becoming separated by wider and wider intervals of time, and this process will doubtless be continued till they quite disappear, or will become no more frequent than they are in any other portion of the globe.

One probable cause may be suggested here of this change. Twenty years ago the whole country, from the Guadalupe to the Rio Grande, was a vast open prairie, except an occasional belt of post-oak, scattering clumps of live-oak, and the usual lines of timber along the rivers. At that moment the chapparals were advancing from the Rio Grande, and they have continued to advance until they have possessed immense areas, and are still extending their possessions. Doubtless their destiny is to conquer, unless tackled and impeded by man. It is the habit of prairies to repel moisture from the clouds, and of the forests to attract it. The chapparals in part supply this useful agency of forests, and the clouds and rains come. Certainly it has been that the advance of the chapparals has been followed step by step by the rains. The opening of farms and cultivation of the soil doubtless exercise the same effect to a considerable degree.

To him who believes in an ever-watchful and provident providence, there may be reason enough in this: that before man came there was but little use for rain—only enough to keep the grass green and supply the wild animals with water—and that therefore, it did not come, as it is a characteristic of Providence to waste nothing; but that since man has come to cultivate the soil, to enjoy the fruits of the earth, and to glorify his Maker therein, there was a need for water, and behold, the rains came. Perhaps no better philosophy of the change could be given than this, with all of our science and recondite reasoning.

As for getting water out of the earth, it is an easy matter in this section, even on the loftiest prairies remote from running streams. Good wells are to be had at from eight to thirty feet almost everywhere, which have not failed in the severest drouths.

MIDDLE WESTERN TEXAS.

Having reached the region of San Antonio, in our northward progress, we have attained an elevation of about 685 feet above the sea—the distance to the sea being about 140 miles. The ascent to this elevation has been very easy—step by step. We have been travelling up to this point over a tertiary territory. Here at San Antonio we are confronted with a very different state of affairs. The cretaceous system rises before us like a great rampart, extending northeast toward Austin, and southwest toward the Rio Grande. In Uvalde county it changes its course directly to the west. Never was a natural line dividing two distinct regions and two distinct geological formations, more bold and marked than this. This great escarp-

ment rising so suddenly above the territory to the south, was once the shore of the tertiary sea. Below the escarpment was a wide ocean without islands for a great distance, and above it an immense territory of dry land, tropical and beautiful, unpossessed save by enormous reptiles and perhaps monkeys, for then Adam had not been born or made.

Beyond the escarpment rises a great assemblage of highlands, often reaching to mountainous proportions, interspersed with beautiful valleys and vales, rolling prairies, woodlands, and crossed in every direction by rivers and other streams. In fact, the country puts on a very different aspect from that which we have beheld in our trip from the coast up to the escarpment. The elevation becomes so rapid, that from San Antonio to Boerne, a distance of only twenty miles, we have risen nearly a thousand feet.

It used to be a saying of George Wilkins Kendall, the great editor and the pioneer sheep-raiser of Texas, that one had not entered Texas until he had passed the escarpment going north, and that all the region below it was not Texas at all. He was greatly in love with this highland region, and here passed the last twenty years of his life, engaged in sheep-culture, which he made very profitable, and in wild adventures with rifle and rod, often disappearing for weeks at a time.

Such this country continues until we have reached the immense rolling plains to the north and west, where another striking change of physical feature is presented. This portion of Texas is distinctively its own, though much resembling the region above Austin in Central Texas, to which it is similar in geological formation. The main or only difference is that this portion is bolder and more prominent in its features. It is the Switzerland of Texas.

Group this picture in your mind's eye, just as we have presented it, and it is not difficult to draw a landscape of Western Texas exactly to the life. Recollect that, unless you sketch from a standpoint in some of the deep, almost Alpine-like vales, you will never be out of sight of mountains, assemblages of mountains, rolling prairies, beautiful smooth prairie valleys winding amid the hills, woodland and creek, or river.

We have spoken of the beautiful valleys of the Guadalupe in Southwestern Texas. Here they are, if possible, still more beautiful —their quiet beauty made all the more striking, by the bolder and more prominent landscape through which they wind. No man can see this region without falling in love with it. He may come filled with prejudices against the country and the people; he may abuse both, but ask him if he does not think it a beautiful country, and he gives it up and confesses that it is the most beautiful he ever saw. If he sees it in the spring, he confesses that he did not think that such a country existed outside of the "golden gates."

There are in all highland districts some shaggy, stony, barren and unattractive areas, and they will also be found in this—but comparatively few, and only serving, apparently, to render the prevailing features the more attractive.

In the west, on the head-waters of Rio Frio and Devil's River, are numerous *cañons*, but none of great depth. Those of the Frio especially, are remarkable for their beauty, being wide valleys, for the most part smooth as a billiard-table, covered with rich grass, of deep fertility and walled in on each side by precipices of stone. On either side is a region of highlands, rolling prairies, or belts of post-oak, cedar, etc.

The prevailing, and almost universal stone of this large district, except in certain areas, is limestone, and the soil such as we have observed everywhere in Texas, where this stone prevails. That is to say, it is of a very black, tenacious sort, having but little mixture of sand. This feature is especially marked in the vales and low prairies among the hills, where the soil is mainly composed of the fine silt and vegetable matter brought from the higher levels.

In Llano, Mason, Menard, etc., is an extensive region of granite and sandstone, but limestones of the Silurian age also abound; and here the soil is more mixed and of a lighter kind.

In the belts of post-oak, as noted in all other districts of Texas, the soil is usually highly arenaceous, but not too much so to be very productive, and sandstone, if not unexposed at the surface, will usually be found but a short distance below. So generally, if not invariably, is this the case with the post-oak belts and areas, that the conclusion seems hard to resist, that the spaces occupied by these were once low depressions, filled by lakes of the tertiary, and possibly later period, with rivers or other streams running through them. The presence of these quartzose sands, in such quantities as to give a marked character to the soil, in the midst of purely limestone regions, seems difficult to account for on any other hypothesis. And even then it is not always easy to conceive where they got their sands from, the sandstone and granite regions being so remote.

In the river valleys the soil, as usual, is strictly alluvial. The wide valleys of the Rio Grande are the same in soil as those of the Brazos and Colorado, differing only in that they contain less vegetable matter.

The timber is post-oak, live-oak, cedar, pecan, hickory, elm, ash, sycamore, cottonwood and numerous other varieties. The streams are lined also, where they have not been destroyed for the saw-mill and the shingle-maker, with the gigantic mountain cypress, often exceeding in size its congener of the swamps in Southeast Texas and Louisiana.

The only native fruits worth mentioning, are numerous varieties of wild grapes, some of excellent quality and promise, two varieties of wild plum, and the wild cherry. The cultivated grapes suitable to the latitude, have done well as far as introduced. The pear succeeds to perfection; also the peach in favorable situations; the fig especially flourishes, and the same of the quince. Considerable success has been obtained with the apple about San Antonio, but in other localities we are not advised how it prospers. Indeed, fruit growing in this country is in its first, puling infancy, and what it may develop in that line is an unknown quantity. There is no reason, how-

ever, to question that it is a surpassing land for the grape culturist and the wine-maker.

The staple products of the field are wheat, rye, barley, oats, corn, cotton, potatoes and sweet potatoes. No doubt many other products which are now neglected would do just as well. Indigo has been cultivated by a few, and succeeded entirely.

The great industry is yet cattle, horses, and wool, the field being a secondary consideration with most of the people.

As regards health, it is certainly not surpassed, and probably hardly equalled in the world. It must necessarily be so where no cause can exist for sickness. There is not an acre of ground probably in this wide region, which can evolve malaria. It has completely cured thousands of people who came into it with consumption.

The effect of this delightful climate on invalid ladies may be judged from the experience of two ladies of the writer's own acquaintance. One was from New York and the other from North Carolina. Both were married ladies and mothers when they came to Texas, but having fallen in chronic ill health, they had not borne children. They came to Texas quite prostrated—so much so, that one of them had to be transported fron Indianola on the Gulf to the Highlands in a sort of a litter. She had been in the highlands barely a month before the roses began to return to her cheeks, strength to her limbs, and vivacity to her spirits. The upshot of it was that she soon regained a greater degree of health than she had ever known, and greatly enlarged her husband's family, by almost annual additions for a long time. The experience of the other was precisely similar.

The annual rainfall is from 30 to 35 inches, and mean annual temperature about 65°.

What has been written of drouths under the previous heading, applies to this; though this section being to a degree mountainous and much more timbered, has been less afflicted with drouth than the region immediately below it.

The minerals are numerous: salt in the south in the lagunas near the sea-shore, and from salt springs and wells in Llano county and other places; iron, coal, copper, silver, lead, marble, granite, asbestos, mica, and soapstone in the north. Building-stone of the best quality everywhere.

WEST TEXAS NORTH.

This region begins from Mason, Menard, etc, running to the upper line of Coleman, thence west to the Pecos River.

It is for the most part distinct from that portion of Western Texas which we have just been considering, in geological formation, and very much so in physical features.

It is no longer a region of highlands. Highland scenery occurs, but no longer in extensive areas. The mountain districts are either in small isolated groups, scattered here and there at wide distances, or narrow ranges usually extending toward the southwest. We stand in the midst of immense undulating prairies which often appear

utterly without limit. Another peculiar feature is that mountains or lofty elevations will often be seen standing "solitary and alone" on the prairies. After reaching the region of the Concho River, we bid adieu to forests of any kind; there trees become scarce, finally disappear altogether, and the traveller may, for day after day, see nothing before him but the occasional mountain ranges in the distance, the solitary mountains, and a wide rolling ocean of grass. He will also occasionally see long elevated table-lands, apparently perfectly smooth at the top, shaped with exceeding regularity, and which will be constantly reminding him of immense grim fortifications, built to protect some great population.

And he will often find a dense population in fact, huddled around these grim, suppositious fortifications—a dense population of prairie dogs, who enjoy the grateful shade cast by them in summer. Perhaps they may esteem them also as towers of observation, from which to keep watch over the territories around.

The watercourses also as we penetrate into these almost treeless expanses become widely separated. We will occasionally find beds of creeks presenting the appearance of often being the scene of very turbulent rushing waters, and yet with scarcely a drop of water to be found anywhere in them. These deep and wide channels, with their piles of fractured and water-worn boulders, tell us as distinctly as possible how tremendously it does rain in this country sometimes.

On account of the scarcity of water, it is not entirely safe in the summer to venture over these vast undulating plains, unless under the escort of a guide who knows the country. Yet it contains many water-holes and small springs, which latter often run only a few yards and then disappear. If one only knew where to find them, he could make the venture without inconvenience. And in these same dry creek or river beds, water can usually be found by digging a small depth into the sand.

The elevation of this country is 1819 feet at Fort Concho, but there are extensive districts which are at least 2200 feet. Fort Concho is situated on the Concho River, and the country rises much above it, north, south and west.

In the eastern portion of this district, granitic, silurian and carboniferous rocks prevail, the latter almost wholly in Coleman, Runnels and the northeastern part of Tom Green county. Thence westward it has been supposed to be wholly cretaceous, but a better examination would probably ascertain it to be, in much the greater portion, of the older Jurassic formation.

The soil throughout this whole country, high prairies as well as alluvial bottoms, is of a chocolate or brownish color, of a friable nature and naturally one of the best soils in the world, especially for wheat and other small grains. Its peculiar color has been given to it by the same mineral fertilizers which have tinged the valleys of the Brazos, Colorado, Red River and Rio Grande. We are now approaching the country in which these great rivers have their sources, and its mineral ingredients have been dispersed all over the country subjacent to them. In addition, this country itself contains large

deposits of gypsum and salt above the Concho River. The land is tillable everywhere, except the stony spots on the highest parts of the prairies. This country needs only more rain, more running streams, more trees, to make it a garden spot of earth. Man can obtain these if he will try. When the Almighty has done so much for a country, surely man ought to do something and supply those defects which it is in his power to supply.

The annual rainfall now about Fort Concho is about twenty inches, and this is observed to be increasing year by year. It is a singular fact, that as the country obtains people, the rains increase. In the eastern part of this district the rainfall is much greater. As we move west into the wilder and wilder region, it diminishes steadily.

There is but little farming done, the industry of the sparse population being almost wholly cattle and sheep. The streams lie admirably for irrigation, and where this is used, the crops of wheat, barley and corn are immense.

THE FUEL SUPPLY.

It is usually said that these immense prairies are destitute of fuel. There could not be a greater blunder, though they are treeless, and with but little coal so far as known. They are in fact finely supplied with fuel. The traveller will observe in riding over these great open expanses little living switches of mesquite, so small as scarcely to attract attention. If he will notice closely, he will find these very numerous. Strange as it may appear, if he will strike a blow with a pick-axe at the base of any of these, he will almost always find a great assemblage of living roots, some bigger than a man's leg. So numerous are these roots that a few switches will supply a cord. These roots when dried, make probably the finest wood-fuel in the world. They burn with great heat, are long in consuming, and finally when converted into charcoal, they burn a long time in that condition, reminding one much of a piece of anthracite. The U. S. military posts are mainly supplied with this sort of fuel.

The philosophy of this phenomenon is interesting. It is not, however, the place to discuss it here. We also note the fact that the fuel is in great quantity, and that few countries are better supplied with fuel than the great treeless and coalless prairies of Northwest Texas.

The mesquite bush or tree in other portions of Texas, does not behave in any such way.

NATURAL ARTESIAN WELLS.

That portion of Western Texas from the cretaceous escarpment north and west, presents another curious natural phenomenon. Here the traveller often sees creeks and full-fledged rivers, which bound suddenly out of the earth in one or more immense springs of water so clear and sparkling, that it has been well described as resembling "liquid air." Such is the case with the San Marcos, Comal, San

Antonio, San Pedro and Leona rivers. One visiting New Braunfels would never suppose that the Comal, a bold, dashing river, sweeping like a race-horse by the city, had its source only two miles away; or visiting San Antonio, that the head of the fine river of that name was only three miles off, or that the San Pedro had its source in the city itself. He would say their heads were a hundred miles off at least. Yet they are as we have stated. In addition to these, there are hundreds of other instances all over the highland districts of Western Texas.

We consider that they are natural artesian wells, from the fact that the waters are almost thermal, being many degrees warmer than the water at the surface or that in cisterns. So warm are they, that in cold weather they smoke like a boiler, and may be bathed in in winter with great comfort. This shows conclusively that they come from profound depths. We should judge, by comparison of temperatures, that their subterranean sources are from 1,500 to 2,000 feet under the surface. They are at once the grandest and most beautiful fountains in the world.

Do not these wonderful fountains show us plainly how water and running streams may be obtained for the great and fertile but waterless plains? If the Almighty may bring these rivers at a bound from the subterranean reservoirs, why may not man do the same by boring down to them and giving them a vent? He has only to try, and he may succeed on even as grand a scale as the Almighty.

It is said that there is design in everything in nature; and if so what was the design of these peculiar fountains? Why did not nature build up these rivers by slow degrees, as other rivers are built up?

Did she not produce these remarkable examples to start our special wonder and encourage us to *bore?*

We dare say that was the design, and that if we take the hint and imitate nature, it will soon be that there will be no complaint of the lack of running water on the great plains.

WESTERN TEXAS BEYOND THE PECOS.

This district of Texas embraces all of the State west of the Pecos River. It has only three organized counties, whose aggregate area is 32,522 square miles, or about the size of New Hampshire, Vermont, Massachusetts, Rhode Island and Connecticut put together. It has next to no population at all, except immediately in the vicinity of the U. S. military posts, and along the Rio Grande in El Paso county. There are some farmers and ranchmen in other places, but their settlements are few and far between. The great bulk of the lands belong to the State and the several Texas railroads, to which they have been granted by the State under the act to encourage railroad building. The country is to a great extent *terra incognita.* It is customary to attach wild and mysterious notions to regions unknown or but dimly known, and this trans-Pecos country is no exception. It is

looked upon as a region of "deserts vast and antres wild," where nature puts on forms unknown to her in other regions, and inhabited by all evil things, such as prowling Indians, myriads of snakes and ferocious animals.

And it is a strange enough region, indeed, but nothing like what imagination has painted. The early Greek navigators, who derived their ideas of the Mediterranean from the poems of Homer, were, when they at last plucked up courage enough to make the venture, astonished to find no gigantic one-eyed Cyclops, no Harpies and Furies, no Sylla and Charybdis, and no seductive and destructive Circes.

So the traveller over this *terra incognita*, when he at last plucks up courage enough to make the venture, finds some things strange enough indeed, but nothing of the remarkable nature which he may have been led to expect.

And first, in regard to the valley of the Pecos. The river itself is rather a peculiar thing. We first descend into a wide canyon or deep valley, and are struck with its smoothness, its splendid grasses and great fertility; but we perceive in it no tree or bush whatever. Sometimes the bluffs of the valley contain forests of cedar, very large and tall. There is nothing to indicate to the eye that there is a great river flowing down this valley, and we proceed on until finally we are brought up suddenly upon the banks of the Pecos—upon its very brink. We perceive a dark, turbid river rushing by us noiselessly, over a smooth channel, at the rate of from four or five to six miles an hour, and varying in depth from eight to more than twenty feet. It is ditch-like and deep from the word "go," growing deeper as you proceed from the bank. It is crooked to an extraordinary degree; by long odds the crookedest river in the world. It is from forty to sixty and in many places a hundred feet in breadth. Its water is brackish, also impregnated with sulphur, lime, and soda, or other alkaline minerals, and is not a pleasant compound to drink.

Its valleys are easy to irrigate, owing to the rapid inclination of the country to the southward, the fall being from six to ten feet to the mile; where it has been cultivated by the aid of irrigation, the soil has proved to be greatly productive of wheat and corn. It has everything in it to make it so. It has been said that the soil contains too much alkali to be good for agriculture, but this has been shown to be a mistake. A soil with too much alkali for agriculture, invariably refuses to produce nutritious grasses. For the most part such soils are barren and desert-like. In the valley of the Pecos, particularly on the east side, the native nutritious grasses attain vastness of growth that a man on horseback may be hidden out of sight. Such it was at least before it was grazed on by cattle.

The Toyah and other tributaries of this stream have precisely such a soil, and on the head-waters of that creek there is a settlement of Mexican farmers who grow wheat and corn with complete success, the yield to the acre being about thirty for wheat and sixty for corn.

From the Pecos to the base of the Apache Mountains, passing by Fort Stockton, is an elevated plain filled with sage, brush, and cactus, almost without water, with little grass and not fit for anything in its present condition. It has a singular appearance from the solitary cones and walls of bare rock which often rise out of the plain. The soil is naturally good enough, and with water would be productive. About Fort Stockton, which is an oasis in a desert, much corn, wheat and vegetables are produced by irrigation from Comanche Creek. This creek rises out of the earth in a large spring, like an artesian well, and starts off briskly toward the Pecos, but does not travel very far before the thirsty earth utterly devours it, having a dry, sandy and stony channel, desolate to the last degree.

The Apache Mountains are a very rough and elevated mass of stones, containing chasms and canyons of such a nature that they have not been explored, except on the outer edges. Almost nothing is known of them, and we will venture no guesses. They are for the most part, as far as known, granitic and basaltic.

Southward toward the Rio Grande these mountains become the Horse Head Hills, and here is another wild country but little known. Lying between the ranges, however, there is much very fine pastoral country, and also much that would be finely suited for agriculture with irrigation. This mountainous condition alternates with smooth vales to the Rio Grande, presenting much country that is very beautiful and fertile, and much that is not matched outside of the Rocky Mountains for rough and barren grandeur.

Generally there is no lack of running water after leaving the sage and cactus plains of the Pecos.

The elevation of this region is about 5,000 feet; some of the mountains exceed 7,000, and here the highest peaks in the United States are found east of the Rocky Mountains. The rainfall at Fort Davis is about seventeen inches a year; and this is much more than it was twenty-five years ago. The mercury in summer rarely exceeds eighty-five, and in winter sometimes falls below zero. It may be said to be a region of no diseases whatever, except what man may bring upon himself.

About El Paso is a sort of a garden spot—made so by irrigation from the Rio Grande, whose extensive valleys are of the same nature with those of the Brazos and Colorado. Here wheat, corn, rye, barley, onions—the finest in the world—vegetables of all sorts yield astonishing crops; pears, peaches, and grapes, also—the European varieties of the latter, succeeding here as they do in California. This region of the Rio Grande is becoming distinguished for its wine and brandy, and these will one day become, when a railroad shall reach that country, very important articles of commerce.

It is generally a treeless region, but in most cases where there are running streams, the cottonwood, willow, wild-cherry, and elm will be found, and in the valleys is mesquite. In many of the mountain ranges and districts there are large forests of cedar, many of the trees being above sixty feet in height. Perhaps no such forests of cedar may be found elsewhere.

A large part of this district is on the Staked Plain, which will be treated of in another place. It has the same features everywhere.

This part of Texas is supposed with good reason to have large mineral wealth, but no well directed or persistent effort has been made to develop it. Mineral veins are found in nearly all the mountains, but none have been penetrated over a few feet. Silver, some gold, copper, lead and iron are known to exist in many places. We reserve the subject for remark elsewhere.

THE PANHANDLE.

This, the sixth grand natural division of Texas, strictly speaking includes only the territory lying north of the 34th parallel of latitude and west of the 100th degree of longitude, with the Indian Territory on one side and New Mexico on the other. We shall, however, in this description, assume that it includes all north of the line of the Texas and Pacific Railway west of the 99th meridian of longitude and east of the Pecos River. Though this immense territory offers an immense variety of landscape, soil, etc., yet it is all very close of kin. Certain features prevail largely, and of these the prairie is the one predominating; indeed, we may say, the great absorbing one. Grouping the whole vast area together, so that we may conceive that we see it all in one picture, we shall perceive that the prairies include perhaps not less than 90 per cent. of the whole. It is a lofty region, not less than 1500 feet above the sea at its lowest borders, rising gradually to 5000 feet or more on its upper borders. The slope, as indicated by the course of its streams, is to the southeast from its central portions, dead to east a little above that, and to the northeast in its upper portions. It is therefore crossed centrally from east to west by a considerable backbone, divide, or watershed. It is not improbable that the highest points of the Panhandle, or as high as any, may be found on this central watershed. Another backbone or divide evidently runs north and south, along the boundary line between New Mexico and Texas, and separates the waters of the Colorado, Brazos and Red River on the east, from the waters of the Pecos on the west. The prairies for the most part are not so bold and rapid in their undulations as in some other parts of Texas. They are softer, gentler, and more expansive in their movement, and not unfrequently sink into level districts of great extent, surrounded on every side by regions of greater elevation. These level districts have every appearance of having been the basins of ancient lakes, and their soil is strictly alluvial. Yet there is a great amount of broken country in these prairies, containing steep and rough hills and narrow gorges. These assemblages become more frequent and pronounced as we proceed west from any point on Red River, until we reach the Llano Estacado or Staked Plain, an immense table-land which rises abruptly above the territory and extends a vast distance west. This great table-land presents to the eye a perfectly level, treeless expanse, except here and there long fort-like table-lands

rising upon it, and here and there a solitary cone-like hill of no great magnitude. These prairies, including the Staked Plain, are covered with a thick carpeting of grass, including the mesquite, blue-stem, sedge-grass, buffalo grass, and many other varieties, all highly nutritious As a stock country it is not equalled in North America, and not surpassed anywhere.

The timber of the Panhandle, except in its lower portion, consists almost exclusively of mesquite (at least on the level districts), cedar-brakes in the broken districts and along the bluffs of the streams, and cottonwood and some hackberry on the streams. There are occasionally thickets of "weesatch," and now and then a singular sandy district or belt occurs, known among the surveyors as "white sand-hills," in which we have found great multitudes of a low scrubby oak bearing an extraordinarily large acorn. This was called by the frontiersman with us a "shin-oak," in derision probably of its scrubby growth. Our horses would sink into this sand almost up to their knees, the wind blew it like fine shot through the air, it glistened unpleasantly in the sun, and, on the whole, these belts are very disagreeeable things to cross. They rarely exceed three or four miles in width, except on the Staked Plain where they are sometimes encountered in considerable bodies. The sand is a pure quartz, where we have seen it, and how it got there in such heaps is a mystery, as no rocks were generally apparent from which it may have been derived. The belts containing it invariably have the general directions of the streams; that is a westwardly and easterly direction.

The "shin-oak" thickets on the sand-belts are rarely over six or seven feet in height, and sometimes they are not half as tall as that, standing nearly as thick on the grounds as the stalks in a field of corn. Adjutant-General Jones, of Texas, a most observing man, who has travelled many times all over this country, gives it as his opinion that the scrubby growth of these oaks is due to the prairie fires by which they have been frequently annoyed and destroyed, and that when they are protected from fires they will grow into forest-trees of the ordinary dimensions. We believe this view to be correct. There may be in these miserable little "shin-oaks," the germs of great forests and climatic changes for the Panhandle, to be brought forth and developed, as agriculture begins to tread upon the heels of exclusive stock-raising.

> "Great oaks from little acorns grow;
> Great streams from little fountains flow:"

and it is just precisely in such obscure and unexpected ways that great natural changes and revolutions are wrought. A singular thing about these shin-oaks is this: they are, according to our judgment, the same that is called in South Texas the "water-oak"—a tree which attains there a large size, and remarkable for the hardness and durability of its timber. It is remarkable also for its comeliness, and for this reason is largely planted in the city of Houston, as a shade and ornamental tree. It is remarkable also in that its natural

habitat is in moist soils. This is suggestive when we see this same tree growing in immense thickets afar off in a region which is generally considered arid, and in apparently the most arid districts of that region. Another observation will follow on this point after a while.

In the southern portions of the Panhandle, as we have marked it off for description, are extensive bodies of post-oak and other varieties of timbers. These, from their scattered and detached character, yet running in a northeast and southwest direction, tend to create the impression that they may be the advanced portions of a new and upper line of Cross Timbers that may be forming, similar to the upper and lower Cross Timbers which have been referred to before. Possibly other bodies of timber may lie at distant intervals in other portions of the Panhandle; but after many wanderings over that region on horseback, the writer of this is not able to say where they are. Still, others whose facilities for observation have been good, say that they exist.

Is there, then, enough wood for fuel in this country, without putting the settler to inconvenience to obtain it? Abundant for all such purposes as that, let him be located at almost any point that he may.

Besides the mesquite trees which are usually found, more or less, on the level depressed districts on the prairies, the cedar brakes on the hills and on the bluffs, and the cottonwood and hackberry on the streams, there are the tiny mesquite switches scattered almost everywhere, which we have spoken of under the head of Western Texas, bearing their enormous roots, and these when collected and dried are not surpassed for good fuel. They are found everywhere in the prairies of the Panhandle, except in those localities where the mesquite grows to a tree instead of a great assemblage of big roots, and perhaps in the very northern extremity of the State. We are told that they are not found along the extreme northern line, but are doubtful as to the correctness of this. So far as fuel-wood is concerned, this region, therefore, instead of being poorly supplied is really very well supplied.

As regards wood for building and fencing, there is plenty for the stock-raisers; but if the country should rapidly become filled with an agricultural people, other resources would have to be called in to account. The stock-raisers want but little fencing, and cedar logs are used for their houses. Stone is abundant almost everywhere, and when population increases this will be utilized for houses and fences. Pine lumber at present would be an expensive luxury, but this will grow cheaper as the means of transportation are increased.

As regards water-supply, this region is generally supposed to be very deficient. As compared to most other portions of Texas it is deficient. Yet we would not state it to be a very poorly watered country. It is abundant for a stock country. The writer recollects to have been on one occasion a night and nearly two days without water; but this was the only time when anything like such a dry stretch was encountered. On all other occasions good water was found at least two or three times a day, and on many days frequently found. It is often met with when one would least expect it, and on

our dry days we do not doubt that we often passed near it and could have found plenty if we had only known where to look for it. In almost every locality where a broken district occurs, and such are numerous, living springs are found at the base of the hills or mountains, but their streams often disappear after running a short distance, and very few continue to flow till they reach the rivers. On the level or undulating prairies depressions frequently occur, holding large ponds of good water. In severe drouths many of these may dry up, but most of them may be depended upon to hold their water, even at the very worst from six to nine months in the year. This is the statement of those who have long been intimate with the country. Doubtless many of these lakes or ponds last through the entire year. They consist for the most part, so far as may be seen, entirely of collections of rain-water, though doubtless many are fed by unseen springs. The existence of these ponds or lakes is suggestive of what may be done. They show that the soil in many places is of such a retentive nature that deep artificial lakes or tanks may be constructed, similar to those which are common in the arid regions of Mexico, and remain full of water all the year round, furnishing supplies to considerable populations and large herds of stock, and also used to a considerable extent for irrigation.

Another peculiarity of this country is the numerous deep and long ravines which are found in every quarter. These ravines present considerable obstruction to unacquainted parties travelling over the country, and being so deep and steep that it is difficult to find places where they may be crossed on horseback, thus often compelling great detours; but in another aspect they are very advantageous, as they nearly always have small streams of excellent water at the bottom, and when this is not there, water may be often obtained by digging a shallow hole. In most cases the hole will soon be filled to the brim. The surveyors of the Texas and Pacific Railway assert that while working in the sand-hills, such as we described above, they had no trouble in finding the best quality of water by digging holes in the sand only two or three feet deep. They said they were induced to try this experiment by observing many holes which had been dug by the deer, at the bottom of which they noticed the sand to be very wet. Taking out a spadeful of sand from such places, the water immediately began to collect. This no doubt explains the presence of the "shin" or water-oak in such numbers in such places. The water is described as being of the very purest quality and pleasantly cool. More of these singular sand-belts anon.

The rivers of the Panhandle are very numerous, as marked on the maps. Hardly any country can show a more extensive network of streams on paper. Yet the actual traveller over these great expanses is liable to find himself considerably fooled by these long crooked black lines on the maps, as the writer of this has been. He may be riding along expecting soon to see, according to the maps, a bold sparkling river, so deep that he fears that he may find it difficult and dangerous to cross it. Presently he comes to it, but often instead of the deep sparkling river, he finds nothing but a great

yawning channel, glistening with white sands, with heaps of boulders and occasionally of drifted timber. He sees every evidence of a mighty river except the water itself. He will wander over the desolate channel without seeing a drop; but if he continues to wander he is liable at last to find a deep pool of the clearest water, and possibly a tiny branch stealing away from it to die after going a few yards. He is inclined to curse the map-makers, but a little reflection makes him more charitable. He perceives that this channel is of enormous width and length; he admits at once that it undoubtedly has been a great river within comparatively a very recent time, and he is forced to the conviction that it is extremely liable at any moment to become a great river again. This is not always the case with these long black lines on the maps, but sometimes it is so. It is never so with the Clear Fork of the Brazos, or the Salt Fork, or Catfish River, or the Big or the Little Wichita, but it is so with all the others, according to our observation. We have seen even the Colorado above the mouth of the Concho not running a drop of water except at wide intervals; and yet its great channel extends hundreds of miles beyond that point, containing numerous great pools, deep enough to float a ship, and alive with catfish, black bass and perch. It is the same with the South Fork of Red River, and the Canadian. These and others which we have not named, never lapse, we believe, into this dry or interrupted category. They flow on boldly all the time, whether rains or drouths prevail. Yet water may be found even in these dry and desolate channels, between the pools. If the traveller or explorer becomes parched with thirst, he has need to dig only a little depth in the sand and the water will come to him. Of course he will seek the lowest depressions in which to do this.

The cattle in this country soon become acquainted with all the water-holes and living streams, and never suffer from thirst. And men travelling over the country need suffer no more than the cattle do, provided they have as much knowledge. A party of United States soldiers under Lieutenant Nolan, some months ago, in the hot summer, found themselves out on the Staked Plain and several of them perished for water. Adjutant-General Jones, of Texas, was on this trail some time afterwards, and occasionally found good water abundant within three hundred yards of where they passed. He found the bones of some of the dead soldiers lying that near to good water which had all the appearance of being permanent. None should attempt to cross that great plain, or even to enter far upon it, without having some one along who knows where the water is. When men get lost on the treeless plains and go to wandering around for water, they are almost sure to describe circles, passing over nearly exactly the same territory every time, and continuing to do this until they become crazy or fall down exhausted. Such doubtless was the way with Nolan's men. It is the easiest thing in the world to become utterly lost and bedizened on these vast plains. A man has a singular and most oppressive feeling on such occasions, of being an utter fool. Unless he has the manhood to fight this feeling away when it has seized him, he is liable to perish miserably.

A peculiarity of the Panhandle rivers is the great canyons through which they frequently pass. The most noted of these is the *Palidura* canyon on Red River. This great canyon is about seventy miles long, extending through Briscoe and Armstrong counties, about six miles wide, and walled in on each side by perpendicular cliffs, some two hundred feet high, and in many places much more than that. Red River flows through the centre. The valley is as level as a floor, the soil exceedingly rich, covered with grasses of the most nutritious sort, and it is said that the walls come together so closely at its upper and lower points that about five miles of fencing would enclose the whole canyon. There are but very few points along the cliffs where it would be practicable to descend into the valley. If some one man owned all of this great canyon, what a prince of stockmen he would become, and yet have so little trouble with his flocks. There are many other canyons similar to this on a lesser scale, but none so great as the Palidura.

Does it ever rain in this country? We should think it did, and there could be no stronger evidences of this, than the great yawning river channels and the numerous deep ravines that cut into the soil and rocks. Such immense channels could not have been cut without powerful streams of water, and these powerful streams could not have been without great rains to produce them. Nothing could tell more emphatically of these rains than these great channels and ravines, destitute as they may often be of running water. The numerous ponds and lakes on the prairies speak equally strong on this point, having no streams flowing into them or out of them. The fact, too, that all the great rivers of Texas except the Trinity and the Canadian, the largest tributary of the Arkansas, derive their principal waters from this region, tells plainly of abundant rains. These rivers, almost every June, have their "red rises," and these show unmistakably that the rains of this region fall most abundantly precisely at that season of the year when they can do most good. They show that the rains fall regularly and mostly in April, May and June, and that in the season when the crops are ready to receive them and need them. Such is the strong and retentive nature of the soil, that good rains at that season will secure the crops, even if no more should fall. The "red rises" always come from the Staked Plain and the Panhandle. Their peculiar red sediment can come only from that region. The waters are then inflamed to a high degree. When the swells come from the lower quarters, the waters are dark or yellowish. When the red rise comes on the top of a dark or yellow rise, or *vice versa*, then the rains are universal in the State. When the great overflows of the Colorado and Brazos take place, it invariably occurs that the red rises have come on the top of the others. And this looks providential. The rich red sediments of lime, sulphur, salt, potash, and iron, brought down from the Staked Plain and Panhandle, ride on the back of the waters already swollen by the dark or yellow rise, are lifted over the banks of the rivers, and dispersed all along their valleys, often adding several inches of the strongest sort of fertilizers to the soil. If the red rise come first in these great overflows, the dark

waters would ride on their backs and thus the richer sediments of the Panhandle and Staked Plain be carried into the sea and lost. Thus we see the hand of beneficent nature in many things. It works for man better than he can work for himself.

In connection with this region being the apparent great reservoir from which the great rivers of Texas and the Canadian derive their waters, the sand-belts already described, and those on the Staked Plain, appear significant. It has been observed that their trend is from west to east, or a little north of east, and that the surveyors of the Texas and Pacific Railway found water abundant in these sands by digging two to three feet. It would appear that these sand-belts are natural aqueducts whose purpose is to receive the surplus rainfall and conduct it into the streams. This looks like rather a pretty theory, but it is no doubt true nevertheless. It will be objected to, probably, by those who believe that everything in nature is but the result of blind chance.

As to the actual annual rainfall in this country, we have no data. At Fort Sill, about fifty miles east of the Texas boundary, opposite the Panhandle, the rainfall from June '78 to June '79, was 34½ inches, and this is probably about what it is in the Panhandle. If there is a difference we should say that it is likely to be in favor of more rain in the Panhandle, judging by the evidences above given. At St. Paul, Minnesota, which is said to be situated in a region very favorable to agriculture, the rainfall, was 23⅛ inches for the same time. These are the official figures of the U. S. Signal Service. The few scattered inhabitants of the Panhandle make no complaint of the want of rain. We have, however, heard them complain of it raining too hard at times.

The soils of the Panhandle may be described as nearly all a red or chocolate loam. The depressed level districts on the prairies, which are so suggestive of the beds of ancient lakes, are of a very reddish soil, and sticky; the valley lands are often of the same nature, but in general not so sticky. They are both strictly alluvial. The substance which gives the coloring matter to these lands is mostly dissolved sulphate of lime or gypsum, which abounds in all the forms of that mineral all over the Panhandle. The soils for the most part are as deep as they are rich, and from the nature of the country quite inexhaustible. Farming has not yet become an industry, but when it shall become so it will be proved that these lands are remarkably adapted to the cereals, and especially to wheat, clover, etc. Their composition is precisely that which is most favorable to their highest development, and the climate is the same. Cotton and the fruits will no doubt do just as well. We have seen very fine vegetables, such as turnips and potatoes, brought from that section by a cattle man, just to show what his country could do. The turnips were the finest we ever saw, and were raised without irrigation or manure, on land which had never been broken before. At present only a few of these counties have sufficient population to organize a county government. The population is usually scattered far apart, and consists almost exclusively of stock-raisers. One would

readily judge from the account of it, that no country could be healthier. It has an unusually pleasant summer climate, never becoming too warm to be uncomfortable.

Many of the counties of the Panhandle lie wholly upon the Staked Plain, and compare favorably as respects soil, etc., with the rest. The prevailing notions in regard to this great table-land must be abandoned. It has been held as a desert, and was long so marked on the maps; but it deserves no such designation, being naturally for the most part of very fertile soil, covered with rich grasses. The sandy belts which cross it are the only exception to the rule, and these serve their valuable uses as reservoirs and viaducts for water. The time will come, we doubt not, when the Staked Plain will be famous for its crops of wheat and other small grains.

The geological formations of the Panhandle are mainly carboniferous, permian and trias, with some jurassic and cretaceous. The most widely developed are the two former, the others being of small extent in comparison. They contain extensive seams of coal and large deposits of copper and iron. In England the permian invariably points to the presence of coal not far below, and if it should have the same significance here, the stores of that mineral in the Panhandle must be very great. Seams have been found in the carboniferous eight feet in thickness, according to the late Professor Jacob Boll, who spent much time in the Panhandle in observations. The great bodies of gypsum have already been referred to, also the salt. In Greer county large deposits of rock-salt have been discovered, and we doubt not that others will be found in other localities, for the Salt Fork of the Brazos is exceedingly salty, and so is one of the branches of the Colorado. There are some small districts in the Panhandle which contain alkali on the surface, but we do not believe it to be in quantity to be injurious to tillage. The grasses in such districts do not show that they have suffered by it. There are no alkali deserts in Texas at all similar to those which are so extensive on the Central Pacific Railway.

The geological position of the Panhandle is very favorable to artesian wells. None have ever been bored for that we are aware of, but we do not doubt that in many localities they would prove as successful as at Fort Worth, in Tarrant county, on the Texas and Pacific Railway. The borings, doubtless, would generally have to go deeper.

Mr. H. Wickeland, a very intelligent and observing German gentleman, who spent much time in the Panhandle, furnished some interesting notes on the country to the *Texas Almanac* of 1857. We extract:

"Red River proper, the Salt Fork, Prairie-dog-town Fork, and their upper tributaries have their sources in the deep ravines of the eastern border of the Llano Estacado (Staked Plain), which are very narrow and sometimes several hundred feet deep. The sharp and ragged outlines of the edge of this plain, together with the deep ravines and broken character of the detached mountains, render the scenery of that region highly peculiar. Everywhere may be seen the

powerful action of water, which for centuries rushed down from the highlands of Texas to assist the "Father of Waters" in creating Louisiana. It is apparent that the upper basin of Red River once formed the eastern slope of the high plain, but from the washing of the waters, the rich substance—red clay with a dissolved mixture of sulphate of lime, has been carried off and settled gradually along the lower streams, and now forms the rich bottoms of Red River; while the sandy portion of the soil settled in the upper streams and caused the beds of quicksand. Descending the prongs of Red River toward their junction, the country becomes less broken and more level and fertile, until it forms at the foot of Wichita Mountains an apparently boundless, slightly undulating prairie, out of which granite peaks rise in gigantic masses like the pyramids of Egypt. Red River flows in an easterly course until it encounters the Wichita Mountains; thence it turns south and receives the Salt Fork, having wound its way around the mountains, and having its waters increased by the Prairie-dog-town Fork and Pease rivers, it resumes its eastern course.

"The False Washita River, the most northern tributary of Red River, flows to the north of the Wichita Mountains. Thus the waters of Red River embrace, as it were, that beautiful mountain country, with its rich and picturesque and charming valleys, its pure icy springs and limpid streams, its droves of mustangs, and herds of buffalo, elk, deer, and other game feeding among orchard-like mesquite forests. The mountains are masses of granite and greenstone, upheaved by some action of volcanicity. The peaks are generally disconnected, the sides steep and bare, but covered in some places with scrubby cedar and oak. On the summits and in excavations of some of the mountains, where water had collected and the soil appeared to be moist generally, I also found blackberries and currants; considerably tall and well-grown mountain cedar, chittam (gum-tree) and bois d'arc. West of the basin of Red River we encountered the rugged outlines of the Llano Estacado. The edge of this plain is not one continuous bluff, but is deeply indented and bordered by detached hills and remnants of the plain, from which they have been severed by the action of water.

"On reaching the table-land a view presents itself as boundless as the ocean. Not a tree or shrub relieves the monotony of an apparently limitless carpet of grass. The greatest breadth of this great plain west of the sources of Red River is about 125 miles; it is a more or less rolling prairie, with a general elevation of 4,000 to 4,500 feet above the sea. It attains its highest elevation near the eastern line of New Mexico, where sand-ridges form a crest or 'divide.' With the exception of some sandy and gravelly belts, the plateau is covered with a thick coating of "gama" and other grasses, which will afford abundant pasturage during the whole year to unlimited herds of cattle. At some seasons of the year rains are abundant, which I am induced to think are pretty regular, but the soil soon becomes dry on account of the percolation of the water through the loose soil to the substratum of clay. A portion of the water collects in depressions and forms ponds, and with improvements, such as artesian wells and artificial tanks, a great portion of the Llano Estacado may be redeemed for cultivation."

Mr. Wickeland does not state how far it is from the surface to the impervious stratum of clay, but the belief of the writer is, from observations on the bluffs of the plain, that it may not usually be more than two feet, and often not so far. This indicates that good wells may be obtained on the plains without much trouble.

"The soil of the plain is a red loam or clay, and that it is not a desert is evident from the fact that some of the richest lands on earth, the Red River bottoms (to which he might have added the Colorado and Brazos bottoms) once formed part of the table-lands. Dr. G. G. Shumard, who accompanied Captain Marcy on his exploration of the sources of Red River, describes the bluffs of the Plain as consisting of horizontal layers of drift, sandstone, and red clay.

"The northern portion of the Panhandle is a succession of high-rolling prairies, intersected by the narrow valleys of numerous streams. It is only moderately supplied with timber. Occasionally the eye is relieved by the sight of a line of timber, which usually marks the course of streams; I also found in it groves on the elevated lands, and in ravines along the banks of the Canadian. In the latter places I saw excellent cedar, post, and burr-oak. On the north bank of the South Canadian I saw a large forest of oak timber. Lieutenant Abert, in a report, says more particularly of this, that in longitude 99° 11′ on the north side of the Canadian, we passed through a country completely covered with a dense growth of oak, commonly called black-jack; this forest stretched back from the river as far as the eye could reach.

"The Antelope Hills have obtained some reputation as a peculiarity of the country. They lie on the south bank of the Canadian River, near the boundary between Texas and the Indian Territory, and are sometimes called the Boundary Hills. They are from 100 to 130 feet high, with a table of sandstone about fifteen feet thick, very much like the Double Mountains near the head of Brazos River. The Antelope Hills, and others similar in character and form, are apparently the last remnants of an elevated plain, which once covered the whole region.

"In the region of the Panhandle country situated upon the waters of the Red River, the Canadian and their tributaries, wheat and other small grains may be raised successfully, especially where irrigation is practicable. The country may be more particularly recommended to a pastoral and wine-making and fruit-growing population. From the abundance of wild grapes, plums, currants, in all parts of the Panhandle, it may be inferred that the soil is admirably adapted to the cultivation of fruit-trees and the vine, and that may become applicable to this country, which Major Emory observes of the Rio Grande valley: 'In no part of the world does this luscious fruit (the grape) flourish with greater luxuriance than in the upper valley of the Rio Grande, as far down as Presidio del Norte.' In the months of June and July, 1856, I visited the Canadian. That country, like the whole region west of the Mississippi, was then

suffering from a severe drouth. Yet portions of the country were literally covered with plums and grape-vines loaded with the most delicious fruits. Of grapes I found two varieties, both small, sweet, and of a dark blue color. The plums were frequently an inch in diameter, sweet, and of a light yellow and red color, slightly differing from the 'Chickasaw plum.' In fact, I went on this tour with nine whites and six Indians, without any provisions, and short of ammunition, and we lived for four weeks entirely on wild meat and wild fruits.

"Persons visiting the Panhandle—in fact the whole of northwestern Texas—will be delighted with the balmy and salubrious atmosphere. The mean temperature in summer, I found, according to several years' observation, from 80° to 82°; in the warmest seasons the thermometer hardly ever rises to 95° and even when at this height the heat is mitigated by the refreshing southern breeze, which makes the nights particularly cool and comfortable."

Of the southern and western parts of the Panhandle, as we have drawn its lines for description, the same writer remarks in another article:

"The region of country situated upon the head-waters of the Colorado, the Conchos, and the Brazos rivers, is of great importance. The valleys, especially along the Colorado and Conchos, are extensive and capable of supporting a dense population.

"The soil is a rich red loam, and, on the waters of the Brazos, underlaid by a stratum of gypsum from one to three and four feet thick. A large portion of the valleys on the Colorado, the North and the Main Concho and their tributaries, can be irrigated, thereby making it less affected by dry seasons. The great facilities for stock-raising I regard, however, as one of the most important resources for this section. As a range for horses and sheep, the Colorado and Concho country has no superior in the State—having an abundance of running streams of pure and unfailing water; the valleys surrounded by hills and elevated plateaus, giving shelter to the herds against the icy northers in the winters, and a G. W. Kendall could not find a more desirable country for innumerable flocks of sheep.

"The Double Mountains are situated near the sources of the Brazos River, between the Main and Double Mountain Fork, and form a remarkable feature of the country. The two prongs of Brazos River are here twelve miles apart: the Main Fork here runs eight miles north of the mountains, and four miles to the north of these; the Double Mountain Fork reaches their base.

"The mountains rise about 500 feet above the level of the Brazos valley; correctly speaking, there are three peaks upon the same basis. At a distance the tops of the mountains appear to be pointed; still, the largest one is flat and covered with horizontal layers of limestone from four to fifteen feet thick, and about 150 yards long. The action of water is visible on all sides, and as the soil washes off, the rock on the top crumbles down. Whether these mountains are upheaved masses, or the remnants of former elevated plains, I leave to our State geologists to decide, but from the stratification, I think the latter to be the case.

"From the top of Double Mountain an extensive view may be obtained: the country is spread out before you like a map. To the west and northwest you see the unlimited plains, interrupted only by a few isolated mounds dotted over the wide space, and the tributaries of the Brazos terminating in gullies and ravines. To the east the surface presents a variety of rocky hills and mesquite flats, while south of the Double Mountain Fork, a rolling mesquite prairie extends over to the waters of the Clear Fork. Around the base of the mountains and along the banks of the rivers, there are rich salt springs; the river water up here is unpalatable.

"There is a little timber along the upper tributaries of the Brazos, but along the Colorado, Concho, and their branches, considerable walnut, pecan, oak, elm, hackberry, sycamore, cottonwood, etc., and on the hills scrubby live-oak and cedar are to be found.

"What gives this section of country a peculiar importance, is its nature and position on the edge of the Llano Estacado. The precipitous bluffs and broken character of the country north and south, form a nearly impassable barrier even to common wagon roads; whilst on the upper Colorado and Brazos there is a gentle ascent to the Llano Estacado and a practical point of crossing that plain. In consequence of these and other advantages, I have, years ago, in letters and reports to the leading men of the Southern Pacific Railroad Company, pointed out the country upon the head-waters of the Colorado, as the key of the southern route to the Pacific."

Mr. Wickeland then proceeds to mark out a line for the Southern Pacific Railroad to El Paso; and we find that, more than twenty years after he had done this, the Texas and Pacific is building along the line indicated by him.

CLIMATE, TEMPERATURE, AND RAINFALL.

THE area of Texas presents two distinct climates with an intermediate region sharing, in a marked degree, the peculiarities of both. These are bounded by lines or belts of longitude rather than of latitude, and are due mainly to the influence of moisture derived from the Gulf of Mexico, which is our great natural reservoir.

An examination of the reports of the Chief Signal officer of the United States will exhibit a marked prevalence of E. S. E. and south winds, not only along the coast of Texas, but at interior points. These southerly and southeasterly winds, starting from the boundary of the regular trades, blow through a great portion of the year, almost with the regularity of the monsoon. They come from the Gulf charged with vapor almost to saturation, which is gradually deposited as they proceed inland. West of the 100th degree of longitude they either cease to blow with the same regularity or they have in a great measure lost their humidity—for in the travel of such wind as passes from south to north, along meridians west of 97°, it is obvious they

have no opportunity to imbibe humidity after their passage over the Cordillera range of Mexico, which, having an average elevation of more than 10,000 feet, effectually rob the passing clouds of their moisture. All winds, then, ascending from the level of the Pacific, even if saturated at starting, must be very dry when they reach the west side of the mountains. Hence the prevalence of drouth in that region of Texas west of the 100th degree of longitude.

This delightful trade-wind serves in Texas the double purpose of conveying moisture and of tempering a heat in summer that would otherwise be severe—the nearer the sea-coast the cooler and more brisk the current, but the entire area of prairie and a large portion of the timbered country feel its benign influences. So that what in many other countries of this latitude would be termed "the hot season," is here not only tolerable, but often pleasant through nearly the entire summer. Sunstrokes are unknown, and exercise, even under the blazing sun, is rendered agreeable by the constant fanning of the "sweet south."

THE NORTHERS OF TEXAS.

"It is understood by many persons at a distance, that the Texas 'northers' are dreadful winter storms, which come on so suddenly and are so severe and extremely cold that man and beast, caught out on the open prairies, a few miles from shelter, are liable to be frozen to death in a very short time. In a late "Manual of Geography" the children are taught that "Texas is famous for its north winds. These come on at times so suddenly in winter, and are so cold and severe, that both man and beast have been known to perish in them."

Texas northers are sometimes undoubtedly severe, sudden, and violent, but by no means deserve their reputation for the severity of the cold which accompanies them, nor is the force of the wind ever sufficient to do any damage to trees, fences, or houses.

The people in Texas divide these winter storms into "wet northers" and "dry northers." The "wet northers" are those which bring rain or sleet and usually last twelve or fourteen hours, passing off with a moderate north or northwest wind. These really do more damage than the "dry northers," for stock exposed to their influence become wet and suffer extremely from the cold. The "dry northers" are attended with peculiar phenomena, witnessed nowhere else.

For several hours preceding the most violent of these "dry northers," there is almost a dead calm, and the air is unusually warm and sultry. A few low, sluggish clouds drift about in the eddying atmosphere. A dark muddy-looking cloud-wave next appears, low down, all across the northern horizon, which is the "precautionary signal" of the near approach of this strange Texas storm. A few minutes more and the terrible roaring of the norther is distinctly heard. All hands out of doors are now running to the house for shelter, where the logs are piled upon the ample hearth. At the same

time, the live-stock on the prairies have turned tail and are fleeing to the friendly shelter of bottom, bluff, or ravine. All this and more too; but be not alarmed, for there is no danger—for the colts on the prairie and the children in the yard are kicking up their heels, sporting amid the pranks of the whistling wind. But the dark cloud-wave is now over, and no rain, except it may be a very slight mist, followed by a dry, blue, misty haze, with the peculiar smell which is developed by a flash of lightning, though at other times it reminds one of fine straw smoke in its odor. It is highly probable that this turbidness and odor are due to the ozone set free by the high electrical excitation in a dry norther.

Let this be as it may, there is evidently, in these dry "blue northers" (as they are called) a state of high electrical condition of the atmosphere which produces a thrilling sense of exhilaration in man and beast.

The northers continue without abatement from twenty-four to forty-eight hours, and then gradually subside in from twelve to eighteen hours more. The cold which attends them is variable, often not freezing at all and then again sinking the mercury down to twenty or even lower. In one instance, at Austin, the temperature sank to six degrees above zero, but this would hardly occur twice in a lifetime.

These dry northers are considered, and no doubt are, very healthy winds. They free the air of every miasmatic influence (if such exist) and produce a delightful exhilaration, prompting to active muscular exertion in both man and beast.

Consumption never originates in the area of the norther, and persons already afflicted with that disease are always benefited and often radically cured by leading a wild, roving, open-air life, in the country where they are most prevalent.

RAINFALL.

As will readily appear from a consideration of the facts stated in that portion of this article relating to the Climate of Texas, the rainfall decreases in extent as you progress west of the 97th meridian, for the reason as therein stated, that the prevailing winds, which are southerly beyond that parallel, blow over a vast extent of elevated arid country in Mexico and are thereby robbed of their moisture. But the prevailing opinion that Texas even as far west as the 100th meridian is subject to drouths that unfit it for an agricultural country, is not borne out by the facts. A few years ago the newcomer was told that it never rained west of the Colorado River and that farming would not pay west of the Brazos. Now all the counties between the Colorado and San Antonio are devoted to agriculture and the dry belt is moved west of the latter place. It will soon have to be moved farther west. The Castroville colony on the Medina and the Hondo, and the pioneer settlement at D'Hanis, have been farming for the last thirty years, and a more prosperous community it would be difficult to find in Texas or anywhere else. The

northwestern portion of Atascosa county is largely devoted to farming; the Germans in Kendall and Gillespie counties are successful farmers—and now comes the report of fine crops in Dimmit county bordering on the Rio Grande. These localities are not specially favored as to soil or rain, but the people have some knowledge of agriculture, and are willing to expend a little manual labor in its pursuit. There is probably not an equal extent of country in the United States to that of West Texas, that has so large a per cent. of tillable land.

The reason why farming has not been carried on to a greater extent is that stock-raising, an easier occupation, has paid so well heretofore that few could be found that would follow the more arduous life of a tiller of the soil, but for the last few years farming has been largely on the increase. Many men have followed farming for years, and have made money. Appended is a letter from Mr. W. J. Locke, which explains itself and goes far to explode the idea that farming will not pay in West Texas :

"OLMOS CREEK, BEXAR CO., TEXAS, July 19, 1880.

"In accordance with your request I give you a few items with regard to farming in West Texas. I am a native of Illinois, and came to Texas twenty-seven years ago, and my first experience in farming was in this (Bexar) county in 1857. Owing to a late frost and drouth our crops were a failure. From that time until the present we have not had an entire failure. Some years our crops were light and others very good. In 1872 I made sixty bushels of corn per acre on land that had been in corn fifteen years in succession, without any fertilizing whatever. In 1873 I made but thirty bushels per acre; the difference was owing to the season. Our soil is very rich—capable of producing one hundred bushels per acre. My first experience in raising small grain in this country was in 1874, when I made seventy bushels of oats per acre. In 1878 my sons made over one thousand bushels of oats on ten acres of land. Our soil is a black loam, over four feet deep. The wheat crop of my neighbor, Mr. James H. Coker, for the years from 1873 to 1878 yielded from twenty to twenty-two bushels per acre. He planted cotton one year and gathered one bale per acre, but discontinued the cultivation of cotton, preferring to raise grain. In 1872 the late Mr. Albert Stowe, twelve miles northeast of San Antonio, told me that he made sixty-one bushels of corn to the acre. In 1876 the corn crop of my neighbor, Mr. Anton Horn, averaged forty-seven bushels per acre, and the only plowing it received was but two furrows in the row when the corn was knee high. The present year crops in many localities are light, owing to the hard frost in March and partial showers since. I believe that farming pays better here than in my native State, and during a decade we will make as much grain per acre, which commands a better price here than there.

"W. J. LOCKE."

Mr. Locke is but one of the many, and he admits that his cultivation of the soil is not nearly as thorough as is necessary in Illinois.

The employment of manures for general fertilizing is unknown, and there are lands near San Antonio that have been under cultivation for over 150 years. West Texas has a great variety of soils, from the heavy black-waxy lands, that are fairly greasy with richness, to the light sands, so easy of cultivation that a forked stick is often made to do the duty of a plow. There are very few farms in this section where improved machinery is in use, and, in fact, the only one that comes to the mind of the writer is the Capote farm, on the Guadalupe River, fifteen miles below Seguin. This farm is under the management of Major Alex. Moore, and is a marvel to all the country round. This is only the second year under the present management, but the success of modern farming is fully admitted by all who visit the place, and they are many. Major Moore has under cultivation this year nearly 2000 acres. His crops of oats, wheat, rye, barley and several other cereals, and grasses and corn, have been fully up to his expectations. He plows deep and cultivates thoroughly, and is correspondingly rewarded. The Capote farm has been in cultivation for many years, but heretofore has usually been an elephant on the hands of its owners. The failures in a series of farming experience can always be traced to the manner in which it was carried on, and not to natural causes. With the same amount of intelligence and industry that is necessary to make both ends meet in any of the Northern States, a man can win from the soil a competency in this.

The recuperative powers in this country are most wonderful, and its power of endurance equally astonishing. The soil is so porous that, once saturated with a good rain in the early spring, it will mature small grain. One good rain in May and June assures a corn crop, and cotton will languish with limp and shrivelled leaves for months and, on a good rain, make a good crop. Sometimes there is not a good frost to freeze ice for several years, and seldom later than the 1st February, or earlier than the 1st December. Many crops that are grown in the Northern States in the summer grow best here in the winter. No hay need be put up for general stock cattle, as there is always enough grazing for them the year round, and but little is needed for work stock, and, in fact, many of our so-called farmers feed nothing to their work stock from one year's end to another, obliging it to hunt its own living.

It is a well-known fact, which has been demonstrated in this and the Northwestern States, that, as the country becomes settled, the ground broken up and trees growing, the rainfall is more frequent and more evenly distributed. That has been especially the case in Kansas and this State. In 1866 little or no farming was done west of the Neosho River, but now, some of the finest and most prosperous farming communities in that State are located west of that river, and the rainfall is becoming more regular every year. The same is true here. Thirty years ago that section of country between the Colorado and San Antonio was considered worthless for farming purposes, on account of the uncertainty of rain ; now it is one of the most prosperous in Texas. In this country particularly there has

been a great change going on in regard to vegetation and the relative humidity. Thirty years ago all that country lying between the Colorado and the Rio Grande was a bare, open prairie, like that of western Kansas, and but little timber was found skirting the streams; now the whole face of the country is covered with the rapid-growing mesquite tree, which not only furnishes firewood, but a more durable fencing material than the red cedar, while the growth of timber has great influence on the rainfall, making it more copious and frequent. Thus nature, in its incomprehensible economy, is preparing the way for the increased population that is destined for this country.

The following table of the rainfall in several of the principal points in this State and the United States, will prove that Texas is not the dry country that its enemies would have you believe, and it must be borne in mind that the greater portion of the period of time that this represents we were suffering from an almost unprecedented drouth, which lasted till into the early spring of 1880.

RAINFALL IN TEXAS DURING YEAR ENDING JUNE 30, 1880.

Locality.	Inches.	Locality.	Inches.
San Antonio	38.33	Corsicana	48.53
Brownsville	27.37	Fort Griffin	37.96
Brackett	26.18	Laredo	20.88
Coleman City	39.38	Mason	22.98
Concho	23.83	Galveston	67.47
Denison	50.19	Indianola	50.79
Eagle Pass	25.43		

AT OTHER POINTS IN THE UNITED STATES DURING SAME PERIOD.

Locality.	Inches.	Locality.	Inches.
Breckenridge, Minnesota	18.37	Los Angelos, Cal	21.26
Duluth, Minnesota	33.67	Sacramento, Cal	24.86
St. Paul, Minnesota	23.44	San Francisco, Cal	35.18
Cincinnati, Ohio	38.16	San Diego, Cal	16.10
Toledo, Ohio	34.66	Philadelphia, Penn	39.39
Cleveland, Ohio	37.13	Pittsburg, Penn	32.53
Sandusky, Ohio	39.80	New London, Conn	36.14
Davenport, Iowa	33.86	Indianapolis, Ind	36.38
Dubuque, Iowa	37.05	La Crosse, Wis	33.19
Grand Haven, Michigan	34.29	Albany, New York	44.59
Detroit, Michigan	36.71	Chicago, Ill	45.03
Port Huron, Michigan	31.20	St. Louis, Missouri	41.68
Denver, Colorado	12.81	Buffalo, New York	42.27
Cheyenne, Wyoming	13.50	Bismarck, Dakota	18.37
Salt Lake, Utah	18.32	Dodge City, Kansas	24.87
Omaha, Nebraska	38.08	Leavenworth, Kansas	41.67
North Platte, Nebraska	28.77	Boise City, Idaho	11.57

By comparison you will see that the average rainfall in Texas is fully up to that of many of the great grain-growing States of the Union. There were only seven points in the United States where

the rainfall was greater than at San Antonio, and Galveston had 67.47 inches—the greatest of all the points named.

Below is a table giving the mean temperature and rainfall for each month of this year, up to the 14th of August, during which there is a heavy rain-storm in progress:

MONTHS.	Rainfall—Inches.	Mean Tem.
January	3.48	62.4
February	4.01	56.7
March	2.42	61.6
April	3.94	71.9
May	3.04	77.8
June	2.26	83.5
July	6.30	83.0
To August 14	2.78	....
Total	28.23	M. T. 70.9

Thus you will see that the rainfall for the first seven months of this year has been greater than the rainfall for a whole year in eight of the States quoted in the first table, and if the same rate continues to the end of the year, the rainfall will be over forty-eight inches. The richness of our soil is admitted by all who see it, and now it is proven that as much rain falls here as in the average of the States in the Union. The market is always good and will so continue for years and years to come; and what more is needed to make this a farming country but men who know how to farm and are willing to work?

So much for the charge that Western Texas is not suitable for an agricultural country, on account of the excessive drouths. It is not denied by any one, that there is an ample rainfall all over that portion of the State east of the meridian of Austin, and, as finally disposing of this article, we append herewith the following tables. We regret that the means are not at hand to bring both of these tables down to date, but they will at least convince any one that Western Texas is not the "rainless region" that some have pictured it.

RAIN AND TEMPERATURE.

RECORD AT AUSTIN BY D. W. C. BAKER, FOR TWENTY-THREE YEARS.

YEARS.	Inches of Rain.	Years.	Temperature.	
			Highest.	Lowest.
1857	20.00	1857–58	98	22
1858	36.37	1858–59	101	10
1859	30.24	1859–60	107	18
1860	29.61	1860–61	100	23
1861	29.69	1861–62	101	23
1862	23.17	1862–63	99	17
1863	33.85	1863–64	99	6
1864	25.16	1864–65	106	18
1865	38.40	1865–66	96	21
1866	41.95	1866–67	98	17
1867	27.19	1867–68	96	15
1868	40.09	1868–69	97	19
1869	38.54	1869–70	96	11
1870	41.23	1870–71	102	22
1871	29.21	1871–72	99	15
1872	29.81	1872–73	96	13
1873	44.94	1873–74	104	38
1874	48.79	1874–75	99	10
1875	30.70	1875–76	103	28
1876	29.96	1876–77	97	20
1877	42.12	1877–78	96	23
1878	21.56	1878–79	100	16
1879	18.34	1879–80	94	32
1880	26.21	.....	...	..
Total for 23 years	774.83			

Average annual rainfall, 33.69 inches.

NOTE.—Temperature is for years beginning August 1. Average temperature at Austin the past twenty-three years has been 67.84.

REMARKS.

There has been a steady increase in the annual rainfall at Austin, as is shown by taking periods of five years, viz. :

	Inches.
Average annual fall, 5 years, beginning August 1, '57	31.49
" " " " " '62	32.13
" " " " " '67	37.49
" " " " " '72	38.31

The greatest amount of rain which has fallen in any one month during above period of twenty-three years, was in September, 1874, inches 13.84. The greatest in any one shower was in August, 1860, when seven inches fell in four hours.

Eighteen hundred and seventy-nine was probably the driest year

ever known in Texas since its white settlement; yet in most parts of the State there was a fair crop of small grain, and the cotton crop was good, although the year 1878 was also a dry year.

The highest range of thermometer during the twenty-three years has been in July, 1860, 107°. The lowest range was in January, 1864, 6° above zero.

RAINFALL AT MY RESIDENCES IN GRIMES COUNTY.

One residence ten miles east of south, the other fourteen miles west of south, from Anderson, the county seat, for the last sixteen years.

Months.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.
January	2.47	3.12	6.39	.71	7.72	.80	4.88	2.40	1.02	1.73	4.93	2.99	3.10	2.78	2.82	2.84
Feb'y..	.61	7.44	3.17	2.82	9.62	2.46	7.03	6.70	1.55	4.40	4.42	.16	2.42	2.86	1.87	3.25
March .	2.68	1.90	1.92	1.92	4.80	3.77	6.94	.50	2.22	5.92	3.04	2.17	2.42	2.18	5.46	4.62
April...	2.24	3.46	4.24	5.60	1.82	5.59	3.62	5.48	5.35	4.38	2.55	4.68	1.00	7.62	1.42	1.62
May...	2.81	1.75	8.36	3.68	3.47	2.93	1.83	4.45	6.75	1.53	1.32	2.04	4.69	7.97	6.30	.53
June...	6.42	.13	6.17	1.00	3.08	9.34	4.86	2.60	5.20	1.03	3.09	1.34	3.20	3.92	8.94	2.59
July ...	1.48	.96	1.89	1.88	.77	5.08	1.13	4.45	4.79	4.64	2.79	4.50	.44	.73	4.54	2.50
August	3.72	7.66	7.52	.76	1.86	2.73	1.00	4.48	8.02	3.29	5.31	2.82	4.39	1.85	1.58	2.46
Sept ...	10.68	1.96	1.48	3.74	7.40	2.30	.95	4.93	2.82	1.63	2.86	.08	.42	.78	4.39	6.87
Oct....	3.23	4.37	3.00	1.03	2.13	5.13	2.17	.20	5.86	2.28	10.70	5.70	7.67	5.68	1.63	.33
Nov....	1.78	7.75	.22	4.53	1.93	5.44	1.53	5.45	3.15	9.39	.95	3.04	2.74	5.75	4.39	3.96
Dec....	2.56	2.46	2.43	3.70	2.72	4.34	1.16	2.08	1.26	8.06	3.39	2.29	.31	4.55	1.30	7.86
	41.16	43.02	46.81	31.40	47.36	48.28	37.15	43.92	45.99	49.28	44.95	31.81	32.80	46.67	44.56	39.43

A true copy (condensed) from my record of rainfalls to January 1, 1875.

GWYN MORRISON.

LENGTH OF SEASONS.

There is no appreciable difference between this country and the Southern States of the Union generally, in the length of seasons. Spring commences about the middle of February, and planting is begun in February and March. The warm weather sets in about the first of June, and continues till about the first of October. September, October, November and December are the great "cotton-picking" months, and it is hard to find more delightful weather anywhere in the world, than an average November or December day in Texas. The air is cool and balmy, and all nature wears a peculiar aspect of calmness and rest, which is most delightful to the senses. The advent of wintry weather rarely occurs before the last week in December, but at no time is it cold enough to discontinue work out of doors. With the exception of an occasional rainy day or "norther," the industrious farmer can find no reasonable excuse during the entire year to keep "his hand from the plow," or some other useful implement. The *resting* time is when the corn and cotton are laid by, the wheat, oats and other small grain harvested, and the sweet south breezes breathing over a sea of grassy prairie, invite to a *siesta* and day dreams under the shadow of the wide piazza.

WATER SUPPLY AND QUALITY.

The watercourses of Texas are numerous, but while the principal streams are of great length, they are not navigable to any considerable extent. But the supply of water for all domestic and farm purposes is quite sufficient for the wants of any increase of popula-

tion. In all the eastern, northern, middle and southern portions of the State, good wells are obtainable at very moderate depths, and the water is wholesome and pure. Springs and rivulets of bright, clear sparkling water are especially noticeable in the cretaceous region west of the Brazos River. After passing the 100th degree of longitude, going west, surface water becomes scarce, but even here a good supply can be obtained by digging almost anywhere at moderate depths, and a sufficiency for stock purposes is easily obtained by constructing inexpensive "tanks" or reservoirs to catch the winter rains.

Cistern water is used very extensively in the towns and cities of Western and Middle Texas, many persons preferring rain-water to the natural supply, which in the cretaceous region is more or less impregnated with lime. Besides there is a common opinion that rain-water is more healthy than any other kind. This may or may not be true, but certainly there are no healthier people in the world than those inhabiting the rural districts of Western Texas, and these depend in the main upon the natural supply.

HEALTHFULNESS.

It may be safely said that the people of no country enjoy a higher standard of general health than Texas. We have not at hand any reliable vital statistics, but the United States census for 1880 will soon be accessible, and that may be consulted in verification of the above statement.

It is true that in the timbered portions of Eastern and Southeastern Texas, along the river bottoms, malarial diseases of a mild type are sometimes prevalent in the latter part of the summer, and these are very distressing to persons from a northern climate, especially the first season; but these complaints yield readily to treatment, and they can be altogether avoided by the judicious selection of a living locality unexposed to miasmatic influences. The house of the immigrant should never be located in a bottom, but on a hill, and if possible, with any creek or river on the *north* side, as the prevailing winds in the summer here are from the south. The greater portions of Texas, however, notably of Central and Western Texas, are as free from malarial influences as any part of the world.

Bilious and intermittent fevers, and fever and ague may be expected in heavily-timbered river and creek bottoms in the hot months, but these can be easily avoided by proper precautions and the danger of them need not be encountered at all.

Consumption, that dreaded and fatal disease of northern climates, never originates in Texas, and many who have come here predisposed to, or suffering with incipient conditions of consumption, are entirely restored to health and live out their natural lives. Diphtheria, another scourge of northern climates, is, we believe, unknown in Texas.

Winter and typhoid fevers are very rare, and never prevail as epidemics, and the cases that do occasionally occur, do not prove of the

stubborn and protracted character that attends them in the older States. Endemical diseases are few, and in general they are easily and quickly subdued.

Yellow fever has not prevailed, even in the coast cities for many years, and it is believed that the rigid system of quarantine now adopted will effectually exclude that disease for all time to come.

MEDICAL OPINION.

The following extracts are made from a paper read at the Ninth Annual Session of the Texas State Medical Association, by Dr. J. B. Robertson, one of the oldest and most highly esteemed physicians of the State:

"That portion of West and Southwest Texas lying west of the 98th meridian of longitude, and north of the 29th degree of latitude, has an elevation above the sea, beginning fifty miles south of San Antonio, of 500 feet, and gradually rising, as the line is traced north, to 2,000 feet. This region is drained by the following rivers and their numerous tributaries: Brazos, Colorado, Guadalupe, San Antonio, Nueces and Rio Grande, all of which find their outlets into the Gulf of Mexico. The rapidly decreasing elevation of the country through which these streams pass in their course to the sea, secures to the section named the most perfect and thorough drainage. In addition to this fact, this vast area of territory is entirely free from ponds, marshes, lakes or stagnant bodies of water, to disturb, with their contaminating effluvia the purity of the atmosphere. Here are also found the principal mountain ranges, of which the Guadalupe is the largest and has the greatest elevation. These mountains, with their intervening valleys and plains, with their springs of pure and limpid water, which for beauty and picturesqueness, are rarely equalled and never surpassed, are beginning to attract the attention of the professional man in search of a locality for the climatic treatment of diseases of the respiratory organs, especially phthisis.

"It is a source of much regret that I have not been able to get satisfactory reports of the range of the thermometer and the barometer, with the humidity of the atmosphere. I am only able to give the mean temperature for the seasons and year (means obtained from six years' observation at San Antonio), ending with the year 1875, which is, Spring, 69.94°; Summer, 85.56°; Autumn, 68.95°; Winter, 52.94°: for the year, 68.85°. The mean average rainfall for the same period was 36.90 inches. For these figures I am indebted to Dr. Fred. Peterson, of San Antonio.

"The pressure of vapor, its weight, the absolute humidity, have, as far as I know, never been measured, but the observations of daily life, by all who have lived in any part of this section, or travelled through it, concur in attesting the astonishing rapidity with which the roads dry after a fall of rain, and the perfect preservation of meats for days, hanging in the open air, indicating unmistakably a small amount of moisture suspended in the air.

"That eminent English author, Dr. James Henry Bennett, in the second edition of his valuable work on the 'Treatment of Pulmonary

Consumption by Hygiene, Climate and Medicine, in its Connection with Modern Doctrines,' after demonstrating the error of sending consumptive patients to all the points, both in Europe and America, that have been selected, and are now being used for the climatic treatment of consumption, concludes thus : 'We are always, however, at a loss to find a cool summer residence in the States, where the minimum in July and August would be between 50° and 60° Fahr., and the maximum between 60° and 70°. I wish, therefore, my American colleagues would try to find out some such locality in their mountain ranges at an accessible distance from New York.'

"While the range of the thermometer in the region here treated of, as far as record has been kept, is higher than that indicated by this experienced author, the known dryness of the air, together with the cool and refreshing breeze, which is universally prevalent, may more than compensate the consumptive patient for the difference in the range of the thermometer. The beneficial effects of the climate, in the area treated of, is not simply a matter of opinion on the part of the writer on purely theoretical grounds. During a practice of over thirty years in Central Texas he has seen many patients sent there with clearly marked indications of consumption, and at a time in the history of the country when such patients had to rely almost entirely upon the climate for the benefit they received. In all cases the change gave marked relief, with, he believes, a prolongation of life for years with some, and a perfect cure with others."

Those invalids coming to Texas, who have sufficient vitality to endure an active life, would do well to prepare themselves for camping out, provide ample means for fishing and shooting, and start for the rarer and drier atmosphere of the mountainous regions of Western Texas. To those who have a taste for these sports this will be very pleasant ; and for invalids nothing is more conducive to their health and good digestion than the appetite born of exercise in the open air and the game with which they satisfy it. All physicians advise invalids coming to Texas to take plenty of out-door exercise. No evil consequences result from sleeping in the open air. The more the invalid can live out of doors the better the chance for his recovery

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IS TEXAS A LAND OF LAWLESSNESS?

Texas is often represented as a rough border country, without organized society and without the characteristics that distinguish an elevated, refined and progressive people. Irresponsible immigration agents, whose interest often depends upon the number of people they send over certain lines of railroad, delight to picture her as the home of the desperado and the abiding place of lawlessness and crime. No better evidence of their mendacity need be cited than the extraordinary progress Texas has made within the last decade. The turbulent elements of society can find no congeniality amid a live, active,

working and progressive people. Idleness is said to be the fruitful mother of wickedness and crime. The industrious and progressive citizen finds no time for the commission of crime, but delights in the pleasures and victories found along the pathway of progress. While working upward he is contented and pleased with the world and himself. The avenues of crime lead from the haunts of indolence as certainly as are the ways of progress traceable to honest, unceasing toil. The rapid march of Texas, in those great industries which bring wealth, contentment and honor to a people, briefly stated, should do more than anything else to convince the thinking mind that she has been most wickedly maligned.

Her population has increased from 818,579 in 1870 to 1,654,480 in 1880, an increase of more than one hundred per cent. The principal source of this increase is from immigration, and the question might be pertinently asked here if there is anything in the atmosphere and climate of Texas to make these people more lawless and disorderly than in their former homes. They have come from every clime and from under every form of government. Accustomed to the stern rule of monarchy or the gentle power of republicanism, they bring with them their ancient love for well-regulated and orderly society which distinguished the countries from which they come. They have found here a government based upon the consent of the people whose laws are the formulated expression of public sentiment. An examination of the Statute Book will show that our laws are as rigid in the punishment of crime as those of any other land, and the records of the courts exhibit an almost unfeeling enforcement of their stern requirements. What, then, is there to make them more lawless than other people in other countries or the same people in other countries? The records of history teach that a people engaged in development have but little time or opportunity for indulging either in the glitter of ostentation or the despicable pursuits of criminal pleasures. It is impossible that a people who are progressive in wealth, education, and the arts and sciences can be lawless and disorderly, nor can depravity or corruption be long tolerated among them. No State in the Union will show more rapid strides in material development and in all the improvements of civilization than Texas. Crushed in her hopes by the total abolition of her labor system, she cast off all regrets and disappointments and with manly courage commenced anew the race of life ; and now mark her onward course.

In 1870 she occupied a low position in the grade of the States according to their productions. Her farms were almost fenceless and her farm-houses were but the rude structures of a pioneer people. Her agriculturists practised the rude methods, with the ruder appliances of the frontiersman. The log-hut has now given way to the cosy farm cottage or the more pretentious country gentleman's seat. The farms are well fenced and primitive modes of agriculture have developed into the improved machinery and skilled systems of cultivation practised by the educated husbandman. In 1870 the production of cotton was 350,628 bales, which product was low down on

the list of the cotton-producing States. In 1880 she stands at the head of the list, producing fully one-fifth of the entire American crop. In 1870 her crop of wool amounted to only 1,251,328 lbs. In 1880 she has grown to the rank of the second wool-producing State of the Union. In beef production she stands unrivalled. Though cotton raising is a specialty in Texas, yet she is pressing close upon the heels of the great grain-growing States of the West in three of their most important cereal crops, corn, wheat and oats. The cotton crop has increased 300 per cent. and it may be safely estimated that the production of corn, wool, wheat, oats and sugar has maintained the same relative increase. This rapid growth in her great agricultural productions is not due alone to immigration, but is in part the result of the thrift and enterprise of her people upon the bosom of the most fructifying soil beneath the sun. Nor is it due to the vast extent of area. No other State of the same population can equal her in increase for the same number of years, and no other State of equal population can rival her in the production of those great staples of the soil which bring wealth to a people. Truly in agriculture she is growing great and powerful, but her progress is not confined to this department alone. Her commerce is spreading out and attracting the observation of other countries. In wool, hides, beef, and cotton her exports exceed those of any other State. Galveston is the third cotton port of the Union, and if the channel to her bays were deepened, so as to admit vessels of the heaviest tonnage, she would soon take rank with the first exporting cities of the United States. A tithe of the vast sums annually appropriated by Congress for works of trifling local importance, would give Texas a harbor such as her importance demands; but for this neglect her rich products are carried over long and expensive railway lines to find their way to the markets of the world through the ports of other States.

In 1870, the number of completed miles of railroad in the State was 711. In 1880, it is upwards of 3,000, and we can with certainty state that there will be built and equipped more miles of railway in her limits in 1880, than in any other State of the American Union. The sagacity of capital, ever on the alert to turn another penny, is pushing these railways out into the regions of the west, where the grass grows unruffled by the foot of civilized man. It knows that these rich soils and genial climate will, in the immediate future, invite the labors of the frugal farmer, and from their productiveness will come the tonnage it covets. Is it not an unwarranted assumption to suppose that this vast capital would seek investment in a country where law is disregarded and human rights are ignored? Capital is proverbially cautious and prefers safety to large profits. Yet we are told that the people of Texas are lawless, and that crime holds "high carnival" in her borders.

The number of children attending public schools in 1870, was 61,010. In the year 1880, despite the reduction of the scholastic age from six to eighteen, to eight to fourteen, the number of children in attendance upon the public schools was 144,968. This increase points with wonderful effect to constant improvement in the system,

and to the determination of the people to foster and perfect a system of public education.

The increase of church membership has kept even pace, if it has not exceeded that of the other growths of the State.

Can it be that a people who are making such rapid strides in all the arts of civilization are disorderly and brutal, and that person and property rights are unsafe?

We would not be understood as asserting that there is no crime, no diabolism in Texas. It exists in every country and under every form of government. If there were no crime there would be no necessity of government. It does exist in Texas, and to a much greater extent than we like to see, but that it is more prevalent here than elsewhere, or that it is tolerated here to a greater degree, we most emphatically deny, and point with pride to the speedy march of our people in all that constitutes greatness and good society, as an unerring and irrefragable proof of the unfounded and often repeated charge that Texas is a land of lawlessness and crime. A thrifty, industrious and developing people are most apt to frown severely at all disturbances of peace and the order of society. The safety of the earnings of their toil depends upon a proper recognition of human rights and the laws of the government. A people making such progress as Texas shows must be patient, laborious, and law-abiding—politicians and interested immigration agents to the contrary notwithstanding.

The following is an extract from the report of the attorney-general of the State, made December 31, 1880.

"The exhibit hereto attached among other things will show that between the 30th day of November, 1879, and the 1st day of December, 1880, there were 3,525 indictments, charging felonies, presented in the district courts of the State, and that of the cases tried during that time, there were 906 convictions in felony cases. These indictments and convictions were as follows:

	No. of Indictments Presented.	*No. of Convictions had.*
For embezzlement	78	8
For murder	259	88
For rape	44	9
For perjury	74	5
For forgery	131	36
For burglary	204	94
For arson	23	5
For robbery	99	18
For theft	1,758	483
For other felonies	855	160
Total	3,525	906

During this same period there were filed in the district courts indictments and informations charging offenses below the grade of felony to the number of 4,945, while the convictions for misdemeanors in these courts amounted to 399. This small number of

convictions is owing to the fact that most of the indictments for misdemeanors are sent to the county courts for trial.

It is evident from these reports that crime is on the decrease in the State. Take, for instance, the following comparative statement, showing the last four years, and bear in mind that the reports for 1880 include nearly all the counties, while those for the preceding years do not include a large number of them, as also the fact of the increase of our population during the time. There were presented during these years indictment for offenses, as follows:—

	1877.	1878.	1879.	1880.
For murder	398	549	344	259
For theft	2,260	2,371	2,081	1,758
For arson	26	24	19	23
For perjury	82	90	79	74
For rape	53	53	34	44
For robbery	51	49	47	99
For forgery	85	258	155	131
For burglary	175	154	183	204
Total	3,130	3,548	2,942	2,592

During the same four years the reports show the convictions for these offenses to have been as follows:—

	1877.	1878.	1879.	1880.
For murder	71	122	115	88
For theft	471	558	651	483
For arson	5	7	5	5
For perjury	3	1	10	5
For rape	11	9	16	9
For robbery	13	24	9	18
For forgery	9	17	19	36
For burglary	58	61	82	94
Total	641	799	907	738

This array of statistical facts is an unanswerable refutation of these groundless charges. Those seeking new homes to better their condition will find here a hearty welcome, where their property and persons will be as sacredly guarded as in any government of the world, and their energy and industry as liberally rewarded. No country offers a broader field for human labor, and no people appreciate more highly the benefits of good society than the people of Texas. Honesty and industry will be encouraged, and crime will receive the condemnation of an indignant people.

The following comments on this subject clipped from one of the great New York dailies of February 2, 1881, shows how our State, so much abused in this respect, is coming to be regarded by fair-minded men:

"Stalwart journals keep on repeating in 1881 the comments upon the lawless condition of Texas which were in order in 1851. As a matter of fact the annual report of the attorney-general of that State rendered at the close of last year makes an exhibit on this subject which Massachusetts might be glad to emulate. In 1878 there were

549 indictments for homicide preferred in Texas. In 1879 there were 344, and in 1880 259—being a decline of about 300 in two years while the population was growing. During the same years there was a similar percentage of decrease in thefts—from 2,371 in 1878 to 2,081 in 1879 and to 1,758 in 1880; in forgery, from 258 in 1878 to 155 in 1879 and to 131 in 1880; in the aggregate of eight principal felonies from 3,548 in 1878 to 2,592 in 1880—while on the other hand the percentage of convictions increased. Our own City of Churches cannot present so clean a bill as is this showing from Texas. Moreover, in the opinion of the attorney-general of Texas the percentage of indictments in that State, to the whole number of criminal occurrences, is as favorable as any like proportion in any other part of the Union. A generation ago the letters G. T. T., meaning 'Gone to Texas,'—indicated in the slang of the time the name of a fugitive from justice. They now apply to as prudent and peaceable a community of settlers as can be found in any of the older States, or in any of the newer States in which, as in Texas, immigrants establish themselves upon the ever-spreading network of the railways."

MINERALS.

SALT.

THIS mineral is found in nearly every portion of the State. In Southwest Texas, near the Gulf, it is deposited in vast quantities in lagoons. The winds drive the salt-water of the Gulf into these lagoons, where it becomes cut off from the sea, and is evaporated by the hot sun, precipitating the salt. This process of salt-making is kept up continually, so that millions of bushels are made every year. During the war these lagoons were the principal salt supply of the State, but since the war they have not been resorted to except by those living in the vicinity. The salt is of the purest quality. In Eastern Texas there are many salt springs, the most noted of which is the Grand Saline in Van Zandt county. Salt is manufactured here in quantity to supply the demand of that portion of the State. In Lampasas and Llano counties also are salt springs, which are utilized for supplying the local demand. The salt is of the finest quality, and enough of it could be manufactured here to supply the State. These springs are said to issue from lower silurian rocks. In Van Zandt county the surface is tertiary. The region beyond the Pecos and also the Panhandle contain this valuable mineral without end. There are many large lakes of intensely briny water whose bottoms are covered with salt, which is easy to procure. As fast as it is gathered it precipitates again. These lakes are doubtless fed by springs issuing from beds of rock-salt. In Greer county large beds of rock-salt have been found, and there is little doubt that it will be found in many more places in the Panhandle country.

The Salt Fork of the Brazos is a beautiful clear sparkling river,

whose waters are intensely briny. Pure crystal salt forms like ice along its borders. From this river could be manufactured salt enough to supply the whole United States.

GYPSUM.

This mineral, like salt, is widely disseminated in Texas. There is hardly any portion of the State in which it does not exist in some form or other, and there is no portion of the State in which its pulverized constituents do not exist in the soil. To the abundance of gypsum the fertility of Texas is largely owing. In the Panhandle there are immense deposits of it covering several hundred square miles and of unknown thickness. It is here found in all forms, from the common massive to the finest alabaster and most sparkling selenite. In many counties of North Texas it is disseminated through the soil in cubical prisms, often forming layers to itself. It is found near Georgetown, in Williamson county, at the Falls of the Brazos in Falls county, and near Mount Bonnel, in Travis. Texas has enough of this material to supply the whole world, and yet there has never been a barrel of plaster of Paris manufactured in the State. Though having more of it than all the rest of the world combined, probably, we import from Nova Scotia every pound that we use. Here is a good opening undoubtedly for some enterprising manufacturer, or thousands of them. Gypsum is well known as a fertilizer. Texas ought to export hundreds of thousands of barrels annually to restore the impoverished soils of some of the older States, and doubtless would do so if the manufacture were done on a large scale. The Texas and Pacific Railway is penetrating a country that is literally full of it.

COAL.

As Texas has never yet had a geological survey the extent of her coal strata is not well defined. It is supposed, however, to embrace about thirty thousand square miles, in the northern and western portions of the State. Over this great area coal has been found at a great many places, but at no place has it been mined except to a very small extent. It is a bituminous coal, and almost if not quite precisely similar to the McAllister coal of the Indian Territory. Some anthracite has also been discovered in this coal territory. The railroads are now penetrating the coal formations of Texas and this great source of wealth will now doubtless be rapidly developed. So far it is a virgin field.

In addition to the true coals of Texas there is an immense bed of lignite which extends apparently across the entire State from northeast to southwest, in the eocene formation. It is said to be at some points twenty feet thick, and the writer has seen it twelve feet in thickness cropping out along the Brazos in Robertson county for nearly a mile. This lignite much resembles cannel coal, and doubtless would be made quite equal to it by a process of pressure by machinery. It is very fat in various oils and gases, and would make

the best sort of gas coal. A process of coking it has been invented by Mr. Theodore Dumble, of Houston, which is said to be a complete success. There can be no doubt that these vast lignite beds will prove a source of much income after a while. It is an excellent fuel for stationary engines and makes a splendid fire for the house, but is somewhat objectionable on account of its odor.

Since writing the above note on the coals and lignites of Texas, the writer has visited and examined the region about Gordon, in Palo Pinto county, on the line of the Texas and Pacific Railway. The examination was more particularly confined to the range of steep hills which flank the valley of Palo Pinto Creek on each side. The whole region thereabout is of the true carboniferous formation, consisting mostly of reddish sandstones, red conglomerates and dark-colored shales, all inclosing fossils which are characteristic of the coal formation everywhere. On every hill-side in this range which we had an opportunity to examine, out-croppings of coal were discovered. One of these out-croppings on a hill-side had been opened and pursued into the hill about eighty feet, by a company of gentlemen who had bought a good deal of land in the neighborhood. At the surface exposure, coal rose a foot in thickness, but at eighty feet under the hill, it had increased to thirty-one inches, and was still increasing at every stroke of the pick. They were taking out from four to five tons a day of bituminous coal, scarcely distinguishable from that mined at McAllister in the Indian Nation. With more labor this amount may, apparently, be indefinitely increased. About a half mile above this point the same company had exposed a layer of over forty inches in thickness ; and farther on, as they stated to us, they had discovered another layer of sixty inches, including six inches of shale about the centre of the vein. We do not doubt from what we saw and heard, that every hill in that range is underlaid with coal, and even if the coal exists only in these hills, these latter are so numerous and extensive that the supply of coal must be very great. But it is pretty safe to assume that another layer of coal lies below that which crops out on the hill-sides, at a depth of about forty feet. The reasons which lead to this belief are, first, that coal has been found at at least two places in the bed of Palo Pinto Creek, lying apparently about that depth below the veins on the hill-sides ; and secondly, in two or three wells in the valley which we had opportunity to examine ; the same red sandstones and conglomerates that cover the soil on the hill-sides were exposed. Had the wells been sunk deeper, we have little doubt they would have encountered the same vein of coal found in the bed of Palo Pinto Creek. We did not see this lower bed of coal, but were told by many that at one place it is at least three feet thick ; though some others said it was only one foot. We did not have time or opportunity to see which side was correct.

At Gordon we met Mr. I. N. Guest, of Eastland county, a citizen of good standing, who told us that twelve miles from Gordon, in Erath county, there was a deposit of the same sort of coal six feet thick, which he himself had explored. He offered to pilot us to the spot, but we had no time to accept his services.

From what we could observe, this same coal formation extends along the Pacific Railroad from the Brazos River to a point a few miles east of Eastland city, a distance of about forty miles. It appears again west of that point according to reports of the citizens, and extends northward and southward to limits that are not yet well defined. There is no reason to doubt that plenty of coal will be found all over that great territory.

MARBLE.

At the Marble Falls on the Colorado River, about forty miles above Austin, is marble enough to supply the demand for centuries. It also exists in many other places. It is white, variegated and black. And yet Texas imports every slab of marble that she uses. It seems that this marble might be brought down the river to Austin on flat-boats, but a gentleman who has made a canoe trip on the river, tells us it would be risky and hazardous. Doubtless it will not be very long before these vast deposits of marble will be made accessible by railroad. In many portions of Texas the limestone takes a fine polish, and is then called marble by the people.

KAOLIN, POTTER'S CLAY, ETC.

Kaolin, or porcelain clay, is found in many portions of the State. The largest deposits are near Bremond, in Robertson county, where there are forty acres or more of it, of unknown depth. In Llano county is another large deposit. In both cases it is of the purest kind, but has a considerable percentage of the clearest quartzite sand, which can be readily sifted out. There is enough of it in the State to supply the porcelain wares of the world for ages. It exists in Washington, Falls and other counties. Potter's clay and fire-clay are abundant in Robertson county and many others. Just beneath the beds of lignite is a bed of fire-clay of the best sort, about four feet thick. The fire-clay and potter's clay are being utilized to some extent, but nothing is done with the kaolin.

HYDRAULIC CEMENT.

A stone which makes a superior hydraulic cement is found in Williamson county, near Round Rock, also in Hays, Guadalupe and other counties. No doubt it exists abundantly in other localities. It has been used to a very small extent, but there is no cement factory in the State.

CARBONATE OF LIME.

There is no end to this material. It is the almost universal stone in the vast extent of the cretaceous formation of Texas, and is also found in every other system. Even in the alluvial or Gulf plain, it exists at Damon's Mound in Brazoria county — a very fine, compact limestone, making a superior quick-lime, and enough of it to

supply a large demand for an indefinite period. This mound covering some 200 acres is a curious geological freak. It has not been examined by competent scientific persons, but was doubtless a mountain or island rising out of the eocene sea. If there was a railroad to it, it would supply all Southern Texas with quick-lime. At present it is only utilized for local use. The quick-lime manufactured at Austin is snow-white and very strong. It is even superior to the "finishing lime" of Rockland, Maine. It is also manufactured extensively at many other points in the State. Texas used to import large quantities of quick-lime annually from Maine, but since the railroads penetrated the cretaceous regions, she has not imported any.

GRANITE, SOAPSTONE, SLATE.

There are several primitive districts in Texas where these minerals abound. The largest is that which extends from Burnett county westward toward the Rio Grande. The granite in this district is of a dark gray and bright reddish, the latter precisely like the celebrated Aberdeen granite of Scotland. It takes on a brilliant polish. Both varieties are very fine grained, and admirable for building stones. Another variety occurs in masses of small extent, composed of felspar and hornblende. A very handsome stone, and apparently not too hard to work. Various kinds of porphyry occur in the same district. Soapstone is found in Burnett, Llano and many other counties. Slate is abundant in the same district, suitable for roofing, etc. Asbestos is in the same locality, but not discovered yet in considerable quantity.

PETROLEUM.

It is not known whether this mineral oil exists in Texas in paying quantity, but there are many indications which lead to the conclusion that it does. Mr. N. A. Taylor writes in Burke's *Texas Almanac* for 1880 :

"There is, I believe, a river, so to call it, flowing through the subterranean cavities of Texas. I believe it takes its rise in the carboniferous strata north of the great bend of the Colorado, above Lampasas. Thence it flows in a southeast direction. The first indication known to me of this stream is in Burnett county at the "Tar Springs," where petroleum covers the surface of the water. Again it appears to the southeast, in Bell county. Again it makes its appearance at several points in the same direction, in the unfrequented forests and thickets penetrated by the Great Northern Railway. Farther southeast it appears again nine miles northwest of Sour Lake, in Hardin county. At Sour Lake it appears again on most of the wells, and has covered the surface for a considerable space with hard asphaltum. Again, some thirty miles southeast, it appears near Beaumont. Some fifteen miles from that point, an arm of it comes near the surface at Sabine Pass, and throws considerable oil on the water. Below Sabine Pass another arm comes near the

surface at what is known as Oil Bay, on the Gulf, where the water is so covered with the oil, that the waves have no effect. Even when the Gulf is on its heaviest "benders," the waters of this bay are said to be perfectly quiet and peaceful, and it is, therefore, a favorite place of refuge for coasting vessels when storms are threatened. How do we know but that this river of petroleum may not pass through the subterranean cavities under the Gulf, and be the same that at last boils up in Trinidad, which makes the great asphaltum lake? Along the shores near Sabine Bay, it is also common for chunks of asphaltum to be thrown up by the sea."

IRON.

Texas is peculiarly blessed with this important metal. In Eastern Texas there are immense deposits of hematite or brown oxide of iron. It runs through many counties often forming high hills, which are literally filled with it. These ores contain from forty to seventy-five per cent. of metal. In some places they are worked to some extent. The region in which these ores are situated is heavily timbered; so charcoal for reduction can be had at a nominal figure. The iron turned out is of excellent quality. In Robertson, Limestone, and other counties of Central Texas the same quality of ores exist, and generally in close proximity to immense beds of lignite. But perhaps the grandest accumulations of iron ores in Texas, and probably anywhere else, are in Llano and Burnett counties. It is here in connection with primitive rocks and appears mostly as magnetite. It rises out of the granite in immense seams and dikes. It has been wrought to a small extent, and found to yield from seventy-five to ninety per cent. of metallic iron, equal to the best Swedish. There is plenty of timber for charcoal and limestone for flux. Besides, coal has been found near-by, and it is known to be abundant a little farther to the north. Soapstone is abundant in the same localities, valuable for furnaces. When railroads reach that region, Texas instead of importing her railway iron, will doubtless export it to other States. Beyond the Pecos iron ores also occur in immense masses. Sometimes it appears in a very peculiar form, resembling masses of incrinites compacted together and converted into solid, glistening iron. In the permian and carboniferous formations of North Texas and the Panhandle it also occurs in great abundance. The late Prof. Jacob Boll, having thoroughly examined the mineral deposits of that portion of Texas, declared it to be as rich in both iron and coal as England itself.

COPPER.

This mineral exists in abundance in the permian rocks of North Texas and the Panhandle, especially in Archer, Wichita, and Wilbarger counties. Indeed, it is very widely distributed throughout the Panhandle. The ores have yielded to analysis about sixty per cent. of copper. It is found also in veins in the primary region of Llano, Mason, and other counties. Beyond the Pecos it is found in many

places, in the same character of rocks. This mineral apparently is almost as abundant in Texas as iron, and in time must become an important article of manufacture and export. So far, no serious effort has been made to utilize these ores, owing mostly to difficulties of transportation. The copper-bearing regions are now being penetrated in several directions by railroads.

Mr. A. R. Roesler writes: "A deposit of copper ore of unexampled extent, of which information was first communicated to me while in charge of the mining museum connected with the United States General Land Office, Washington City, by a citizen of Texas, exists in Archer, Wichita, Baylor, Haskell and Stonewall counties. Upon examination it was found to be a highly interesting ore of copper, nearly a pure sulphuret, containing 72.45 per cent. of metal. Its geological connections are of the highest interest and proves that the metalliferous tract is a portion of the permian formation, which stretches down from Kansas into Texas, and is the only example of this formation known in the United States. The ore is found lying on the hill-sides and always near the surface, giving no trouble in mining or for drainage. Four persons in ten hours dug out six thousand pounds of the ore on the lands of the Texas Copper Mining and Manufacturing Company, Little Wichita River, Archer county, averaging seventy-six per cent. of copper. Coal, timber, limestone, and all other requisites for building furnaces and smelting the ore are in the immediate vicinity, and the projected line of the Dallas and Wichita Railway passes over the locality."

The late Prof. Jacob Boll writing of the same region, says he has seen these ores in "inexhaustible extent."

BISMUTH.

This mineral has been found in connection with the copper ores in Northern Texas and west of the Pecos, but to what extent we are not prepared to say. Prof. S. B. Buckley, late State geologist, says "it is the native bismuth and occurs in massive layers." As to the quantity, future investigations must show. If found abundant it will prove an important resource, as nearly if not all the bismuth now used in the United States is imported from Europe.

SULPHUR.

Sulphur is known to exist in El Paso county, and, it is said, in large deposits. Sulphur springs are numerous in many parts of the State, and it is not improbable that many more deposits of sulphur may be discovered.

LEAD AND SILVER.

Veins of carbonate and sulphurate of lead are numerous in the mountains of Presidio county, but nothing is definitely known in regard to their extent or richness. Cabinet specimens from that region have been found very rich. In San Saba county, Llano, Mason, and

perhaps one or two adjoining counties, the calciferous sandstone of the silurian series is largely developed. This is precisely the same rock which yields lead so abundantly in Missouri, and it may be found to do so in Texas. More or less silver is found in connection with the lead in all these localities. In Llano county several veins have been discovered of so promising a nature that men of capital are now erecting costly machinery to work them. Several of these veins are said to show over two hundred ounces of silver to the ton, besides lead, copper, and some gold. The geological position is highly favorable to rich mineral ores.

In 1879 three of the Texas railroads organized and sent a joint expedition under two experts, to examine the Chinati Mountains west of the Pecos, which are but a small portion of the metal-bearing rocks of that large territory.

We copy a part of Captain Nichols's report:

"With a party passing through a rough, broken and mountainous country, and all the time on the lookout for an enemy, as the party were compelled to be, it is not to be expected that they can make anything but a very slight examination of those mineral resources which a well defined and more systematic exploration would in all probability develop.

"The Hot Springs section along the Rio Grande, commencing twenty-five miles south of Eagle Springs, presents every appearance indicating rich mineral resources awaiting development. The principal one of these springs has an opening or basin of twelve by sixteen feet. The depth is unknown. The temperature of the water is about 160° Fahrenheit. The basin of this main spring, from the accumulated deposits from its waters, is now elevated about three feet above the level of the surrounding valley.

"One other, but smaller spring, of like character, is close to this one, and at the distance of two miles there is another one where the temperature is not above one hundred degrees.

"Before the return to the main camp of the party under Mr. Bruce, we had found quite a number, something over forty, additional silver-bearing leads in and around the Chinati mountain range, all within a territory twelve miles by twenty. Assays from these several leads show an average of from ten to one hundred and sixty ounces of silver to the ton of ore, with some selected specimens running as high as three hundred ounces, and all from surface croppings, or within five feet of the surface. None of the openings made by our party were of sufficient depth to make any material change in the character of the ore, and were made more for the purpose of getting at the actual width of the lead than for anything else, as we were not in condition to investigate to any great depth for want of the necessary tools and the facilities for keeping tools in working condition.

"We found, in addition to the silver-bearing quartz leads, others containing copper, bismuth and argentiferous galena, all well defined. The best mineral leads are located on the south side of the mountain range, but we also found quite a number on the north side

"The width, in many instances, of the argentiferous rock would exceed three feet, and in some leads ran as narrow as eighteen inches. In one place we opened a lead to the depth of four feet that showed, side by side, three distinct silver-bearing rocks, each one being entirely different from either of the others, and giving, by assay, eighteen, thirty-six, and forty ounces of silver per ton. . . .

"In closing, I believe that the work of this expedition has clearly demonstrated the existence of good paying mineral in and around the Chinati Mountains, for certainly no mineral district in our whole country has ever shown more promising surface indications of the existence of good paying ore than the one visited under your instructions. With an altitude some five thousand feet above San Antonio, and an entire freedom from malarial diseases; with an atmosphere that had to the full extent that remarkable clearness and purity for which the mountains around Denver, Colorado, are justly celebrated, a daily exercise in which the whole human system seemed to be invigorated and renewed; with springs of pure limpid water making their appearance in the mountain canyons far above the valleys below; with an even temperature the year round—where in winter there is seldom a day that it is not a pleasure to be out in the open air, and in summer a pure invigorating mountain atmosphere, entirely free from those sultry and oppressive heated spells so common in the Northern States or in the extreme South, the Chinati mountain region possesses that rare climate which makes it peculiarly fitted for a resort for the invalid and health-seeker, while at the same time it gives the workingman the pleasant winters and cool summers, where his daily labors can be carried on without interruption from winter's storms or summer's heat.

"The foot-hills along the Rio Grande valley are covered with the most nutritious of grasses, the bunch gamma, stock of all kinds keeping in good condition on this range without any other feed than this grass.

"The broad valley lands that run nearly due north and south on the east side of the Chinati and Capote mountains are all splendid stock ranges. From the top of the Queen Mountain in the Chinati range this beautiful valley can be seen stretching away to the north—to Bass canyon, and along the Fort Davis and El Paso stage-road to the north line of Presidio county. The valley is some thirty miles wide, and can be seen from the top of Queen Mountain for fully one hundred miles of its length.

"This view alone is worth a trip to the Chinatis and the limit is only bounded by the strength of the human eye. The valley has the appearance from this mountain-top of an immense body of meadow land, while above and beyond the Olympia ranges at Fort Davis can be as distinctly seen, and their curvatures traced out as plainly as if within five miles instead of eighty distant; while, on turning, your eye takes in at a glance range after range of those grand old mountains of Mexico—Sierra Rica and Mount Carlos, and away beyond, until mountains and clouds blend together and the eye fails to trace the dividing line where the one stops and the other begins.

"Absence of surface water in this valley seems to be the only drawback. Every indication, however, on the surface points to and gives promise of water in great abundance in close proximity, and to be readily obtained by opening out tanks or wells.

"In one place where we were in camp, some forty miles from the Chinatis, and where no water appeared on the surface, in this valley, we found an abundance by digging with our spades to the depth of three feet, and I have no doubt that on almost every section of the G. H. and S. A. block No. 8, there could be an abundance of water found at a depth of from twenty to forty feet, and raised to the surface very cheaply by wind-power.

"From the results shown by assays from the surface-croppings taken from the various leads found in and around the immediate vicinity of the Chinati Mountains, unless the history of every other mining district of California, Arizona, Colorado and New Mexico is a falsehood, and human experience in the past is of no value in making an estimate for the future, these various well-defined leads will develop good paying mineral at a reasonable depth. I am well aware that from the very character of this mountain range, and the great want of experienced assistants in the work in which we were engaged, much yet remains to be done, and I have no doubt that future investigation will bring to light a number of mineral lands that we did not find. The mountains proper are in many places so abrupt, and rise on all sides so nearly perpendicular, as to make it very difficult to make a thorough examination of them. They are in many places from two to three thousand feet above the valley at their base, while these valleys are over five thousand feet above tide-water.

"I have passed through canyons there where the average width would not exceed twenty feet and the perpendicular rock-wall on either side would be from two to eight hundred feet, without a shelf, or offset.

"Captain Nichols gives the following assays of ores made by himself and Wm. Hollis, Esq.:

No. 1—Niccolls's shaft	193.5	oz. to 2000	lbs.
No. 2—Honeycomb ore	192.0	"	"
No. 3—Black-water hole	16.0	"	"
No. 4—Old Spanish mine	299.5	"	"
No. 5—N. W. Niccolls's shaft	94.7	"	"
No. 6—Croppings mineral hill	28.0	"	"
No. 7—Russy mine	169.5	"	"
No. 8—Seminole mine	40.0	"	"
No. 9—West Corbin's, 2 leads	24 and 36	"	

"Aside from the above, about forty other assays were made, the silver found ranging from twenty to sixty ounces to the ton.

"Colonel H. B. Andrews, vice-president of the railroad company which sent out the expedition, in publishing Captain Nichols's report remarks:

"The country in which these minerals are located possesses this advantage over nearly all others, in the salubrity of its climate, and its exemption from the diseases so prevalent in other mining portions of the United States. The pure bracing air of this region will, in a few years, be sought by all afflicted or threatened with pulmonary affections. This company has had during the last two years over 180 men during the entire winter in the Chinati Mountains, and there was not a single case of sickness of any kind among them. I have no doubt that liberal arrangements will be made to open up this mining section to those desirous of engaging in the business upon the part of the railroads owning lands in those mountains, and am authorized upon the part of the Sunset route to offer the most liberal inducements to parties who will engage to work the mines. This company has sent north for machinery necessary to develop more fully the mineral wealth of this new El Dorado.

GOLD.

Some gold exists in the copper and silver veins in Llano county, in some instances, it is said, in sufficient quantity to pay the cost of mining for the other minerals, but this remains to be proved. Some gold has also been found in the sands of Llano River. For the present there is nothing to base expectations of much gold in Texas, though the lithological character of some of the mountains is such that it may be found.

WATER-POWER.

ALL the rivers of Western Texas offer plenty of water-power. The Comal has a fall of about fifty feet from its head to its junction with the Guadalupe, a distance of some three miles. The water rushes with great force down this declivity, and the banks are such that mills might be erected nearly the whole way. It is hard to estimate the horse-power that might be exerted by this splendid stream. Mr. M. Whilldin, a most accomplished journalist, now of Philadelphia, and a gentleman who has travelled and observed much, in a published article says of the Comal: "When the writer took out his slate and pencil to calculate the power of this river, he remembered the story told of Erin's prudent son, who wrote back from 'the land of the free' that he had beef for dinner every Sunday, because if he told the truth and said he dined on it daily, his friends would not believe him. Were a calculation printed it would not be credited. But there are a dozen places where it has a dozen times as great power as Seneca Falls, New York."

The bed of the Comal is a hard limestone, and its banks the same. The San Marcos rises in one immense spring at the base of the mountains of the cretaceous system, and dashes away, a full-fledged river from the start, down an inclined plain of seventy miles to its junction with the Guadalupe. Fine natural water-powers may be had all along its course, and where these are not furnished by

nature, they may very easily be obtained artificially at little expense. The same remark applies to the San Antonio along a considerable portion of its course. The Guadalupe, on more than half its way, passes through a region of highlands and mountains, and its rapid descents are very numerous. The stream is bold and powerful. The stones are mainly a very hard limestone of the lower cretaceous formation. The Llano and San Saba pass all the way through lofty and broken districts, and the former especially offers innumerable and very strong water-powers. The Llano passes over the oldest geological rocks from its source to its mouth, few of them being newer than the silurian and most of them older. They are extremely hard, and not likely to be perceptibly altered by abrasion of the waters, at least for centuries.

The upper Colorado and Brazos also abound with water-powers. One of the greatest water-powers in the world is to be found at the Marble Falls of the Colorado. The river here sweeps over a bed of marble of the hardest sort, in a series of powerful rapids and natural "races," falling about a hundred feet in a distance of three miles. It is not easy to estimate the horse-power of this strong river rushing over such a bed. This is the greatest of its water-powers, but there are hundreds of others that are only less in degree. The Granite Falls especially, a few miles above these are nearly as important. At Columbus, in Colorado county, there is another remarkable place on this river. The river comes up to that town on the north side, then makes a detour of fifteen miles and returns to the town on the south side, it being only about a thousand yards across the neck from channel to channel. It would be easy to cut a canal across this neck, and by doing so a fall of water of sixteen feet in a thousand yards would be obtained. Such a great stream as the Colorado rushing down such a canal would have a tremendous power. Perhaps it would be a somewhat costly work to prepare a bed for it which would resist the abrasion of the water, but the great power obtained and secured will justify the cost.

It would seem that with these water-powers no country could be more favorably situated for manufacturing enterprise. The raw materials of all kinds abound, without the necessity of expensive transportation to the factories, and the whole region is not surpassed in salubrity and pleasantness. There is no country in which the operative could live more cheaply and pleasantly. For large enterprises of this kind, skilful operatives would have to be brought from other places. The Mexicans would doubtless make first-class factory hands.

FOREST TREES.

Of the oak in Texas, Professor Buckley, late State geologist, says, in a report, that there are sixteen varieties. Of these *Quercus falcata*, Spanish oak or red oak as usually called, grows to gigantic size, often reaching a hundred feet in height, and from fifteen to

twenty feet in circumference near the base. The white-oak, *Quercus durandie*, hardly grows so tall as the latter, but often exceeds it in bulk of body. We have seen white oak trees that measured over twenty feet near the base of the trunk. It grows all over Eastern Texas, particularly in the low districts. It makes an exceedingly tough and durable wood, and is greatly prized by wagon-makers, coopers, etc. The "Big Thicket," about twenty miles east of Houston, is filled with this valuable timber. We have three species of elm, three of maple, five of hickory, including the pecan, two mulberries, two species of persimmon, one sycamore or button-wood, three species of magnolia, two of hackberry, several willows, four species of pine, two cypresses, etc.

"Texas abounds in pine timber, having one of the finest pineries in the world. Most of the pine lands, indeed nearly all which have been surveyed, are in the tertiary region. The pines extend, with occasional interruptions from the Red River country to the Gulf. In the counties north of Nacogdoches, there are but two species—the short-leafed pine (*Pinus mitis*) and the old field or "loblolly" pine (*Pinus toeda*). The first is the most abundant, being in the ratio of nearly three to one. It grows very tall, as high as 180 feet, with a diameter of from two to three feet. The old field pine grows larger, having sometimes a diameter of five or more feet. Both of these pines make valuable lumber, and are used extensively for building purposes, giving a large freight business to railroads going from the eastern to the western parts of the State.

"In Nacogdoches county, the long-leafed pine (*Pinus palustris*) has its northern limit in the State, from which it extends southward to the Gulf. It is also accompanied by the two former pines; but from a few miles south of Nacogdoches, the long-leafed is the principal pine. It has a diameter of from two to four feet, rarely being more than three feet. Nearly all of the counties south of Nacogdoches, between the Trinity and Sabine rivers, abound in these pines, forming one of the largest and most valuable pineries in the world, because the long-leafed pine is the very best one known for lumber, being very resinous, hard and durable. I have seen it used for furniture and for the inside work of houses, where it makes a rich appearance when varnished. It is the principal pine used for turpentine, resin, etc., in North Carolina, Florida, and elsewhere. One thing is certain, the pine lands of Southeastern Texas have not been valued high enough, nor will they be till railroads penetrate that region."

Professor Buckley does not speak of the mountain pine in Northwestern Texas, beyond the Pecos. It is found in the mountains in considerable bodies, but what species of pine it is, we do not know. It attains a large size.

The cypress grows to grand proportions all over the pine district along the streams and in swamps. West of the Colorado, the highland or mountain species of this tree fringes nearly all the river and creek banks. It is the most gigantic of all the Texas trees, many specimens measuring from twenty-five to thirty feet in girth, and they

are entirely wanting in that singular conical protuberance of body near the base which is characteristic of the cypress of the lowlands. They are exceedingly graceful and well shaped, and make a most valuable lumber.

There are two, and we believe probably three, sorts of cedar in Texas. First, the red cedar (*Juniperus Virginianus*). This is found throughout the tertiary districts, and often enough in other districts. The mountain cedar is common all over the highland districts growing in extensive brakes, and often completely covering the mountains for miles and miles. This variety is for the most part scrubby, but furnishes splendid poles for fencing, etc. Both sorts are exceedingly durable, and in fact in good conditions hardly seem subject to decay at all. A cedar fence will certainly outlast a lifetime at least.

Professor Buckley in his report says :

"In no other country have I seen such tall cedars as in Texas. Many years ago, on a Potomac steamer, below Washington, I met with a gentleman from Texas, who said that red cedar grew more than a hundred feet high (at the North their greatest height is about thirty feet) ; that such cedars were sawed into lumber and used for building purposes, and also split into rails, etc. Not long afterward, I met Dr. Torrey, the botanist, in New York, and told him about the Texas cedars. He said the story was very improbable, and that he did not believe it. But such cedars really grow in Texas. I have seen them and measured them. I have seen seven "rail-cuts" from one, rails not less than ten feet, and some of them twelve feet long, the tree being a little more than one hundred feet long as it lay on the ground, the logs not having been removed. This was on Richmond Creek, in Navarro county, in 1860, where such trees were not uncommon. Captain Love, who was causing the rails to be made, told me he had seen cedar trees 120 feet long. I measured one tree there, which was nine feet ten inches in circumference at three feet from the ground. This was about one hundred feet high. I also measured the cedar sills of a bridge over Richland Creek, which were fifty-two feet long. The shingles covering the court-house of that county (and it was a fine looking building) were made from one single cedar tree. This tree had four and a half feet diameter at stump height. Since then, and during the present season, I have seen some tall cedars in Central and Eastern Texas. Some of these were in the Red River bottom in Lamar county, north of Paris. These big, tall cedars are too valuable for lumber and for fencing to be permitted to live, and it is to be feared that in a few years more, few, if any of them, will be left."

In addition to these tall cedars spoken of by Professor Buckley, there are great bodies of such in the mountains beyond the Pecos, and here and there on the bluffs of that river. They are grand indeed to look at, and not one of these superb trees has ever yet been utilized, we suppose. Whether it be the same red cedars found in other parts of Texas we do not know, but suppose it is a different species, from its entirely different habitat.

"The live-oak grows taller in Texas than elsewhere. In the old

cotton States it is a low, spreading tree. On the Brazos, below Richmond, in Southern Texas, I measured several trees in 1861. One had a circumference of nineteen feet and two inches at three feet from the ground, and another was eighteen feet and nine inches at the same height. This is not uncommon for the live-oak—the wonder is the tallness of the trunks, they being long-stemmed, without limbs, to the height of thirty and forty feet, and some even fifty feet, with tops not remarkable for extent of limbs. The live-oaks extend through Central and Western Texas to the Red River."—*Buckley.*

In Western Texas, far from the maritime region, this tree abounds, but it is not so large as in the low country. Its trunks are often enormous, but only a few feet high, and their large limbs spread out in every direction, some of these often quite touching the ground. It is a most durable but fearfully hard timber, and when it has become seasoned it is quite impracticable to cut it with an axe. It is a fine fuel-wood, burning not unlike anthracite.

The pecan attains great size in the valleys of the rivers and streams, having sometimes a diameter of four to five feet. It is found all over the State, but more particularly in Western Texas.

"Many species of the ash are common in the State. In the Brazos and Trinity River bottoms some of these attain great size—three or four feet in diameter. In the Northern States the wood of these trees is greatly prized for the woodwork of wagons and carriages, and for the manufacture of agricultural implements. For the making of all these things Texas has an abundance of the best of timbers, especially in its central and eastern portions."—*Buckley.*

We have referred to the bois d'arc, walnut, and large mulberries so frequently elsewhere that more to say on those is unnecessary.

TEXAS LANDS.

LAND TITLES, SURVEYS AND MEASUREMENTS.

At the time of admission into the Union, Texas owned and retained control of her public domain, so that original titles emanate from the State, and not from the United States, as is the case in most other sections of the Union. The United States system of surveying lands, viz., that of dividing the country into townships and sections, and describing the subdivisions by number, has not been introduced here. During her early history Texas made liberal donations of land to her settlers, and especially to those who participated in her struggles for independence.

To such were issued land, or head-right certificates (land-warrants) ; these were issued in the name of the party to whom the grant was made, and entitled him, or his assignee, to survey and acquire title to, out of any of the unappropriated public domain, the number of acres indicated in such grant.

The surveys made by virtue of these certificates have been shown ever since on our county maps as the head-right survey of such grantee. Since the policy of encouraging the construction of railroads by donations of land has been commenced by the State, the several railroads receiving land certificates, or scrip, have been required to locate the same in alternate sections of 640 acres each; one section becoming the property of the company, and the other and adjoining section, being severed from the public domain, and offered for sale by the State for the benefit of the Public School Fund, and are known as "School Lands." Title to them can only be acquired by purchase, as they are not open to homestead entry, nor can land certificates be located upon them.

The original titles of Texas lands commonly expressed the quantity in Spanish measurement, viz.: varas, labors and leagues; and at present in measuring lands, distances are given in lineal varas, instead of in chains and feet.

SPANISH LAND MEASURE.

1 Vara		33⅓ inches.
1 Acre	5646 square varas	4840 square yards
1 Labor	1,000,000 "	— 177 acres
1-3 League	8,333,333 "	—1476 "
1 League	25,000,000 "	—4428 "
1 League and Labor	26,000,000 "	—4605 "

To find the number of acres in a given number of square varas, divide by 5646—fractions rejected.

The following statement from the Commissioner of the General Land Office of the State may be consulted for information regarding the public lands:

"General Land Office,
Austin, Texas, September, 1880.

"Sir:—In reply to your letter, asking information relative to the lands of Texas, I submit the following statement:

"1. Of vacant public domain, against which there are no outstanding claims, and now subject to location by certificates, there remain about 19,000,000 acres.

"2. In the Texas and Pacific Railway reservation, west of 100th meridian, there remain unlocated and subject to sale or homestead settlement under the act of July 14, 1879, about 6,323,290 acres. Certificates cannot be located on these lands.

"3. In the Panhandle, north of the Texas and Pacific reserve and west of the 100th meridian, there are, subject to sale or homestead settlement under the act of July 14, 1879, about 4,822,000 acres. These are also reserved from location by certificates.

"4. In the organized counties all vacant and unappropriated land, of an area of 640 acres or less, is likewise for sale or settlement under the above named act, and reserved from other location. No reliable estimate of the amount can be made.

SCHOOL LANDS.

"There have been surveyed and returned to this office 42,532 sections, or 27,220,480 acres of school lands. These lands are situated in all portions of the State, except the counties of Brazos, Camp, Falls, Fayette, Gregg, Hunt, Lee, Madison, Milam, Panola, Rusk, Rockwall, Smith, Somervell, Titus, Washington, and Wood.

"Under the act of July 8, 1879, such of these lands as are situated in organized counties are for sale at a minimum price of one dollar per acre, in tracts of not less than 160 acres, nor more than one section of arable land or three sections of pasture land, to one purchaser. They are appraised by the county surveyor, and his appraisement is examined and approved by the commissioners' court of the county. Parties desiring to purchase must make application in writing to the county surveyor, designating the section or quarter section desired. He will receive and record this application, for which his fee is one dollar. The purchaser must then forward the recorded application and one-tenth of the appraised value of the land to the State treasurer at Austin, who will receive the money and forward application with his receipt for the money to the General Land Office. These papers are then filed and the commissioner forwards to the purchaser his certificate that the treasurer's receipt for first payment on land has been filed in his office. If this certificate from the General Land Office is not presented to the county surveyor within ninety days from the date of the first application, he is to regard the proceeding as null and offer the land for sale again; hence the importance of promptly remitting after application. After receipt by the surveyor of the certificate of payment the purchaser executes his note for the remainder of the purchase-money, agreeing to pay one-tenth of the principal on the first day of January of each year, with interest at ten per cent. per annum on such amount of principle as may be unpaid. The law permits the purchaser, at his option, to defer the annual one-tenth payment on principal for one or more years, provided all is paid within ten years, but the interest must be paid annually within sixty days from January 1st, or the purchaser forfeits his land.

"Purchasers of these lands, if they desire less than the original survey, must have the land surveyed at their own expense, and field-notes forwarded to the General Land Office as in other cases. Filing fee for field notes of less than one league, one dollar; over one league, two dollars.

"The law does not provide for the sale of these lands in the unorganized counties. (See List.)

UNIVERSITY LANDS (See List)

"Now for sale embrace 219,906 acres, situated in Cooke, Fannin, Grayson, Hunt, Collin, Lamar, McLennan, Shackelford, and Callahan counties. The minimum price of these lands is one dollar and fifty cents per acre; terms similar to those of school lands, except

that the annual payments cannot be deferred, but must be paid annually with the interest. They are for sale in tracts of not less than eighty acres, nor more than 160 acres, to one purchaser, and he must obligate himself to settle upon the same within twelve months from date of application to purchase.

ASYLUM LANDS (See List)

"Embrace 407,515 acres in Callahan, Comanche, Eastland, Jones, Shackelford, Stephens, Taylor, and Tom Green counties. These lands are for sale at same price, terms, and quantity as the University Lands. Notes given for the purchase-money of any of these lands can be paid in full at any time the purchaser may wish.

COUNTY SCHOOL LANDS.

"Each county in the State is entitled to four leagues (17,714 acres) of land for school purposes. About one hundred and sixty counties have received patents for their lands, which are held, controlled, and sold by the respective counties.

LAND CERTIFICATES OR SCRIP

"Cannot be located within the limits of either of the reserves above named, nor in any organized county, unless the vacancy sought to be covered exceeds 640 acres.

"All certificates in existence and not located on the eighteenth day of April, 1876, must be surveyed and returned to this office by the eighteenth day of April, 1881, or be barred from location. All certificates issued since the said eighteenth day of April, 1876, must be surveyed and returned within five years from the date of their issuance, under like penalty.

PRE-EMPTION OR HOMESTEAD DONATIONS.

"Homesteads may be acquired in any portions of the State where vacant land can be found. Each head of a family is entitled to 160 acres, and each single person, eighteen years of age, to eighty acres, by settling upon, occupying, and improving the same for three consecutive years. The applicant must, within thirty days after settling upon the land, file with the county surveyor a written designation of the land he desires to secure, and must have it surveyed within twelve months from date of such application, and the field notes and application forwarded to the General Land Office. When the three years have expired from date of original settlement, proof that the applicant and his assignee, if he has sold, have resided upon and improved the same as required by law, must be filed in the General Land Office. This must be sworn to by the settler and two disinterested witnesses before some officer authorized to administer oaths. Patent will then issue to the original settler or his assignee if proper transfers are filed.

PURCHASERS OF LAND

"In the territory reserved by the act of July 14, 1879, mentioned in paragraphs 2, 3 and 4 of this statement, must have the land surveyed, and field notes forwarded to this office, at their own expense.

"In organized counties all the vacancy must be included in the purchase.

"In unorganized counties no survey shall exceed 640 acres in extent.

"The frontage on a running stream or permanent water shall not exceed one vara (33 inches) per acre for each survey of 320 acres or less, and three-fourths of a vara per acre for all other surveys.

"Surveys under this law made so as to *include* lasting springs or pools of water, or which cross-running streams, are illegal and will not be respected.

"Purchasers of these lands must pay, or cause to be paid, to the State treasurer, within sixty days from the date of filing the field notes in this office, the purchase-money for said land, at fifty cents per acre, or they forfeit all right to the same, and will not be permitted to again purchase the same land.

CAPITOL LANDS.

"In the counties of Dallam, Hartley, Oldham, Deaf Smith, Parmer, Castro, Bailey, Lamb, Cochran and Hockley are situated three million and fifty thousand acres of land, surveyed in square leagues of 4,428 acres each. These lands are to be sold at a minimum price of fifty cents per acre, and the proceeds applied to the erection of a State House and other necessary public buildings. The maps and field notes have just been received, and are now undergoing examination. These lands are surveyed in solid bodies, and from the description filed here are not excelled in quality of soil by any uplands in the State. They will be placed on the market as soon as the Board can prepare them, of which public notice will be given.

"Respectfully,

"W. C. Walsh, *Commissioner.*"

UNIVERSITY LANDS.

County.	Acres.	County.	Acres.
Cooke	22,218	Lamar	12,146
Fannin	39,520	McLennan	41,193
Grayson	72,700	Shackelford	17,420
Hunt	7,544¾	Callahan	4,582
Collin	2,582¾		
		Total	219,906½

SCHOOL LANDS.

Name of County.	School Sections.	No. of Acres Vacant.	Name of County.	School Sections.	No. of Acres Vacant.
Anderson	....	13,000	Dallam	230	10,000
Angelina	59	3,000	Dawson (out of reserve)	230	25,000
Andrews	218	469,000	Dawson (in reserve)	150	95,000
Armstrong	440	40,000	Deaf Smith	390	4,000
Archer	105	3,000	Denton	56	
Atascosa	99	5,000	Dewitt	41	
Austin	48		Delta	1	
Aransas	1	5,000	Dimmit	180	25,000
Bailey	....	260,000	Dickins	258	150,000
Bastrop	2½		Donley	360	25,000
Baylor	341	9,000	Duval	350	30,000
Bandera	100	215,000	Edwards	400	40,000
Bee	44	1,000	Eastland	227	9,000
Bell	4½	12,000	Ellis	3½	
Bexar	29	15,000	El Paso (out of reserve)	20	64,000
Blanco	70	20,000	El Paso (in reserve)	2,000	2,400,979
Borden	448	4,000	Encinal	450	200,000
Bosque	5¼	8,000	Erath	25	14,000
Bowie	37		Falls		
Briscoe	350	40,000	Fannin	6	1,000
Brazoria	116	4,000	Fayette		
Brown	130	12,000	Fisher	320	10,000
Burleson	....	1,350	Floyd	430	20,000
Burnet	45	30,000	Fort Bend	78	600
Brazos			Freestone	3	4,000
Caldwell	15		Frio	132	20,000
Calhoun	3	800	Franklin	5	2,000
Callahan	200	3,000	Galveston	1½	2,000
Cameron	4	122,000	Gaines (out of reserve)	312	309,000
Camp			Gaines (in reserve)	....	289,700
Carson	219	4,000	Garza	380	44,000
Castro	280	30,000	Gillespie	120	15,000
Chambers	110	6,000	Goliad	15	1,000
Cherokee	⅛	3,000	Gonzales	2	
Childress	210	27,000	Gray	282	24,000
Clay	108	2,000	Grayson	3½	
Coleman	250	4,000	Grimes	3	
Cottle	154	150,000	Gregg		
Collingsworth	450		Guadalupe	15	
Cochran	....	528,000	Hamilton	36	13,000
Collin	3		Hardeman	560	15,000
Colorado	62⅛	8,000	Hardin	61	3,000
Comal	24	7,000	Harris	156	4,000
Comanche	125	6,000	Harrison	2	800
Concho	254	15,000	Haskell	162	5,000
Cooke	33½		Hays	5	10,000
Coryell	15	12,000	Hall	369	20,000
Crockett	1,440	3,768,000	Hale	400	50,000
Crosby	345	24,000	Hansford	444	1,500
Cass	4		Hartley	250	40,000
Dallas	4		Henderson	2	5,000

SCHOOL LANDS—Continued.

Name of County.	School Sections.	No. of Acres Vacant.	Name of County.	School Sections.	No. of Acres Vacant.
Hemphill	310	64,000	Montgomery	14	3,000
Hidalgo	7	130,000	Moore	370	25,000
Hill	8		Morris	2	5,000
Hockley	1	318,000	Motley	350	80,000
Howard	450		Maverick	55	35,000
Hood	4	3,000	Nacogdoches	2	6,000
Hopkins	1		Newton	145	15,000
Houston	2	2,000	Navarro	4½	
Hunt			Nolan	430	4,000
Hutchinson	280	50,000	Nueces	150	8,000
Jack	68	10,000	Ochiltree	418	1,500
Jackson	20	12,000	Oldham	220	18,000
Jasper	180	3,000	Orange	21	10,000
Jefferson	187	29,000	Palo Pinto	250	6,000
Johnson	22	5,000	Panola	....	7,000
Jones	273	3,000	Parker	230	2,000
Karnes	7	2,000	Parmer		
Kaufman	⅛		Polk	32	1,000
Kerr	250	100,000	Potter	300	20,000
Kent	312	50,000	Pecos (out reserve)	880	5,400,000
Kendall	108	10,000	Pecos (in reserve)	720	845,000
King	223	130,000	Presidio (out reserve)	2580	2,800,000
Kimball	340	50,000	Presidio (in reserve)	380	650,000
Kinney	80	320,000	Randall	331	
Knox	402	6,000	Rains	6	800
Lamar	36		Refugio	2	1,000
Lamb	42	235,000	Roberts	330	50,000
Lampasas	88	7,000	Robertson	2½	
La Salle	350	20,000	Red River	30	8,000
Lavaca	21	6,000	Runnels	187	6,000
Leon	1½	12,000	Rusk		
Liberty	89	10,000	Rockwall		
Lipscomb	450		Sabine	28	5,000
Limestone	12		San Jacinto	16	1,000
Live Oak	190	6,000	San Augustine	26	7,000
Lee	....		San Patricio	12	6,000
Llano	70	12,000	San Saba	162	15,000
Lubbock	412	7,000	Shackelford	289	8,000
Lynn	410	22,000	Shelby	3	5,000
Madison	....	1,000	Sherman	448	
Mason	130	20,000	Smith		
Martin	431	24,000	Starr	180	80,000
Matagorda	2	3,000	Stonewall	400	12,000
McLennan	⅛		Stephens	191½	2,000
McCulloch	241	2,500	Somervell	....	1,000
McMullen	300	8,000	Swisher	420	8,000
Medina	118	50,000	Scurry	442½	15,000
Menard	262	12,000	Tarrant	15½	
Milam			Taylor	175	2,000
Mitchell	430	8,000	Throckmorton	178	10,000
Marion	2	2,000	Titus	...	3,000
Montague	39	7,000	Terry	290	200,000

SCHOOL LANDS—CONTINUED.

Name of County.	School Sections.	No. of Acres Vacant.	Name of County.	School Sections.	No. of Acres Vacant.
Travis	36	15,000	Wheeler	401	36,000
Trinity	34	4,000	Wichita	114	3,000
Tyler	90	4,000	Wilbarger	415	5,000
Tom Green (out reserve)	1470	300,000	Williamson	7	1,000
Tom Green (in reserve).	1740	970,000	Wise	45	4,000
Upshur	1	4,000	Wilson	12	4,500
Uvalde	120	150,000	Wood	....	
Van Zandt	1½		Waller	72	
Victoria	76	1,000	Yoakum	1½	257,000
Walker	3	600	Young	37	5,000
Washington	....		Zapata	70	50,000
Webb	135	20,000	Zavalla	100	25,000
Wharton	198	12,000			

Total School Sections..... 41,492¼
Total Acres vacant..... 24,850,629

ASYLUM LANDS.

County.	Orphan Asylum, Acres.	Deaf & Dumb Asylum, Acres.	Blind Asylum, Acres.	Lunatic Asylum, Acres.
Callahan	27,850	29,672	640	11,073
Comanche	.....	22,006	.....	.....
Eastland	.....	12,800	.....	.....
Jones	35,353	35,552	6,240	.....
Shackelford	20,103	.....	33,148	34,533
Stephens	16,693	.....	26,357	16,909
Taylor	.....	.....	32,777	37,585
Tom Green	3,230	1,644	3,480	.....
Total	103,229	101,644	102,642	100,100

HOMESTEAD EXEMPTION.

Article X. and Section 8 of the State Constitution reads as follows:

"To every head of a family who has not a homestead there shall be donated one hundred and sixty acres of land, out of the public domain, upon the condition that he will select, locate and occupy the same for three years, and pay the office fees on the same. To all single men, twenty-one years of age, there shall be donated eighty acres of land out of the public domain, upon the same terms and conditions as are imposed upon the head of a family."

The provisions of the statutes, under this section of the Constitution, give to every head of a family, man or woman, or a single man of lawful age, who has not a homestead in the State, one hundred and sixty acres of land to the former, and eighty acres to the latter, out of any part of the public domain, as a homestead, upon the only condition that he or she will select, locate and occupy the same for three years, and pay the office fees on the same. The office fees do not amount to more than fifteen dollars, and, as hereafter seen, these homesteads can never be seized for debt, or their use and enjoyment, as homesteads, be interrupted so long as an individual member of the family exists.

Article XII. and Section 15 of the State Constitution reads as follows:

"The legislature shall have power, and it shall be their duty, to protect by law, from forced sale, a certain portion of the property of all heads of families. The homestead of a family, not to exceed two hundred acres of land (not included in a city, town or village), or any city, town or village lot, or lots, not to exceed five thousand dollars in value, at the time of their designation as a homestead, and without reference to the value of any improvements thereon, shall not be subject to forced sale for debts, except they be for the purchase thereof, for the taxes thereon, or for labor and materials expended thereon; *nor shall the owner, if a married man, be at liberty to alienate the same, unless by the consent of the wife, and in such manner as may be prescribed by law.*"

"An Act Defining the Homestead and Other Property Exempt from Forced Sale in this State.

"Section 1. *Be it enacted by the Legislature of the State of Texas,* That the homestead of a family, not to exceed two hundred acres of land (not included in any city, town or village), or any city, town or village lot or lots, not to exceed five thousand dollars in value at the time of their designation as a homestead, and without reference to the value of any improvements thereon, shall not be subject to forced sale for debts, except for the purchase-money thereof, or for taxes, or for labor and materials expended thereon."

It frequently happens that necessity compels one to incur debt, and no matter how well such result may be guarded against inability to pay when the debt matures will sometimes be the condition of the most prudent and honest. Sickness, accident to person or property, or other circumstances wholly beyond the control of the individual may bring this about. Under such circumstances it is gratifying to know that the creditor cannot take from his unfortunate debtor the home, nor its furniture and conveniences, nor the food, stock, implements, tools, etc., by means of which the debtor may recover from the effect of his losses. But far greater than this is the consolation

of knowing that even should death overtake one, while laboring under such embarrassment, the bereaved widow and children will still be secure in the possession of their home and its comforts and the means to gain a livelihood.

PROVISIONS IN THE CONSTITUTION OF THE STATE OF TEXAS.

1. The legal rate of interest is fixed at eight per cent. but may be made twelve per cent. by special contract.

2. All property of the wife, owned or claimed by her before marriage, as well as that acquired afterward by gift, devise, or descent, shall be her separate property.

3. The wife's property is exempt from the husband's debts, and all their earnings during marriage are partnership effects.

4. Provision is made that the qualified voters of any county, justice's precinct, town or city, by a majority vote, may determine whether the sale of intoxicating liquor shall be prohibited within the prescribed limits.

5. Certain portions of personal property of all persons are protected from forced sale.

TAXES.

ONE very decided advantage which Texas has over most of the other States in the Union, is that taxes are very low, and will continue so, as her present debt is comparatively small, and such wise provisions have been engrafted into her State Constitution, as will effectually prevent such reckless running into debt, on the part of either the State, her counties or cities, as have been witnessed in so many of the Northwestern States in the past few years. Most of these States now have similar constitutional provisions ; but, in most instances, they have been adopted after heavy debts have been contracted, while Texas, with the exception of a very few of her counties and cities, has been fortunate in that she has secured exemption before the burden has been placed upon her.

Article VIII., Section 9, of the Constitution, provides that the State tax on property, exclusive of the tax necessary to pay the public debt, shall never exceed fifty cents on the one hundred dollars valuation ; and no county, city or town, shall levy more than one-half of said State tax, except for the payment of debts already incurred, and for the erection of public buildings, not to exceed fifty cents on the one hundred dollars in any one year.

The *ad valorem* State tax is at present fifty cents on the $100, but with a large cash surplus in her treasury we may reasonably look for a reduction of even this small tax in the near future. Indeed a bill has already been introduced into the legislature (January, 1881) providing for a reduction of the tax to forty cents on the hundred dollars of value.

AGRICULTURE.

TAKING the word agriculture in its widest signification as including the rearing of live stock as well as the products of the earth, Texas is pre-eminently an agricultural country. With her rich and inexhaustible soils and her genial climate, inviting the farmer to labor the year round in moderation, and not compelling him to *hibernate*, as it were, for many months, where is there a field which offers so many attractions to the man who expects to earn his bread by the sweat of his brow ?

PLANTING SEASON.

The mild winters generally admit of corn planting in February and cotton in March. Wheat is sown in the fall, and harvested in May, so that flour from new wheat can be delivered in any of the Northern or Eastern cities fully six weeks in advance of flour from the older wheat-growing States. Field work can be done at all seasons of the year, and a loss of thirty days from out-door occupations, on account of heat, cold, or rain, in any one year, would be an overestimate. During the cold, bleak winter months, when nearly all the farmers of the Northern and Eastern States are busy in the effort to keep the cold out and their stock from suffering, by constant attention, and feeding out corn, hay, and other fodder, gathered during the summer, the Texas farmer, in winter, enjoys mild, pleasant weather, and his flocks and herds are in good condition, feeding on the prairies or in the timbered bottom lands, well sheltered from the northern blasts that constitute the Texas winter, rarely lasting more than five days.

Crops of Texas compared with the leading agricultural States south and west.

YIELD PER ACRE OF	TEXAS.	ALABAMA.	MISSISSIP.	GEORGIA.	OHIO.	INDIANA.	ILLINOIS.	KANSAS.
Indian Corn.....	26	12	13	11	34.9	32.8	27	33.9
Wheat.....	16	7.3	6.3	7	18	16	13.6	16.3
Rye.....	18	....	....	....	17.8	14.5	16.2	19.3
Oats.....	37	16	16.6	16.7	35.9	29.6	35.9	36
Potatoes.....	84	102	73	67	66	64	67	85
Hay.....	1.59	1.80	1.54	1.73	1.51	1.40	1.49	1.80
Cotton.....	275	132	164	161	....	....	....	....

We invite a careful examination of the foregoing tabulated statement of the leading agricultural products of Texas, as compared with seven of the principal agricultural States south and west.

These figures are taken from the report of the United States Department of Agriculture for 1878, which is the latest authority obtainable.

It will be observed that in the staple cereals of Indian Corn, wheat, rye and oats, Texas compares favorably with the great grain-growing States, Ohio, Indiana, Illinois and Kansas, while in cotton production she stands pre-eminent, as compared with the principal cotton producing States of the South.

A fact that we desire to impress upon the thinking mind is rendered emphatic by this table, viz., that while the industrious farmer can produce the cereals here to the same extent and with as little labor as anywhere else, yet in Texas these have always been considered a *secondary* crop, for the reason that the extraordinary yield and quality of the cotton product, render it pre-eminently valuable to the farmer. If the same time, attention and careful husbandry were devoted to the cereals here, that distinguish the agriculture of the Western States mentioned above, there is every reason to believe that Texas would far outstrip them.

The following is taken from the *Farm and Orchard*, an agricultural paper published in Palestine, Texas.

A small but contented farmer furnishes the *Texas Farm and Orchard* with the following statement of his crops and the amount of land cultivated by his own labor and that of his wife:

"Ten acres of cotton, which will give five bales, $250; 10 acres in corn, 180 bushels, $90; 1 acre of sweet potatoes, 300 bushels, $150; ¼ acre of gubers, 50 bushels, $100; ¾ acre of grass nuts, 12 bushels, $36; ¼ acre of onions, 30 bushels, $60; 1 acre of sugar-cane, 100 gallons, $50. His wife raised 150 chickens, $30; 50 lbs. butter, $12.50; saved 20 lbs. feathers, worth $10. He sheared 140 lbs. wool, $28; sold four beeves, $48; watermelons, $5, and will make 3000 lbs. pork, worth $180. He also made 40 bushels of wheat for his own use, besides vegetables, etc."

Though the yield of each crop per acre is not by any means extraordinary, it demonstrates the great adaptability of Texas soils and climates to varied agriculture, and how an industrious and frugal farmer may easily increase his store and provide against the adversities of poverty. This is only the ordinary result of industry and care upon the farm. Not an item shows above the common production of the country where the fields are carefully and attentively tilled. It will be observed that two of the ordinary and most profitable crops are neglected by this contented farmer, to-wit oats and fruits. The value of these crops could have been added to with comparatively little additional labor. In this section and upon these fertile soils, industry and common prudence are always rewarded with adequate profits. These are but the usual results of industrious farming. The agriculturist who applies to his acres the proper toil is most certain to receive satisfactory returns, and those who thus strive always find in Texas a genial and contented home.

COTTON.

Cotton is now, and will ever continue to be, the special crop of Texas, because her soils and climate are most wonderfully adapted to its growth and maturity, and because it is one of the most profitable crops of the soil. It requires continuous labor in its production. The preparation of the soil should begin in January, by deep and careful fallowing. In the months of February and March the land is then thrown up in beds from three to five feet, according to the strength of soil. Planting is usually done by opening the beds or ridges with a small "scooter" or "bull-tongue" plow, the seed is sown then as regularly as possible, and covered with a harrow or drag. The better plan to cover, is to run two furrows with a light turning plow, and afterwards dragging off with a *block*. The usual mode of cultivation, after the plants have come up, is to run beside the plants with a turning plow as near as possible, with the bar next to the plants, throwing the earth *from* them, then to follow with hoes chopping out the plants, leaving one or two plants standing every foot or foot and a half apart. The earth is then thrown back, taking care not to cover the small plants. The work after this is to keep the land stirred and prevent the growth of noxious weeds and grasses. The plants should be left to stand from two to four feet according to the fertility of the land. Cotton should be cultivated, and the land very regularly stirred until the plant begins to open, which is usually in the months of July and August. The picking is done by hand, and is the most expensive part of its production. An average hand can pick about 150 pounds per day. Taking the whole picking season, 1,600 pounds of seed cotton will make a bale of 500 pounds of lint. The picking season is from the middle of August to the first of January. The ginning and baling is done upon the co-operative system, the owner of the gin charging such a per cent. of the cotton for putting up a bale. The common price is one-twelfth of the cotton. It is sold either at the nearest market town or at some seaport. It is the easiest transported of all products, less liable to damage and more value can be transported at a less charge than in any other product. The wagon that will bear, and the team that will draw sixty bushels of wheat worth $60, will carry seven bales of cotton worth $350. The cotton may be thrown out to take the weather for weeks without any material damage, while the wheat or any other product of the farm would be wholly ruined.

Like provision crops, cotton must ever be a staple production. Its adaptation to numerous uses will always require its production. It is the cheapest material from which clothing can be made. Its demand will increase with the growth of the human family, and its uses will increase in proportion to the cheapness of its production and manufacture. Texas is peculiarly blessed in her wonderful adaptability to the growth of this special crop. The yield per acre upon her soil is greater than that of any other State in the Union,

and its fibre is longer, more silky, and in all respects superior to all other American cottons. It is quoted ⅛d. higher in the Liverpool market than other cotton. There is not one per cent. of the lands adapted to cotton now under cultivation, although the yield the present year will be over a million bales, worth fifty millions of dollars on the farm.

INDIAN CORN.

Indian corn or maze is a common crop upon every farm. It is not raised in Texas as a market product. Cotton and sugar being the special crops of the State. Each farmer aims to raise just corn enough to supply his own need upon his farm. Consequently its cultivation is frequently neglected for other crops considered more profitable. The modes of cultivation are about the same as those practised in other States, with the exception of less care and attention. The average yield per acre is twenty-six bushels. Its weight per bushel is from sixty to sixty-four pounds. In the middle and northern portion of the State it bears a firm solid grain, keeps well, and seldom ever becomes musty. By proper tillage, such as deep plowing, thorough pulverization and regular cultivation, the yield could be greatly increased. Owing to want of deep water at the Gulf ports, there is no market in Texas for corn, except that which is created by the local demand. If the facilities for transportation were adequate, the fecundity of Texas soils in this product would soon make it one of the most important of the marketable crops of the State. It is now only raised for domestic consumption, being the chief feed crop of the farms. The crop of 1880 is immense, and the price will not exceed twenty-five cents per bushel, except in a few localities.

OATS.

It is only of late years that oats have been generally cultivated. Until the introduction of the red non-rusting oat, it was a precarious crop, and was seldom attempted by the farmers of the State. With this new variety it is a certain and prolific crop. The average yield is thirty-seven bushels per acre. It is, however, cultivated now only for home use. Texas oats are of superior quality, and command the highest price in the New Orleans market. Upon the rich black lands or on the stiff alluvial bottom lands the yield is marvellous, often exceeding one hundred bushels per acre.

SUGAR.

This important agricultural industry has not attained that position in Texas to which its merits entitle it, taking into consideration the large body of land capable of production with profitable results. It is true that some few planters have devoted to the production of

sugar in this State a great deal of attention and a large amount of capital, but the majority of the persons engaged in this industry are planters on a very small scale and have but limited means. The larger concerns, however, are from year to year adding to their capacity and ability to produce sugar to a profitable extent, and are demonstrating fully the value of this crop, when handled upon a substantial basis. What would add more than anything else to the encouragement of sugar production in Texas, would be the establishment of a sugar refinery and cooperage somewhere in the State. For the latter industry the native timbers on the Sabine and Neches rivers offer every inducement for profitable investment, which should be instituted with an idea to cover cooperage for flour production as well as sugar. In this line there could be no question of success; and as to final results in the institution of a sugar refinery, the heavy expense incident to transportation and wastage of raw sugar in course of refinement, leaves but little doubt of the value and economy of such an enterprise.

The sugar crop of 1878, of which only we have statistics by us, met with serious disaster in a number of instances from excessive rains late in the season, and other untoward circumstances. We are prepared to give the exact product of the State in sugar and molasses —with the exception of the amount of molasses used direct from the plantations in the up country—the data being furnished by mercantile houses in Houston and Galveston. The figures are exact. The crop of the State was handled by five parties in Houston and eleven parties in Galveston. The Houston merchants handled 2,155 hogsheads sugar and 5,156 barrels molasses; the Galveston merchants 3,209 hogsheads sugar and 6,388 barrels molasses. Add to this a shipment of 300 hogsheads sugar and 700 barrels molasses from Indianola to New Orleans, and the total crop of the State reaches 5,664 hogsheads sugar and 12,244 barrels molasses. The value of sugar and molasses produced in Texas for the year is roundly stated at $433,969. Favorable circumstances and a judicious application of capital in the future will yet make sugar production in this State a matter of far more than ordinary moment. Pressed to its full capacity, sugar production should rank only second to the great staple, cotton itself.

WHEAT.

This important factor in the composition of crops has not attained that position in Texas to which its merits entitle it. In the immense prairie region of the State, where the soil and climate are most favorable, wheat is, as yet, an element of production subsidiary to the staple crop of cotton. It occupies in the grain-belt of Texas the same position held by corn in the Northwestern States, where wheat is the principal market crop. The initial period of successful wheat-growing and milling in the State dates back only six years, when an abundant yield and excellent quality of grain won for Texas a reputation which stimulated production, and rapidly increased her

milling capacity. Data from well-informed sources fixes the yield of that and subsequent years at :

	Bushels.		Bushels.
1875	3,000,000	1878	4,000,000
1876	2,250,000	1879	2,000,000
1877	2,000,000	1880	1,300,000

The milling capacity of the State is in advance of production, and more than ample to supply the population of the State with flour. The crop of 1879 did not run its mills but 110 working days, on two-thirds time. The marketed crop was 1,737,817 bushels, and the actual consumption during the 4¼ months was 1,784,207 bushels, requiring an importation of 46,390 bushels from Kansas and Missouri. If the mills of the State were run to their maximum capacity for twelve hours per day, they would not only bread the State, but give a surplus of over 500,000 barrels of flour for exportation, as will be seen by the annexed tabular statement, derived from authentic sources :

Location.	Number of Mills.	Capital Invested.	No. Runs of Stones.	Capacity per day in Bushels.	Average hrs. labor per day.	Average months in operation.
Grayson	18	$186,100	51	3,080	8	4
Collin	15	99,400	29	2,985	8	5
Ellis	14	81,380	22	2,070	8	5
Dallas	11	102,200	30	2,420	8	5
Kaufman	8	41,500	16	1,635	8	5
Cooke	8	31,000	15	1,500	8	5
Tarrant	8	60,800	19	1,400	8	5
Hill	8	24,900	14	1,445	8	4
Johnson	5	33,300	10	985	8	4
Parker	8	50,000	13	1,300	8	4
Denton	6	28,000	10	900	8	4
Wise	4	5,500	6	300	8	3
Montague	5	10,800	8	400	8	3
Hood	5	18,000	10	300	8	3
Other points	28	220,300	57	3,500	8	5
	149	$993,180	310	24,220	8	4¼

Actual consumption per year, 1,784,207 bushels.
Maximum capacity per year, 7,556,640 bushels.

A review of the crops since 1875 will show the disadvantages with which the wheat-grower had to contend, and the causes which are operating in retarding production. The crop of 1875 was abundant in yield and superior in quality, and, as already stated, stimulated production and increased the number and capacity of the mills of the State. Increased acreage was planted in 1876, but, owing to an unfavorable season, the yield was less in aggregate than the previous year, and the quality of the grain inferior. The following year, 1877,

was disastrous, the early wheat being cut short and the late crop almost totally destroyed by rust. The crop of 1878—the largest ever raised in the State—was ruined in quality during the harvesting period, and production, as a crop, was not marketed. In 1879 the acreage was increased slightly, but the crop cut short by drouth. The quality of the grain, however, retrieved the reputation of Texas mills, which had been impaired by the damaged crop of the previous year. The crop of the current year, reduced in acreage by the severity of the drouth of 1879, which was a bar to breaking up land, was damaged by reason of continuous rains after the harvest season.

The misfortunes attending the production of wheat during the past five years are chargeable to shiftless cultivation, want of management in saving the crop after harvest, and carelessness in the selection of seed, cleaning and grading of the grain. The neglect of these conditions, indispensable to successful and profitable wheat-growing, is due, as intimated above, to the over-influence of cotton as a staple crop, as exhibited below. The table details the productions of 1879 in the third congressional district, an exceptionally bad year for corn and small grain, which, in many localities, were totally destroyed by the severest drouth experienced in the State in fifteen years :

Counties.	Tilled in 1879.	Corn.		Oats.		Wheat.		Cotton.		Tilled in 1880.
		Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bales.	
Collin	135,901	53,178	994,206	11,014	333,188	23,813	183,610	47,896	22,203	167,571
Cooke	79,780	31,400	498,400	5,942	124,782	9,371	58,026	33,067	16,030	89,500
Clay	20,970	7,866	117,990	2,622	52,440	2,622	20,976	7,866	3,440	20,976
Callahan	5,205	3,400	27,200	65	810	1,240	6,200	500	125	8,250
Dallas	169,035	48,550	655,974	10,292	236,442	28,395	207,087	51,798	28,160	203,808
Denton	62,872	23,577	447,963	7,559	151,180	8,160	65,280	23,576	11,320	62,775
Ellis	152,881	42,960	581,191	6,431	168,490	19,623	184,259	53,835	19,917	183,412
Erath	42,476	12,141	230,679	3,993	79,860	4,201	37,809	12,141	6,030	32,375
Grayson	223,277	54,864	961,805	9,729	184,857	15,903	86,182	40,581	19,223	183,412
Hill	82,777	31,523	324,632	4,485	137,786	6,475	50,630	37,094	8,286	115,036
Hood	19,600	8,500	127,500	2,500	75,000	600	3,200	8,000	3,800	25,000
Johnson	94,620	35,751	372,068	5,194	131,610	13,405	88,724	40,270	13,315	243,665
Jack	20,168	9,813	147,195	3,261	65,220	3,281	26,248	9,813	4,407	26,175
Kaufman	59,505	21,109	321,235	3,975	94,764	7,820	62,601	23,601	9,466	75,257
Montague	26,896	10,086	151,290	3,300	66,000	3,424	27,392	10,086	4,068	26,900
Parker	56,400	28,400	426,000	1,500	50,000	5,000	22,000	21,000	1,000	70,000
Palo Pinto	18,576	6,966	104,490	2,322	46,440	2,322	18,576	6,966	3,330	18,600
Rockwall	25,381	9,657	127,999	1,224	34,816	2,871	23,732	8,627	3,714	33,518
Tarrant	65,248	24,468	367,020	8,156	163,120	8,156	65,248	24,468	12,130	65,250
Wise	58,552	21,710	325,695	7,500	150,000	7,642	59,136	21,700	10,200	60,575
Frontier counties	51,798	20,212	281,562	10,310	144,796	6,629	48,644	14,647	6,158	52,991
Total	1,278,490	506,131	7,603,034	111,374	2,490,601	181,453	1,345,560	479,532	203,322	1,755,047

To arrive at the acreage in cotton in the grain belt, estimates for Fannin, Lamar, Hunt, Rains, Van Zandt, Navarro, Limestone, McLennan, Bosque, and other counties not comprised in the third congressional district, must be added to the above table, which swell the cotton acreage in round figures to 900,000 acres, against 250,000 acres in wheat, yielding the crop of 1879. This disparity in quantity of land tilled militates against the production and quality of the wheat, the time necessary to the proper preparation of land for the grain crop being demanded for and devoted to the gathering of the

cotton crop. With a judicious distribution of crops, care in the selection of seed, thorough preparation of land, provisions against wet harvesting periods and careful grading, the factors, soil and climate, quality of grain, and an unlimited demand for production, will allign Texas, in the near future, with the foremost wheat-growing States in the Union.

The table illustrates the advantages of diversified crops, and is suggestive of the wonderful capabilities of that portion of the State where the two great staples, cotton and wheat, are grown successfully side by side. The crop result demonstrates the certainty of a fair return in this favored section, under the most adverse season. For instance, Grayson, located on Red River, is ordinarily a prolific small grain county, and Hill, located on the Brazos River, reputed to be one of the best cotton counties. An exceptionally bad cropping year, instead of being disastrous to the farmer, as would have been the case had the soil, as elsewhere, been adapted solely to either cotton or wheat, simply transforms the latter into a wheat county and the former into a cotton county. Another feature is the fact, notwithstanding the short crops of 1879 confidence in the capabilities of the land has stimulated an activity in developing farms in 1880—the increased acreage in twenty-two counties heard from being 476,557 acres.

AMBER CANE.

The earlier experiments in the manufacture of syrup and sugar from the Sorghum cane were unsuccessful to a certain extent in this State as they were throughout the Union generally. This was mainly owing to the crude and imperfect appliances and machinery used in the manufacture of its products.

A few years since, however, the Amber cane was introduced, and since its introduction the efforts in this branch of industry have resulted in the realization of the most sanguine hopes.

Proper machinery is being introduced for expressing the juice and manufacturing it, and syrup and sugar of a very superior quality are now made at their own homes by some of our farmers at a very small cost.

The following extract is clipped from the *Austin Statesman* of November 5, 1880:

"Those who have made trial of the Amber cane in Western Texas this year report that the experiment was attended with the most satisfactory results. The Amber cane is excellent for making sugar and molasses, and its cultivation is recommended to every farmer."

Through the courtesy of two well known, intelligent and practical men of our State, who have devoted much time and some money to experimenting with these canes, we are enabled to lay before our readers the following from HENRY JONES, Esq., Cross Roads P. O., Navarro Co., Texas:

"I am engaged to some extent in planting Sorghum cane—planted this year (1880) twelve acres. The best variety is the Early Amber.

It matures in ninety days—the second crop in seventy-five days, which will be ready to grind by October 1st. I have been in Texas forty-three years, and find by experience that all early crops do best in this climate. Any corn-planter will understand how to plant Sorghum. Broke up my land broadcast, bedded as for cotton, 3½ feet rows, opened it with a "bull-tongue," covered it with a cotton harrow—drilled and planted two pounds of seed to the acre, chopped it through with a hoe and thinned it to two stalks, *sided* it up and plowed out—plowed it over again, which was all the work I gave it. My land is prairie, black sandy. When the seed is ripe and the lower joints sweet it begins to ripen at the top. My experiments this year have been confined to *soils* and *open kettle* boiling. I had cane planted on six varieties of soil—used a saccharometer for testing juices. I found the black 'hog-wallow' land produced juice ½ degree sweetest. Cane grows well on all soils. Rich land, however, gives best results, but the juice requires more boiling. From a piece of ground 70 yards long by 16½ yards wide measured 106 gallons of fine syrup, worth fifty cents per gallon here.

"This was 'honey cane,' so called. I could not get the juice of this variety to granulate, and failed in my sugar experiments with it.

"From the Early Amber made several experiments for sugar; Rev. D. C. Kinnard and Nappier, from Waco, assisted at one. We took one gallon of *Melado* and placed it in my centrifugal machine, turned it five minutes by the watch and realized 4½ lbs. of good brown sugar—such as we use every day. I did the same thing in the presence of my son-in-law, Roger Q. Mills (member of Congress from 4th District, P. O. Corsicana).

"I used three Victor mills worth $75 each; 4 regular sugar-kettles—60 in. 50 in. 40 in. and 30 in. set in the usual way. Did the work myself and the kettles worked all right. In boiling for sugar I find it varies considerably from the Ribbon cane, the highest I could get it was 224 degrees, the Ribbon cane will bear running to 228 degrees. I find another marked difference in granulation, *i. e.*, it has to be thrown into a cooler or vat and remain there, say ten days—the longer the better—before granulation is sufficient to make sugar. I shall try granulating in hogsheads in the old way, when the weather gets cooler. This cane is one of the grandest discoveries of the age. It grows in every climate from Maine to Mexico, and is equally as rich in saccharine matter as the Louisiana Ribbon cane.

"The cane seed weighs 60 lbs. to the bushel. It makes good bread; stock of all kinds are fond of and do well on it. The fodder is excellent for horses and makes a thousand pounds to the acre. I saved twenty-five bushels of seed to the acre."

From HENRY B. RICHARDS, Esq., La Grange, Fayette County, Texas:

"I plant Early Amber and Early Orange, or Amber Liberian. I tried the Honduras this year (1880) also, but it is worthless when better can be obtained.

"Amber and Orange are the best varieties for the farmer of Texas. While they are both small canes, thus making the handling far less laborious, the juice is much richer in saccharine than that of any other cane. With proper cultivation the yield of syrup is much greater and of far better quality than from any other cane. Seed should be planted same time as corn. Prepare the ground as for cotton, or better. A rich sandy loam, what is known as wild peach land, is best. Seeds require no preparation except to thresh them out from the head and wind out the chaff. Seed should be planted four to six pounds to the acre, step dropped, ten to fifteen seeds in a hill, twenty inches between hills, rows 3½ feet wide. Cover very lightly, not over one inch deep. Cultivate as well as cotton, or better. Keep clean all the time. Don't cut until the seeds are all hard. Amber or Orange will stand ten days after it is ripe without injury. It had better be too ripe than too green, for best results.

"I am unable to state what the cane will weigh, never having weighed any. Honduras cane will give twenty times the weight in cane that Amber or Orange will, yet its yield in syrup is ridiculous in comparison. The cost of growing an acre of cane is about the same as an acre of corn. The cost of harvesting my cane this year, viz., tapping, stripping, cutting, and hauling to the mill, was four dollars per acre. Price at mill for manufacturing twenty cents a gallon for the syrup or one-half for the other. It takes from four to six gallons of juice to make one of syrup. I have got as high as eight pounds of sugar to the gallon of dense syrup. Never made sugar except in small quantities, experimentally, and never sold any. There is more profit in syrup with small works. I have sold all my syrup readily this season by the barrel, at fifty and sixty cents per gallon, and retail at seventy-five cents per gallon. About one hundred and sixty gallons of syrup per acre is a good average turn out for Amber or Orange here, *each crop*. They make two crops each season from one planting. I have a four-horse horizontal roller mill, with juice tank of 130 gallons capacity; two heating or desiccating tanks of 120 gallons each, sides two inch cypress; bottom of galvanized iron; settling tank for juice, 125 gallons; evaporator twelve feet long; finishing or tilt pan for making sugar; a cooling and settling tank for syrup, made entirely of galvanized iron; two tanks for syrup, 100 gallons each, made of 1½ inch pine; one Hedges' hand-power centrifugal for drying out sugar. The average density of juice of Amber or Orange cane by Beaumes saccharometer is 9½°. The other canes range from four to six degrees. The seed from one acre of these canes is worth more for feed than *two* acres of oats for all kinds of stock, from horses down to chickens, and all are extremely fond of it. I sowed ¾ of an acre broadcast in April, to cut green for soiling. I am now cutting off the *third* crop. Chickens that are fed on the seed and hogs that are fed on the cane will *never have the cholera*."

The two gentlemen referred to above, will no doubt answer any communications from persons interested in this subject. Mr. Richards lives in Fayette county, which is just at the upper edge of the "sugar belt," while Mr. Jones (who was for many years a sugar planter on "Old Caney") now lives entirely outside what is known as the "sugar belt."

POTATOES.

Both sweet and Irish are raised in great abundance. The former grow to perfection in every part of the State, and the latter are equally fine, but do not keep so well. Irish potatoes ripen very early, and a profitable business is done shipping them to Northern markets before the new crop comes in in that section.

WILD GRASSES.

Perhaps no country in the world has become more famous than Texas for its wild grasses, which everywhere cover the untilled soil with a sea of the greenest verdure. Of these there are several kinds, the most noted of which are the "mesquite" (pronounced "muskeet") and the "gama." The mesquite is a native of Middle and Western Texas, is very hardy, a rapid growth, and but little affected by dry weather. All kinds of stock are fond of it, and it is very nutritious and fattening. There are two kinds, the "bearded" and "curly," the latter a short curly grass, as its name implies, particularly adapted to sheep and horses. The "gama" grass delights in dry uplands, and is found in its greatest glory west of the Pecos River and along the upper Rio Grande. These high, drouthy table-lands are covered with a dense growth of "gama," which, although it may be brown and sere in appearance, is yet green and succulent near its roots in the greatest drouths. Stock of all kinds are exceedingly fond of it, and keep rolling fat upon its succulent leaves even in the driest and coldest winters.

But little attention has been paid yet in Texas to the cultivated grasses, but many kinds, especially the "Bermuda," do well, and the time is not distant when the thrifty farmer will find it to his interest to aid nature in this, as in her other desirable products.

TOBACCO CULTURE IN TEXAS.

Previous to the late war tobacco was cultivated with considerable success in most of the Southern States, and more especially in Virginia and the Carolinas, and yet a considerable portion of the export supply, before and since the war, has been produced in Connecticut, Ohio, Indiana, and other Northern States, where the climate and soil are far inferior in the growth of that product to that of the Southern States.

During the past few years, experiments of a most satisfactory character in tobacco growing have been made in many counties in Texas. These experiments have shown most conclusively that the soil in many sections of this State is most admirably adapted to the different varieties of this staple. It is true that these tests have been made chiefly in the central counties of the State, yet it is the opinion

of experienced tobacco planters in other States, that tobacco can be produced advantageously in nearly every portion of the State, and that Texas is destined in the immediate future to become one of the largest and most excellent tobacco-producing States in the Union. There are less dangers to the crop there from early frosts than in Virginia, and the same is true, when protracted droughts are taken into consideration.

FLOWER CULTURE.

The cultivation of flowers in Texas can hardly be called an industry, because they come forth to bud and blossom, as the rain comes to water the earth, and the sunlight comes to gladden the morning, and the leaves put forth to yield a grateful shade. It is more of a recreation and pleasure than an industry to cultivate the flowers in a climate where there is perpetual bloom. Every variety known to a tropical clime is there grown, and the wondrous plumage of the birds of South America has not more beauty and combination of colors than the flowers of Texas. They adorn the garden, the home and the prairie, and are everywhere the cheerful emblems of a cultured and refined civilization. A State, therefore, that adds to its magnificent crops of cotton, grain, vegetables, its vast herds of cattle and horses, and flocks of sheep, the fruits and the flowers that enrich and make happy its citizens, justly claims the favorable attention of the world.

FRUIT CULTURE.

The original Texans were badly demoralized on the subject of fruit-growing, because of the failure of so many untried varieties which must necessarily have to pass the ordeal of a new climate in reaching a successful list. Now we plant with confidence many varieties of apples, pears, peaches, plums, grapes, and small fruits.

As soon as experimental tests had settled the orchardist down upon the three May apples, including the Red Astrachan, the Red June, and Early Harvest for the month of June; the Sweet Bough and Horse Apple for July; the August Pippin for August; the Autumn strawberry for fall, and the Ben Davis and Shockley for winter, we began to see that Texas was an apple country. The foregoing varieties all ripen well in our climate, without rot-spot or tan, and are as well developed and possess as fine flavor as if raised in higher latitudes. These kinds are successful anywhere above latitude 30°.

Pears grow well and bear well here. The trees have been attacked by blight only twice in our whole history. The Bartlett and Duchesse came to us so highly recommended that it precludes experiments to a great degree with other sorts. We believe there is a better list of pears for Texas than these, although the farmer and orchardist are succeeding well with these.

The peach is a perfect success, and when shown in the markets or exhibitions of the northwest, excites the wonder and admiration of those who have always been accustomed to the same varieties.

As an evidence that Texas possesses natural capabilities in soil and climate for the perfect development of the peach by her hundreds of seedlings, which are overtopping the standard sorts in size, flavor, and excellence, a peach now called Senator Reagan, decidedly the best peach every way, in size, beauty and flavor, that has yet been produced, was first grown in Texas on the farm of the Hon. J. H. Reagan, of Anderson county, and we might point to many remarkable products in the way of peaches in our country, all grown from seed selected from the fine varieties of the grafted sorts.

Grapes of varieties which suit our climate, and these only of the species Æstivalis, are successful and healthy. Some vineyards have reached the age of twenty years, and have not failed in producing good annual crops during the time.

Grapes of the species Æstivalis are the best American grapes for wines, according to reports from highest authorities, and we have at least a dozen kinds of them which suit our country.

The Lenoir for our coast, the McKee for the central territory, and the Herbemont for northern Texas, have proved perfect successes thus far.

All plums of the Chicasa varieties yield certain and profitable crops, and of these the Brill, Wildgoose and Miner take the lead for a succession, and never fail to bear, and are but slightly affected by the curculio.

Blackberries and strawberries — the latter, of select varieties, gives perfect satisfaction and requires no protection in the winter.

The former is a native fruit, and the introduced finer varieties scarcely excel our natives.

Raspberries are cultivated a great deal in Middle, Eastern and Northern Texas. The black-caps are best adapted to our climate.

We might add that apples, pears, peaches and plums begin to ripen on the tree from the 6th to the 20th of May, and continue to ripen to the 25th of November, and all this protracted season is filled with abundant varieties, so as to keep them all the time on the table or on the way to market.

The fig attains its greatest perfection in the south and southwestern portions of Texas. Nowhere else is this fruit so luscious and so tempting, the small purple fig fairly bursting open when ripe with its own sweetness. In its season it is a welcome addition to the breakfast table, and at dinner it is not the least attractive portion of the desert; but no attempt is made to utilize what is not thus used, and the birds and poultry generally consume the surplus crop. There is no reason why it should not be dried and become a valuable article of consumption and export.

BEES AND HONEY.

Bees and honey are natural products of Texas. Wild bees are found here in great plenty and they thrive well when domesticated. But very little attention has been paid to this industry, although we hear recently of several instances where bee culture has been very

successfully carried on. Still it has not been altogether neglected, for in nearly every neighborhood a few swarms may be found, which, however, are generally allowed to take care of themselves. Some are placed in empty barrels, with sticks across them, others in discarded goods boxes; others in hollow trees sawed off in sections; the Texas "bee house" is generally a most primitive institution, and a "make-shift." They may be seen scattered about promiscuously, in the fence-corners, under shade trees, in front yards, back yards, gardens—anywhere about the premises. As to the care which they receive, generally it amounts to about this: they are hived where they swarm, and robbed when the family requires honey.

This business is extremely profitable in many countries and certainly should be in Texas, where flowers bloom every month and during most of the year in the greatest profusion. It is a beautiful occupation that of rearing bees, and one that can be prosecuted, on quite an extensive scale, with little or no capital. Every family, even of renters, might have a few stands of bees. It is a business in which ladies may pleasantly and profitably engage.

GARDEN VEGETABLES AND MELONS.

Almost all garden vegetables do well in Texas, although her diversity of soil, climate, etc., is so great that an intelligent adaptation to the peculiarities of the locality must be carefully studied by the successful cultivator.

Root vegetables grow particularly well, and finer potatoes, beets, parsnips, carrots, turnips, radishes, onions, etc., are not raised anywhere.

Of melons, both water and musk, we have a greater variety, and they grow to absolute perfection. Watermelons attain to enormous proportions, and the cantaloupes of Texas are unrivalled in flavor. Squashes and pumpkins do well and are richly flavored, and no finer tomatoes are grown. No finer beans and peas can be grown than those produced here.

WILD FRUITS, NUTS AND BERRIES.

Texas is blessed with a reasonable share of native products coming under this head, such as plums, persimmons, grapes and black and dew-berries. The "mustang" grape grows everywhere in the river bottoms in great luxuriance and from it an excellent quality of red wine is frequently manufactured. The "post-oak" grape, seems to be a modification of the former and is very plentiful on sandy uplands. Blackberries are very abundant in the eastern part of the State and dew-berries in the middle and western portions; both of these are too well-known to require description. In Eastern Texas the walnut and the hickory-nut are common, while Middle, Northern, but particularly Western Texas, are the native home of the "pecan," which here grows to its greatest perfection, and which from its "toothsomeness" has become famous all the world over and is yearly

exported in large quantities. Statistics on the yield and quantity of this nut annually exported from the State have never been collected, so far as we know, but it is safe to estimate that the pecan tree, without any cultivation, yields an annual revenue of not less than two million dollars. The nut sells readily, even at points far removed in the interior from railroad transportation, at from $1.50 to $2.00 per bushel. We are not aware that the tree has been cultivated to any extent, but it is safe to predict that a handsome addition to the product of his farm could, in ten years, be secured by any farmer in Western Texas who would plant and give a little attention to a small plantation of this valuable nut. As an evidence of the value of the pecan crop this season we clip the following paragraph from the *Galveston News* of November 5, 1880:

FAYETTE COUNTY.

"Mr. Dignowitz says, that not more than one-fourth of the cotton produced in the vicinity of La Grange has been picked. Colored men have abandoned the cotton-fields, and gone to gathering pecans, at which they realize about twice as much money as they do picking cotton. The demand for labor is very great."

GRAPES, WILD AND DOMESTIC.

Texas is rich in wild grapes. There is no portion of the State except the Staked Plain, in which they are not found in abundance. Of these perhaps the most important is the Mustang, from its great abundance, wide habitat, and sterling wine-making properties. It is found in nearly every portion of the State, in the valleys of the streams, climbing to the tops of the tallest trees, and often extends out into the forests away from the streams. It is, we believe, confined exclusively to Texas, and among botanists is classed as a vine with itself, being distinct from all other classes of grapes. It is the most vigorous grower of all and none exceed it in abundant bearing. We have seen the vines sometimes so full of the ripe fruit, that had the leaves been stripped off, they would have presented almost the appearance of a vast solid mass of grapes. The fruit is dark purple or black, nearly half an inch in diameter. The pulp is white or pearly in appearance. They are not a table-grape, and require to be eaten with some care in order to be palatable. There is an acrid juice between the pulp and the skin, which when taken in the mouth produces a disagreeable, somewhat stinging and "puckering" sensation. The skin may be easily stripped off, leaving the pulp still adhering to the stem; and as the acrid juice goes with the skin, they may then be eaten with relish. They are especially refreshing to the traveller on horseback on a warm summer day, when he stops in the shade to rest, *and more likely to be esteemed by him as a food-grape than by any-one else.* Their great merit is in wine-making. When well treated it makes a robust wine of stout body, superior in intoxicating properties to any of the French clarets with which we are acquainted. It

has a decidedly *game* flavor, and the lines of Longfellow are not inappropriate:

"The red Mustang
Whose clusters hang
O'er the waves of the Colorado;
And the fiery flood
Of whose purple blood
Has a dash of Spanish bravado."

Again it may be handled so as to make a mild claret; and we have tried some made by Col. Ashbel Smith, of Harris county, which had a remarkably rich flavor, distinguishing it from all other wines. The Germans and Bohemians of Western Texas make quantities of it, but mainly for their own use. Very little finds its way on the markets. We believe the wild Mustang—"cut-throat" as it is often called by the Texans—has a big future in it as a wine grape. We want skilled wine-makers to turn its good qualities to account. It has no diseases, and its crops are certain at all seasons. It may no doubt be much improved by selection and cultivation, as we have often noticed marked differences in the quality of the grapes taken from different vines, some being much better than others in sweetness and juiciness.

Next in importance probably is the "post-oak grape." It is classed by some botanists as a variety of *Vitis Labrusca*, by others as of the *Vitis Æstivalis;* but Dr. Buckley, of Texas, considers it a distinct species, and has named it *Vitis Lincecumi*, after Dr. Gid. Lincecum, a well known Texas naturalist, now dead. Dr. Buckley is probably right. It is found in most of the post-oak regions in the State, and is a good medium-sized grape, very palatable and good for wine. It has been domesticated to some extent and shows great improvement by cultivation. Dr. Yoakum grows in his extensive nurseries at Larissa, Cherokee county, a grape which he calls "McKee's Everbearing," and which is merely the post-oak grape improved by cultivation. It has greatly increased in size, flavor and juiciness, and is considered by him a great acquisition.

The muscadine or "bullace" is common in Eastern Texas, and is the same as the grape of that name found all over the Southern States.

In the highland and mountainous districts, the "mountain grape" grows abundantly. Dr. Buckley classes it as a distinct species, calling it *Vitis monticola*, but others class it with *Vitis supestris*. It is a bluish grape, about the size of buckshot, and covered with a whitish "bloom," very sweet and altogether excellent. It is a great bearer, and not being much of a climber its large bunches are easily gathered. This grape deserves cultivation, which would no doubt add much to its already excellent qualities. It is full of juice and makes a sprightly wine.

Winter grapes abound along the watercourses of Western Texas, but are very small, black, and sour—as they are everywhere else that we have seen them. *Vitis suprestes*, very much like the mountain grape, if it be not the same, grows in the same localities.

Of the cultivated or domestic grapes the Herbemont and Black Spanish are undoubtedly the best so far. They are native Southern grapes of the *Vitis Æstivalis*. They combine every excellence except that of size, being about a half inch in diameter. They are equally well adapted to the table and the wine-maker, the Herbemont furnishing a light-colored wine, and the Black Spanish a dark-colored. They grow luxuriantly and yield large crops everywhere in Texas, and are subject to no diseases or damaging attack from insects. In these two grapes the Texans have a great gift indeed. The famous "El Paso" grapes, from which the Mexicans on the upper Rio Grande make their celebrated wines and brandies, are but the Herbemont and Black Spanish under another name. The latter grape no doubt derived the name by which it is known in Texas, from its having apparently been disseminated over the State from that direction. How it happened to be largely cultivated in that quarter first is one of the unexplained things, but it is probably due to the enterprising Jesuit priests, who some two centuries ago wandered all over the country afoot and often alone among the Indians. These singular and devoted people, all of them scholars and naturalists, were quick to find out the good things of nature and to utilize them. They cultivated these grapes first on the Rio Grande, because their nearest "missions" to Texas were first established there. The Herbemont and Black Spanish differ only in color, the first being light-skinned and the latter dark-skinned. Perhaps there may be also a slight advantage in the Herbemont in size of fruit.

Many vineyards of these grapes are grown in various parts of Texas, and all with entire success. An intelligent German near Houston devotes his entire time to this culture and wine making, and the demand for his wine is greater than he has yet been able to supply. He receives large orders every year for his cuttings from France, and fills them at a remunerative figure. The French have found out the excellence of the grape and that, even when transplanted into France, it resists the attack of the destructive *phylloxera*.

The famous Scuppernong of North Carolina does very well in all the eastern and southern portions of the State east of the Colorado. It is derived from the muscadine or *bullace*, which is native here. Our horticulturists are introducing it extensively, and it has not failed to respond pleasantly to their efforts. The fruit, we think, is hardly so good as it is on its "native heath" in North Carolina; still it is very sweet and juicy, and makes a good light table wine. It would no doubt, from its ample supply of saccharine matter, make a good brandy.

The Labruscans, or the Northern Fox grapes, in their multitudinous varieties, have not yet established themselves in Texas. Our experience and observation are that many, perhaps most of them, do finely for awhile; they deliver two or three excellent crops, but then they are attacked by the phylloxera, or the mildew or rot, and die. We believe that in Eastern and Southern Texas it is useless to grow them. In Northern Texas there are many who insist that the Con-

cord especially has established itself; but we think it too early yet to claim this. However, if the Northern Fox grapes shall do well anywhere in Texas, it will be in North Texas and the Panhandle.

And if it be thus with the Northern Fox grapes in Texas, it will probably prove worse with the European grapes, or *Vitis vinefera*, though there are many who, from these experiments, express the utmost confidence in the Black Hamburgh, the White Hungarian, and the Golden Chasselas. Dr. M. Perl, of Houston, has a fine vineyard near that city, of the best foreign grapes, which produced luxuriant crops last summer—1880, and he believes they have come to stay, but we fear his experience will be like that of others with the Labruscans, and that he will soon abandon the foreign grapes for our "natives to the manner born," which are not at all inferior to them in good qualities. We hope it may not be so. At all events, the enterprise of horticulturists deserves commendation. Most of those who have attempted the culture of the foreign grapes have already abandoned them. If they will succeed anywhere in Texas, it will probably be in the valley of the upper Rio Grande. They succeed perfectly in California, and the climate about El Paso is much the same as in that State.

The difficulty with the European, as with the Labruscan, with us is the phylloxera. This is a small insect like the curculio, but much more destructive. It deposits its eggs in the fruit of the grape, which then falls to the ground. As soon as the grub hatches he leaves the decaying grape, and by instinct finds the root of the vine and buries himself into it, sucking up the vitalizing juices, and the vine dies. No successful remedy has ever been applied to him yet, although the French scientists have done and are still doing all in their power to circumvent and destroy him. Our native grapes are not attacked by this creature. Not a single instance has ever been known of any of our native Southern grapes being assailed. The reason is that the bark of the roots and perhaps the trunks themselves, contain a sharply acrid juice which repels and perhaps kills the phylloxera at once. If he makes the attack he abandons it instantly. At least this is the explanation given by our horticulturists, who are usually practical men of fine intelligence, and no doubt it is the true one.

And here follows an interesting suggestion, and we hope it will be well considered by our horticulturists. Since the phylloxera does not, dare not, and cannot attack our native Southern grape-vines, may it not prove entirely practicable to grow the Northern and European grapes by grafting them upon our native stocks? Why not? It is easy to graft the grape. Let the experiment be tried. It may be that in this way we may naturalize in our country all the choicest grapes of the world.

We have seen the Herbemont and Black Spanish grafted on the wild Mustang, and producing just as luxuriantly as if grown upon their own stocks. Major Rowan Green, of Columbus, Colorado county, Texas, tried this for amusement or experiment, and was astonished at the success and the ease with which it was accomplished.

He has many such vines growing in his yard in that town, offering their luscious fruits every summer at his doors and windows. Any one can see this by visiting his place. And if this can be done with the Herbemont and Black Spanish on the Mustang, why may it not be done with the Labruscans and the foreign varieties? Indeed, Dr. Grant, of the city of Austin, has one such instance in his yard. Last spring (1880), for experiment or amusement, he grafted a cutting of the Malaga grape upon the wild Mustang, and it has grown over a dozen feet the first season. Perhaps next season it will bear abundantly. Any one can see this who will visit Dr. Grant's yard in Austin.

But whether such experiments may succeed or fail, we are richly blessed with native grapes in Texas. Perhaps no country is more so; and nothing can be more certain that at some day Texas will be a great producer of wines. We lack nothing to secure this at once, except plenty of people skilled in that industry.

Captain John Pope, of the U. S. Army, in a report to Jefferson Davis, Secretary of War, in 1854, speaking of the Rio Grande valley and the grapes, says, "The most valuable feature of the Rio Grande valley is its most wonderful adaptation to the culture of the grape. It attains here a flavor and richness unknown to any grape I have ever seen in the United States, and is produced, when cultivated, in the most profuse abundance. An examination of the character and climate of this region exhibits a striking resemblance to those of the south side of Madeira, and it is much to be doubted whether this portion of Texas is at all surpassed in the quality of its grapes even by that favored island. There are comparatively few vineyards in the country, but they produce most abundantly a delicious grape, and the wine, although very rudely and imperfectly manufactured, and drunk in the same year, and probably within six months after fermentation, is of very fine flavor and of several varieties. I am convinced that one of the most important elements of the future wealth of this country is to be found in its peculiar adaptedness to the manufacture of wine, and it needs but opportunity and encouragement to confirm the truth of this opinion."

The grapes which Captain Pope found so delicious are the Black Spanish and Herbemont.

The following is translated from an article in the San Antonio *Free Press*, whose editor, Mr. Seimmering, is a connoisseur in wines:

"We would like to ask our farmers and gardeners whether they ever saw in their lives a failure of crop in grapes suitable to our climate? We know we have frequent failures with the peach and apple, and even the watermelon sometimes fails, but we never heard of anything of the kind with the grapes. They thrive in good and bad years, and every year the vines are covered with grapes. But while all this is true, the culture of the grape remains a secondary work or mere plaything. So far as we know it has only been practised by a few in good earnest. The fact cannot be disputed that the vines grow here on any soil. One of our fellow-citizens, Mr. Woldert, who lived in San Antonio before the war, but now at Tyler, in Smith

county, writes us his experience in the cultivation of the grape-vine, and what he writes is interesting, because his experience places it beyond doubt that Texas cannot be surpassed in grape culture, and that a variety of grapes will grow to perfection on every soil in Texas, if they are only properly treated. Mr. Woldert is a practical vintner, which is attested by the fact that he has sent us a dozen bottles of different kinds of wines made by him, as a sample of his production. If this wine were produced in quantities large enough, we should have no further use for imported wines, and could we produce so much that we could export it, this branch of industry would be as important to Texas as it is to California. Perhaps some of our readers will be astonished when we communicate what Mr. Woldert has accomplished in grape culture and wine making, and how it has paid him for his diligence. But, however wonderful it may appear, it is nevertheless the truth, and can be proved by the people of Smith county. Mr. Woldert writes :

"The things I communicate are no castles in the air, and if any doubt, they are politely requested to come and take a view and convince themselves. In the year 1860 I planted two-year old Herbemont roots. They are now on stocks six to seven inches in diameter, and have produced during sixteen years full crops regularly. I never had a failure of crop, and never in Europe or anywhere else have I seen vines so full of grapes as here. My trellises were of uncommon strength, but they broke down from the weight of the grape, and I had to support them with forks. These vines can be planted 12×12 feet apart, consequently 302 plants to the acre. Every vine will produce at least six gallons of wine, which makes 1812 gallons per acre. We will, however, consider that this amount cannot be made by everyone and on all soils, and will take off one-third. This leaves 1208 to the acre, which may be depended on under the most unfavorable circumstances. Is it not to be wondered at that this industry has not been commenced long before now and practised on a large scale here? The only difficulty is the want of experienced and skilful immigrants. We see in some of our European papers that a ship loaded with 95,844 gallons of wine worth $85,926, landed lately in Bremen from California; and here lie our vast number of acres idle, and on which the same may be accomplished here as well as there, if we only had the skilful hands to till them and make the wine.

"The varieties of grapes cultivated by Mr. Woldert are as follows: The Scuppernong, Herbemont, Catawba, Isabella, and Concord. From one vine of the Scuppernong, planted in 1864, he made last year forty-eight gallons of wine. He also makes a very drinkable wine out of wild grapes. Consider this wine worth only fifty cents per gallon, here is $600 per acre, and how much more easy and interesting is a vineyard than a cotton field!"

LIVE STOCK.

NEXT to the cultivation of the soil the rearing of live stock is the most important grand division of the industries of the State. This is to be expected, of course, from the richness and abundance of the native grasses and the wide ranges of free pasturage. Her vast prairies, abundant and luxuriant pasturage, her springs and streams of clear and sparkling water, and still more her uniform and delightful climate, all combine to make Texas excel all other countries in this important industry. When the State was first peopled her prairies were found covered with enormous herds of buffalo (bison), antelope, deer, and wild horses, which under the influence of favorable natural environment had increased to an astonishing degree. The first settlers were not slow to take advantage of the capabilities of the country in this respect, as indicated by nature, and from the earliest times in Texas, the raising of live stock has been one of the chief and most profitable industries.

CATTLE.

A few years since the horned stock of Texas was confined to the native breed and ran wild upon the prairies with little more care than the trouble of branding the calves. Since then a great improvement has taken place in the quality of the stock by mixing it with the finer grades of imported breeds, and this policy is not only found to work a valuable improvement in the stock itself, but adds greatly to the already large profits of the industry by increasing the quality and price of beeves that are now in so great demand in the eastern markets and for the new traffic of exportation to Europe.

The rapid increase of population in the State and the consequent enhanced value of land, have to some extent interfered with the operations of the old time "cattle men," who, perhaps without possessing an acre of the soil, owned thousands of head of fat cattle and could boast of enormous wealth. They have either been compelled of late years to limit the increase of their stock by free sales, to buy and fence in large tracts of land, or to move their stocks farther west. Even where the latter alternative has been adopted many have concluded that in the march of progress they will again be interfered with and are adopting the plan of leasing land in large bodies from the railroad companies for a term of years. By this means, at a small expenditure of cash annually, they control their own ranges, and are not likely to be interfered with soon. The current price of rental of these wild grazing lands is about two cents per acre annually, or say $12.80 for a section (one mile square).

It is not deemed worth while to encumber this publication with individual instances of successful cattle raising in Texas. They could be counted by thousands, and some of them upon a grand

scale, like that of Captain Richard King, of Santa Gertrudes, about thirty-five miles southwest of Corpus Christi, in Nueces county, who coming to this country a poor cabin-boy, something over twenty years ago, is now the possessor of an enormous estate, consisting partly of sixty thousand acres of land under fence, about 50,000 horned cattle, 10,000 horses, 20,000 sheep, 8,000 goats, etc., etc. Those who desire further information upon this subject, are referred to an article to be found elsewhere in this publication, entitled, "What is a Texas Rancho?"

The following tabulated statement showing the increase from 100 cows, 2 bulls, and 100 calves, has stood the test of time, and we believe will be rather under than over the mark, always assuming that the business is managed industriously and with good judgment.

A TABLE

SHOWING THE INCREASE FROM 100 COWS, 2 BULLS, AND 100 CALVES, FOR A PERIOD OF TWELVE YEARS.

	Cows.	Bulls.	Calves.	Yearly.	Two Years old.	Three Years old.	Four Years old.	Five Years old.
	100	2	100					
1st Year	147	3	117	50				
2d "	204	5	163	57	50			
3d "	284	8	227	81	87	50		
4th "	395	11	316	113	81	57	50	
5th "	551	14	440	158	113	81	57	50
6th "	769	16	615	220	158	113	81	57
7th "	1,075	19	860	307	220	158	113	81
8th "	1,497	27	1,197	430	307	220	158	113
9th "	2,085	37	1,668	598	430	307	220	158
10th "	2,900	56	2,320	834	598	430	307	220
11th "	4,083	78	3,266	1,160	834	598	430	307
12th "	5,684	110	4,349	1,633	1,160	834	598	430

Let us examine the above table carefully, and mark the result at the end of twelve years. The stock would be as follows:

Milch cows	5,684	
Bulls	110	
Calves	4,349	
Yearlings	1,663	
Two years old	1,160	
Three years old	834	
Four years old	598	
		14,368
Deduct 20 per cent. for casualties		2,872
		11,496
Deduct for strays		1,496
		10,000

Now supposing that you should wish to settle up the business and realize, mark the results, notwithstanding the uncommon deductions I have made:

Sale of	50	five-year old beeves at the end of the	5th year, at $10		$500
"	57	"	6th	"	570
"	81	"	7th	"	810
"	113	"	8th	"	1,130
"	158	"	9th	"	1,580
"	220	"	10th	"	2,200
"	307	"	11th	"	3,070
"	430	"	12th	"	4,300
"	10,000	head of stock cattle at $5			50,000
					$64,160

As regards imported cattle of the finer breeds—Jerseys, Alderneys, Durhams, etc., there has been a varied experience in Texas, the general opinion now being that the Durhams thrive best.

G. W. Elliott, of Mountain View, in the San Antonio *Express*, says of his experience with imported cattle: "I arrived here December 3, 1878, with sixty-six head of Durham calves, from five to seven months old. I put them at once upon my pasture of 1,500 acres, which I had fenced several months previous, and had allowed no stock upon it. I fed them very little—a small amount of wheat bran once a day for a couple of months. On that, with the grass in the pasture, they went through the winter in very good condition; the only trouble was the Spanish fever, which they all had sooner or later. I lost only six of the heifers out of fifty-seven, whilst I lost eight males out of nineteen head with that disease. I can only account for the discrepancy in number of deaths per sex in one way. The heifers are frequently thrown in contact with Texas cattle during the winter, by their being driven through the pasture the heifers occupied, while the males were isolated, being in a pasture to themselves. By the first of March all the heifers had gone through the disease, but none of the males had been attacked. In March I changed my males, when they were brought in contact with Texas stock, and in a short time all were sick, and I lost eight in a few days. Now as to the causes of death among the Durham, Alderney, Jersey or any other breed that are brought into this country, I feel confident, if there was no Spanish or native cattle here, that we would have but a very small death-rate from acclimation. I bred in June and July, 1879, twenty of my yearling heifers. Breeding them to the males that I brought with me, which were only year-olds past, the following spring I had twenty calves come from those heifers, and every one of them had disease at from fifteen to eighteen days old. I lost five of the calves with it. But I concluded to try it another season. So I bred twenty again, some that had calves, and some that had not been bred before. This spring they all brought calves that were as healthy and grew off as finely as I ever saw them do anywhere, not one of them showing any sign of trouble of any kind. They are about six months old now, and I believe I can show as

good a lot of calves as you can find in any cattle-growing country from the year-old cows, and with less expense than can be found anywhere outside of Texas. I would, therefore, advise those bringing stock from other parts to this country, not to breed them the first year. My cattle have not been housed a day since I came, have been at liberty in my pastures ever since here, and I find I have seen they have grown and lived upon the native grasses here just as well as in Missouri. I have fed them all $50 worth of feed since I came. Last winter they went through the winter on grass in the pasture alone, and were in excellent condition this spring. I have lost but one in two years, and that was a calf of two months which died with blackleg. My stock are all Durham. I wean the calves at six months old, and continue to milk the cows until a few weeks before calving again."

As showing the cost and profit of keeping cattle in Texas, the *Henrietta Journal* says: "The cost of keeping cattle is about $1.50 per head, or $1,500 per thousand. Four men, with twelve to sixteen horses, will tend a herd of 1,500. The profits are as follows: Beeves per head, cost $15; running expenses, $1.50; sell at $22, with a profit of 32 per cent. Profit on cows costing $13.50 per head; cost of keeping, $1.50—$15. Increase of calves, 75 per cent. worth $5 per head. Net profit 23 per cent. On a mixed herd the beeves sold will pay expenses, and the increase will double itself in three years. A discount is made on a herd of 10 per cent. for losses. The profit on a mixed herd is about 20 per cent. It says there is a total of cattle in the Panhandle country of about 129,000 head, and it is fair to calculate that the increase this year from the present herds will average not less than 50 per cent. of the entire number. This will give 50,000 calves; the number that will start this season from the Texas drive will be about 30,000 head, and from Colorado 20,000 head. This will leave in the Panhandle for next year's round-ups about 208,000 head, and yet this does not begin to fill up the country, as it is estimated that it will hold about a million head. The present average prices for mixed herds per head are: Texas stock, $13.50; domestic stock, $15; beeves alone, $22."

But it is needless to enlarge upon this head. Texas and cattle raising in the estimation of the outside world are almost synonymous terms. There can be no failure, with ordinary intelligence and industry, to the man who has an inclination for the pursuit of this occupation, and who will exercise ordinary judgment in the choice of a location. Horace Greeley stated a literal truth when he said, "It costs no more to raise a four-year-old beef in Texas than it does a *hen* in Massachusetts."

SHEEP AND WOOL.

Next to cattle raising in value and importance in Texas comes the wool-growing interest. The growth of this industry in the last decade, but more especially in the last five years, has been extraordinary, and it is yet in its infancy. In 1860 the United States census showed Texas to contain 753,363 sheep. Ten years later, in 1870,

only 714,351, showing an actual decrease, which was no doubt owing to the war which raged for four years of that period, and the unsettled state of affairs for several years succeeding its cessation.

About 1870, however, commenced a revival in wool growing. Until now Texas stands *second* on the list of wool-producing States, being only outstripped by California.

The Boston *Commercial Bulletin* (an excellent authority) of recent date, says: "The United States census of 1880 will give statistics of the number of sheep in the whole country, but will afford means of comparison only with the same enumeration ten years ago; special returns to the *Bulletin* give the number of sheep in twelve States in 1879, compared with the previous year as follows:"

States.	1879.	1878.
Ohio	4,267,261	3,909,604
Texas	4,509,840	3,688,702
Wisconsin	1,182,676	1,060,569
Michigan	1,772,312	1,670,790
Illinois	846,101	893,036
Alabama	104,166	189,907
Indiana	906,849	916,771
West Virginia	422,020	410,551
Minnesota	194,576	186,456
Nebraska	194,959	131,787
Iowa	301,752	288,228
North Carolina	582,468	525,613
Massachusetts	59,331	54,928
Total	15,344,311	13,926,942
Increase	1,417,369	

The total increase in the twelve States mentioned (exclusive of Texas) will be seen to be 596,231, and in Texas alone 821,138.

These figures indicate the extraordinary growth of the industry in the State. And yet the vast area of Texas, specially adapted to sheep raising, has hardly been touched, and its expansion and rapid growth is not likely to be checked within the next fifty years.

In treating this important subject, we can hardly do better than to use the facts collected by Mr. John L. Hayes, secretary of the national association of wool manufacturers, in his valuable pamphlet entitled "Sheep Husbandry in the South," published in 1878:—

The sheep husbandry of this State is so distinct in its character, from that pursued or feasible in the older States of the South, and is of such high importance, that it demands a separate consideration. The estimated number of sheep in this State, in January, 1878, was 3,674,700. It ranks at present as the third wool-producing State in the Union, although having but about a hundred thousand head less than Ohio, which has 3,783,000, and about half the number of California, which has 6,561,000 head.

In its adaptation for sheep husbandry on a large scale, Texas possesses decided advantages over our other Southern States, enormous ones over the Northern and Eastern States, and many over California and the trans-Missouri regions. The cheapness of land; its natural fertility; its genial climate and exemption from tempestuous weather, except in the northers, *whose severity is generally much exaggerated;* the absence of seasons of continuous drouth, owing to the influence of the Gulf before referred to; the possession of permanent winter grasses, making the pasturage perennial—are advantages which will make Texas one of the great wool-producing countries of the world. Dr. Randall said, in 1859, of regions of Texas which he had thoroughly studied:

"I do not entertain a particle of doubt that wool can be raised more cheaply in those regions than in any other portion of the globe, where good government prevails to make life tolerable and secure, and such property as sheep safe from frequent and extensive depredations. In no such portion are lands furnishing perennial pasturage, or the use of such lands, so cheap. In none are general circumstances more favorable, the accidental and occasional disadvantages so few."

Upon its annexation to the United States, in 1845, Texas retained, as the most valuable, though then little appreciated, relic of the former Mexican proprietors, scattered here and there, flocks of the so-called "native" sheep of Mexico, of which large flocks still abound in that country, and which still furnishes an easy supply of all that are needed. This race, greatly deteriorated by neglect, small in size, and bearing about two pounds of coarse wool, is supposed by many to be degenerated merinos. It is now well established that they are descendants from the *Chourro* race of Spain, even at present distributed in all parts of that kingdom—a race distinguished for its robust temperament, the facility with which it is nourished, and its resistance to hunger and tempestuous seasons. When the animals are properly fed and bred, they may be made to produce a long and very white, though coarse, wool, well adapted for carpets. This is the stock which was the original foundation of the present Texas flocks.

We regret that, with all our efforts, we have been unable to obtain condensed, original statements in regard to the sheep husbandry of Texas, like those so kindly furnished us by Mr. Peters and Colonel Watts in relation to Georgia and South Carolina. In their absence, we must content ourselves with giving extracts from the Texas correspondents with the Department of Agriculture. Although fragmentary in their character, they will perhaps present a more exact picture of the general sheep husbandry of the State than could be given by more elaborate and better arranged statements.

We give the extracts at hazard, and without reference to the geographical position of the counties, or their bearing upon any particular question in sheep husbandry. In order to preserve the piquancy of the statements, the exact language of the correspondents is given

in all cases. The correspondents, it will be remembered, are selected by the department from the most intelligent agriculturists residing in the several counties.

A correspondent from Palo Pinto county writes:

"A sheep-raiser for several years says: 'Say for 1,000 head, it will cost $300 for herding; extra help in lambing time, $30; salt, $15; cost of shearing, $50; feed during winter, $200. We imagine the Georgia Bureau of Agriculture knows but little about large herds of sheep, as they are grown on prairie grass. They are accustomed to herds of from ten to one hundred. Such flocks are not necessary to be herded, and yield a fine profit. If we make it a specialty, and put 500 to 1,000 in a herd, which is common here, they will not pay so well. The figures made on paper will show them to pay better than any thing else. But a very little experience shows the figures quite an error. Small herds here will pay very well, and much better than large, when they are so large as to require a herder.'"

Navarro County.—"I have been engaged," says the correspondent, "in sheep-raising for fourteen years. In this and all the old settled prairie counties, 300 to 400 sheep do well. 100 per cent. gross profit is a fair statement. The profit diminishes 10 per cent. per 100 head, as you go over 100. My flock has ranged from 300 to 1,000. I put up annually 100 pounds of prairie hay and one bushel of cotton seed to the sheep, and have good shelter provided."

Goliad County.—This correspondent, Hon. Prior Lea, the writer has the pleasure of knowing personally to be entitled to great confidence. "Cost and profit of growing wool may be estimated in two ways. Crediting increase of sheep as equal to all cost, the wool would be net profit; and this, at least, is claimed by many persons. Without crediting increase for more than enough to maintain the flock equal to its primitive condition, a practical estimate for cost, considering every kind of item, might be from 10 to 12 cents per pound of unwashed wool, averaging 17 cents in market. This latter mode gives broad margin for contingencies."

Bandera County.—"Cost of keeping sheep, about 25 cents per head; profit, 30 cents to $1, exclusive of increase."

Another; same county.—"One flock of 800 cost, for the shepherd and salt, $275; net profit, including wool and increase, 31 per cent."

Aransas County.—"Cost of keep, 10 per cent.; profit, 50 to 60 per cent. on capital. Mr. P's flock averages 50 per cent. of its total value as profit. About 100,000 sheep in the county, mostly improved merinos."

Burnet County.—"One-half in farms under cultivation; all the rest a complete pasture. Sheep-raisers say this is the best county they ever saw."

Callahan County.—"Flock of 2,000. Twenty cents per head cost. Profit by wool, 40 cents per head."

Fort Bend County.—"250,000 sheep could be raised in this county. One-quarter in cultivation. All the rest adapted for sheep-pasture,

yet no sheep worth mentioning: all cattle and cotton. At close of war, sheep-raising began to decline, owing to depreciation of price of wool. A reaction has now taken place: extensive pastures are now being enclosed; improved breeds are introduced."

Kendall County.—"Mr. B. has 1,000 head of sheep. Shears, 5,000 pounds of wool; at 28 cents, $1,400; cost of keep, $325: profit, $1,075."

Another; same county.—"A successful sheep-raiser says: 'I commenced with 220 ewes, three years ago, and have sold sufficient of the flock to make an increase of 100 per cent. per year, average; and the wool has averaged for that time from 75 cents to $1 annually.'"

Lavaca County.—"Mr. S. B. M. has a flock of 1,500 head, let out to a herder on shares; and, therefore, furnishes a pretty fair sample as to profits. He gives the herder one-quarter of the wool and one-quarter of the annual increase, that is, the actual increase. He furnishes the salt, sheep dip, etc. The herder pays all other expenses, except shearing; and pays one-quarter of this amount. This makes the yield to the owner—

For wool		$800.00
The increase of the flock will average 800 head; which, at $1.50 per lamb, in spring, makes lambs	$1,200.00	
Deduct from this $1,200, one-quarter to herder	300.00	
which leaves		900.00
Leaving a balance as net profit, on one flock, of		$1,700.00

or about $1.13 per head on the entire flock."

Nueces County.—There are several reports from this, the leading wool-producing county in the State.

One correspondent says: "Sheep husbandry is the leading industry; and a higher degree of intelligence is devoted to it than to any other enterprise in the county."

Another says: "I would estimate the cost of keep and profits on the sheep (Spanish merino) as follows:

1 two-year old ewe cost $5.00.

Dr.		*Cr.*	
To interest, one year at 12 per cent.	$0.60	By 5½ lbs. of wool at 20 cts	$1.10
" cost of feed, herding, salt, etc.	1.00	" 75 per cent. of lamb at $4.00	3.00
" Buck service	.40		
" Insurance	.10	Total	$4.10
" Shrinkage in value	.70	Less cost of keep	2.80
Total	$2.80		$1.30

Per cent. of profit, 25.

"My own flock, now numbering 1,700, started 460 in 1873 (merinos and Cotswold grade), has paid above per cent. of profit, or more."

Another careful correspondent from the county of Nueces says:

"Rams have been imported in large numbers. Improvement is already far advanced. Flocks are sheltered from November 15th to February 1st, by selecting their range and night camp on the south side of some creek or prairie timber. There is no foot-rot. Semi-annual lambing is generally adopted in this county; the February or spring crop being always the most preferable. One set of ewes lamb in the spring, and another set in the fall. Those who shear the best and most desirable clips of wool handle their sheep in moderately large flocks of 1,000 to 1,200 head. Provision is only made for select sheep—such as rams. Average weight of fleece, five pounds. Average cost of keeping, 25 to 28 cents. Profit, 72 to 75 cents. Where dipping has to be added, the general expenses will be three to four cents per head. Good tobacco, liberally used, invariably cures the scab; all other preparations have failed in this county. Profits on wool only given, as profits from increase are rarely turned into cash. Ewe lambs of high grade sell readily for $2.50 to $4 per head. The cost of keeping, where the shepherd cares for only 1,000 sheep, is the cost given; where he cares for 1,500 to 2,000, as many do the year round, the real cost is proportionably less."

The number of sheep in this county, according to the returns of assessors, is 656,000; and the remarkable fact is presented to us, that very nearly the most southerly county of the whole United States is the banner sheep county of the Union. The adjoining county, Starr, has 184,000 sheep. And these two counties have more sheep than the four States of the South—Georgia, South Carolina, Florida, and Louisiana together; or the conjoined States of the North—New Hampshire, Vermont, Massachusetts, and Rhode Island.

One of our own correspondents, certified to as one of the oldest and best citizens of Texas, writes us as follows:

"WACO, MCLELLAN CO., TEXAS, Jan. 12, 1878.

"SIR:—I have been directly or indirectly interested in wool-growing, in this State and section, for many years. The country is rolling prairie land; the soil, black-waxy, and, in sections, quite sandy, and an excellent grazing country. The natural grasses are the sedge and mesquite; of the latter, three varieties—the best, the bearded variety. My flocks have been French and Spanish merinos, mixed; the average product of fleece being six pounds, at an average valuation, for five years, of 25 cents per pound. This can be produced under favorable circumstances for sixteen cents net cost to the shepherd; but he should have not less than the ten cents profit added, to make a paying investment. If there is no change in our duties, I am confident that there is no more promising industry in the country than wool-growing; but, if we are to have reduced duties, or free wools, the occupation will have to be abandoned.

"There is no objection to sheep from any section of the North or West, if free from disease. For the ordinary wools I would prefer the merino; for mutton or combing wools, a cross of the Cotswold with pure-blood merinos. The country is uniformly healthy for sheep here. In three months of the winter, the sheep should have

some feed: say one-third of their consumption. I would say that sixty-five cents a head would cover every possible contingency or cost in sheep husbandry, per annum, in this section. As I have said, if the farmers are to keep the protection they now have against the producers of foreign wools, there is no more profitable industry that any one who will put his attention to the business can be engaged in.

"Yours truly,

"W. R. KELLUM."

Another of our own correspondents writes as follows:

"HOUSTON, TEXAS, January 9, 1878.

"DEAR SIR:—I have had long experience in sheep husbandry in the San Joaquin and Santa Barbara country, and also in Los Angeles, California. I know well Colonel Hollister, Mr. Dibbles, of California, and other prominent wool growers there. I was also for a time in Utah; also, in Western Texas, which I regard as the best country for the industry with which I am acquainted, if life and property were only secure against Mexican depredations. The climate, for man and beast, is unrivalled; the feed, rich and unfailing all the year round. No country I know of could so well sustain the large flocks which, from various causes, are being broken up in California.

"In a parallel drawn north from Laredo to the Indian Territory, there is the best location for the industry, in my judgment, in the country. But, until Uncle Sam will protect us there, the life of the shepherd and his flocks are in constant jeopardy from the Mexicans.* These thieves and marauders operate in a regularly systematic way; being fitted out and encouraged by the wealthy Mexicans living on or near the border, who for years have been at the bottom of all the border troubles, from their desire for annexation to this country. Their purpose constantly is to provoke a war; believing the result will be annexation, when they will then have a stable government, which they know they never will have under any Mexican leader. . .

"There are other very fine fields for this industry near Corpus Christi, San Antonio, north and south of Dallas; but the finest section in this country, in my judgment, must remain idle, unless, as I have said, the government will give protection.

"S. W. PIPKIN."

Statements of Mr. Shaeffer. — After the above notes had been put in press, the writer enjoyed the privilege of several personal interviews at Washington with Mr. F. W. Shaeffer, of San Diego, Duval county, Texas, commended by members of the delegation in Congress from Texas as the highest authority on sheep-growing in that State. The following notes, which this gentleman permitted us to take at these interviews, will serve to give a much more exact idea of

* There is no longer any complaint on this score. Flocks on the Mexican border are now as safe as they are anywhere. The Mexican and Indian troubles are "dead issues."—ED.

the present condition and resources for sheep husbandry in Texas than the notes before given.

Our informant, born in Ohio, was early in life engaged in mercantile pursuits in the city of New York. Finding them uncongenial, he embarked in sheep husbandry in Texas, about the year 1857, settling in the higher region of the State, north of San Antonio. The foundation of his flocks, which now number 15,000 head, was sheep purchased before the war from a brother of General Beauregard, supplemented since the war by 1,500 breeding ewes, obtained from the estates of G. W. Kendall, identified with the introduction of improved sheep husbandry in Texas. Finding the climate in the high region where he was first established not as mild as he desired, he purchased lands in the more southerly regions of the State, about fifty miles from Corpus Christi, in Nueces county, obtaining gradually about 80,000 acres; the whole of this great tract being enclosed in one vast pasture by a wire fence, which cost upwards of $16,000. Here he found the climate so mild that the sheep thrive absolutely without shelter. He regards it as necessary only to keep the sheep fat and in good condition, to enable them to resist without inconvenience the cold wind and rain of that climate. Even the shepherds have no shelter, except such as they may make with their blankets; and no means of warming themselves, but a fire on the open ground. They suffer no inconvenience, however, from this exposure, and are always on hand to take care of their sheep.

The sheep in this district are divided into single flocks of from 1,100 to 1,300 in number; usually about 1,100, this being about the number which can be advantageously kept together under the care of one shepherd. The ewes, with their lambs, are kept separate from the dry ewes and the wethers—or *muttons* as they are generally called. A thousand or eleven hundred sheep will "herd" or keep nearly together* within a space which the shepherd can easily move around. When driven out on the range from the camping-ground, they are kept constantly moving for a mile or two; the shepherd continually moving around the flock, which is guided by his voice. They snatch their bites of grass as they go slowly along. They return in the same way, slowly feeding, to the camping-ground, generally selected on the southerly side of some creek, or under the shelter of the prairie-timber. In rainy or cold weather the sheep travel much more briskly than in warm. In very hot, dry weather, they often will not feed by day, making up for it by feeding late in the night. Thorough-bred shepherd dogs have been hired, but have

* Mr. Shaeffer gives a satisfactory reason for the fact, often stated without explanation, that the English races of sheep, the Cotswolds, Leicesters, etc., cannot be kept in large flocks. The reason he gives is, that the Cotswolds will not "herd" or keep together, like the merinos. While feeding, they invariably scatter over a wide domain. A Cotswold, if tired, will lie down, and cannot be driven up by the shepherd; and, when it recovers, is liable to wander off and join another flock. Mr. Shaeffer thinks that the Cotswold blood should never be introduced into large flocks of merino sheep. Without greater care in breeding than the ordinary flockmaster can exercise, they will make the wool of the flocks uneven, and ultimately ruin them.

been found useless, except to relieve lazy shepherds, who can do the necessary guiding much better than the dog. The flocks, however, are usually attended by cur dogs, which are useful for frightening away wild animals. These curs, having been suckled when young upon goats, continue to attach themselves to the flock. The shepherd dogs were discarded, because it was found that, when they drove the sheep, they caused them to huddle together, thus making a great loss of feeding time. It is of the first importance to keep the animal fat. Its fat condition not only makes the fibre strong, but enables the sheep to resist the storms and cold. If sheep are fat, they are also better able to endure occasional drouths. All the sustenance in the country in question is supplied by the natural pasturage, which consists of different varieties of the mesquite grass. A great superiority of these grasses over the annual grasses of California consists in their being perennial, and having long and stout roots, which cannot be pulled up by the sheep, nor trodden down. Although the grass may be apparently dry during a drouth, after a rain it becomes perfectly green in a week or ten days. The rams, it may be observed, except when they range with the ewes, are confined in enclosed pastures. They receive in winter extra forage; either cotton-seed (which is considered more nourishing than grain) or, more generally, oats. A new variety of oats has recently been grown in Texas, called the "Antirust." This variety has been known to produce as high as one hundred bushels to the acre, weighing thirty-seven pounds to the bushel, instead of thirty-two. Through its introduction the price of oats has been reduced from about seventy or seventy-five cents to twenty-two cents. It is sown in November, and fed during the winter, which increases the crop of grain. This variety would be admirably adapted to the Georgia pine lands for a winter forage for sheep.

Although the original stock upon which Mr. Shaeffer's flocks were engrafted was principally the native Mexican sheep, improved by merino bucks, the Mexican blood has been so completely eradicated as to show no trace of its existence. The native Mexicans would weigh scarcely more than from fifty to fifty-five pounds, gross weight, and produce fleeces of poor wool, weighing about four pounds. The improved sheep of Mr. Shaeffer average for the whole flock seven pounds of unwashed fine wool. His wethers—or "muttons," to adopt the Texan term—will weigh, at four years old, one hundred pounds gross weight.

These sheep, which are of the best improved American merino stock, make excellent mutton. The mutton fed upon the mesquite grass never has any of the rankness or *muttony* flavor peculiar to those sheep at the North. A great number are now sent from Nueces and other counties in Texas to St. Louis and Chicago, where they bring good prices. They reach these markets before the Western sheep are sheared and ready for the butcher; and they form an important source of supply for these markets in the spring, coming in like the Southern vegetables to our Northern markets. A notice has recently been published of the loading of ten double-decked cars carrying 160 animals each, with sheep, at San Antonio, destined for

the Chicago market, at a distance of 1,500 miles. One flock of three-year-old wethers was sold by Mr. Shaeffer for $3 a head, to a party who pastured them for two years in Texas, receiving their wool for this period; and who sent them to market in New Orleans, at five years old, where their fatness and the excellence of their meat was the subject of general comment. Mr. Webster used often to say, at his dinner-table, that he never knew the secret of making good mutton until he visited England, where he found that it was *age*, the best mutton being five years old. While the sheep increase but little in weight after the third year, the meat constantly improves in quality. It may be readily seen how easy it is to obtain good mutton where the food costs absolutely nothing, and almost the only cost of keeping the sheep till full maturity is the interest of the capital, while the sheep are all the time producing their semi-annual returns of wool.

"The flocks in this country are kept up by the constant purchase of regenerators. These are the rams raised in New York, Vermont, and Ohio, by skilled breeders, who find this much more profitable than growing large numbers of sheep for wool or mutton. A very large number of Northern rams are sold in Texas. Mr. Shaeffer has himself purchased over 800 at the North, many of them from Dr. Randall. There are at present five hundred rams in Corpus Christi; all which will be sold at prices ranging from $30 to $50, and very choice animals for $100. The Texas sheep husbandry is thus the means of keeping up the most profitable branch of sheep culture at the North—a branch which may be carried on upon the highest-priced lands. The high-priced rams are kept in Texas two or three years, and sold at a less price to persons commencing the sheep business with but little capital.

"It had been the custom for the Texan flock-masters to sell the high-bred rams produced from their own flocks, only at the high prices demanded by the Northern breeders. Mr. Shaeffer early saw that he could benefit his country better, and do as well for himself, by changing this system. He found that the young men of his country going into the sheep business could not pay these high prices and make a living. He therefore reduced the prices of the high-bred rams which he had raised in Texas, to from five to ten dollars, and sold a great many more by so doing. This had the effect of greatly extending the improvement of the flocks in the country. Another step taken by him was important for the development of the country in the direction of sheep-growing. Mr. Shaeffer found that contests were constantly occurring between the cattle-herders and the shepherds. He therefore began gradually to purchase all the lands he required: his example was followed by others; and, at present, the greater part of the land in the sheep-region is held in freehold by the respective flock-masters.

"There has now been so long and extensive an experience in this country as to reduce the methods of the peculiar pastoral sheep-husbandry to a well-established system, which is so simple that it may be easily learned by any intelligent person. The plant required for the business, except the first stock of ewes and rams, is exceed-

ingly small. No buildings are required, if we except the covered platform for shearing. A rude camp is all that is necessary for the flock-master, and a wagon with a pair of horses for his supplies—of course, he will have a saddle horse. The well-arranged *ranche* is an after luxury, to be earned by the profits of the enterprise. The aim is to have flocks of at least 1,000 or 1,100 head, for each of which one shepherd—invariably a native Mexican, called a *pastore*—is required. It is desirable that the proprietor should have at least three flocks of this number. The separate flocks, each with its shepherd, are so located that they can be brought at night to a central camp, where the *baccierro*, or sheep-overseer, also a native Mexican, is established. This overseer is necessary, in all cases, to relieve the shepherds in case of accident, and to cook their rations. The *baccierros*, as a class, are remarkable for their fidelity. The *impedimenta* of the camp, if they may be called by this name, consist only of the rudest cooking utensils and the stores of provisions ; no shelter being required, and the bed of the shepherd being a sheepskin. The food or rations of the shepherd are corn for *tortillas*, or, sometimes, flour, coffee, and fresh meat, no pork or bacon being used. The fresh meat is almost invariably supplied by goats, which are pastured with the sheep for this purpose. They cost about a dollar a head. Their flesh is excellent, and preferred by the Mexicans to any other. The quantity of goats' meat which the *pastore* will consume is enormous : the consumption being about one goat a week to the shepherd.

"The shearing seasons are the busiest times for the Texan flock-master, not only on account of the number of extra hands to be overlooked, but because upon the care exercised at these periods in culling, depends the future character of the flocks ; and the tying up of the wool nicely is important for its sale. The shearings take place twice a year. The spring shearing commences about April 15th, and the fall shearing about September 15th. The shearings continue from three to four weeks, according to the weather. The practice of two shearings a year has been adopted, from the experience that it is most advantageous for the warm climate of Texas. It has been a mooted question, whether there is more profit in shearing twice a year than once. By shearing twice, the wool, of course, is shorter ; is fitted for only one purpose—that of clothing, and brings a less price per pound. The high prices of wools for combing purposes, for which many of the improved wools of Texas, if suffered to grow to their full length, are well adapted, is lost ; and there is the additional expense of the extra shearing. But, on the other hand, the sheep sheared twice a year are healthier, and keep fatter ; and the shearing checks the scab, if there is any tendency to this disease. The flock-master gets the money for his wool twice a year, instead of once ; an important consideration where the least rate of interest is one per cent. a month. The double shearing is especially advantageous to the lambs. By giving them their first shearing in August, to be repeated in the next spring, their health and growth are greatly promoted, and, consequently, the general increase of the flock. Mr. Shaeffer believes it would be advantageous to shear the *lambs* twice,

even at the North. Seeing the lambs in the flock of an eminent breeder in Missouri failing, Mr. Schaeffer recommended immediate shearing. The advice was followed, and all were saved : one of these lambs (a ram), when grown, was afterwards sold for $150.

The shearing in Texas is all performed by Mexicans, from both sides of the river Rio Grande ; many coming in, for this purpose, even from as far as Monterey. They shear by the head ; the usual price being $3.50 per hundred for fine sheep. The shearers average about thirty head a day. The shearing is performed on a floor or platform, especially constructed for this purpose. The most careful flock-masters have this floor protected by a roof. The barn floors of the North, it must be remembered, are not known in Texas. In shearing, the Mexicans tie down the sheep upon the floor, usually about ten at a time. This time the flock-master improves for examining his sheep and the character of their fleeces. He selects those which are to be culled out on account of age or defects of fleece, or those which are to be preserved for special uses in breeding ; makes the proper marks upon the animals, duly entering them into his sheep-book. The wool from the spring shearing is tied up in fleeces ; the fall shearing, being light, is put in sacks, without being tied. The packing the wool in sacks, although it cannot be dispensed with, is considered disadvantageous to the grower of the wools ; as wool from inferior fleeces, or an inferior part of the body, is liable to be mixed with better wool, and to prejudice the whole lot to the buyer. It is believed that a profitable enterprise, and one very advantageous to the Texan growers, would be the establishment in that country of extensive wool-scouring establishments, like those in Belgium and France. The facility of obtaining scoured wool would be advantageous to manufacturers with small capital and establishments, and in saving of freight. The sheep in Texas, it must be observed, are never washed. The water is calcareous ; and perhaps contains iron, because it makes the wool black.

Even with the rich pastures of Texas, it is deemed desirable to have at least two acres to every sheep. It is of the first importance that the range should not be overstocked. A much larger range is required than in regular, enclosed pastures, over which the sheep scatter as soon as they are driven to them ; while in the open range, under the care of the herder, much of the grass is trodden down by the sheep passing from one point to another in compact flocks, from their sleeping grounds. The proportion of bucks required for the ewes is larger than in the North, as the bucks run with the ewes on the range about five weeks. Three bucks are required for every hundred ewes. The main lambing takes place from February 20th to April 1st. It is an interesting observation in regard to lambing, that it is attended with much less danger and difficulty where the sheep live in the natural state of wild animals, than under a more artificial system. This applies also to the general health of the animals. During the lambing season, in the evening or next morning, after the flock of ewes, with the lambs dropped during the day—say from fifty to one hundred—are driven into the camping-ground, the ewes

with the newly dropped lambs are separated from the flock, and suffered to rest until the middle of the day, near the camping-ground. The next day they are moved to another camp-ground, to give place to those which come on that day; the last comers to join those which came on the previous day. This continues until a flock of about 500 ewes and 500 lambs is made up, which is kept separate. It is not safe to calculate, one year with another, that the number of lambs raised will be more than eighty per cent. of the ewes.

All the ewes which lose their lambs from any cause are turned in with bucks, by the first of June, to lamb in November.

Our informant has but little faith in estimates of profits, as the circumstances vary so much in the situation of the establishment, and the personal and economical habits of the flock-master. He has consented, however, to make a statement of the necessary expenses and results, with one flock of 1,100 sheep, in one year.

EXPENSES.

Shepherds and wages at $11 per month and rations	$250.00
Shearing and sundry expenses at shearing-time	77.00
Dipping for scab, four cents per head	44.00
Sheep dip for worms	5.00
Extra labor	20.00
	$396.00

Salt is not required near the coast or with mesquite grass.

RECEIPTS.

1,100 sheep, at 5 lbs. per head, equals 5,500 lbs. wool; at 20 cents per pound	.20	
Cash receipts	$1,100.00	$1,100.00
80 per cent. increase, 880 head at $3.00		2,640.00
		$3,740.00
Less expenses	$396.00	
Interest on $5,000 at 12 per cent.	600.00	
Rent of place	100.00	
	$1,096.00	$1,096.00
		$2,644.00

In this statement, the expenses of the overseer are not included. One is required, in all cases; but one will suffice for three or four flocks. It is best to start with 1,600 head of ewes; because after lambing they can be divided into three flocks of ewes with their lambs, with an expense of but one *baccierro* and one camp, and three shepherds. At the end of five months, the lambs are weaned and taken from their mothers. Then, until the next lambing time, which will take place in the succeeding March, the sheep can be well cared for by only two shepherds and one overseer; the ewes being in one flock and the lambs in another.

The procedure and increase may be illustrated as follows:—

We will suppose the new flock-master commences October, 1876, with ewes	1,600
March, 1877, the ewes produce 80 per cent. of lambs	1,280
September, 1877, weans the lambs; places them in one flock, and the ewes in another, making only two flocks.	
March, 1878, there are ewes	1,600
" " " yearlings; one-half ewes, and the other half wethers	1,280
" " " lambs as 1877	1,280
Making four flocks; three of ewes and lambs, and one of yearlings	4,160
October, 1878, there are breeding ewes	1,600
" " " young ewes	640
Total to go to ram in October	2,240
March, 1879, there are wethers, two-years old	640
" " " yearlings (ewes and wethers)	1,280
" " " breeding ewes	2,240
" " " lambs	2,240
	6,400
October, 1879, there are breeding ewes	2,240
" " " yearling ewes	640
Making number of ewes to go to ram	2,880
March, 1880, there are breeding ewes	2,880
" " " lambs	2,880
" " " wethers three years old	640
" " " " two "	640
" " " yearlings, ewes, and wethers	2,240
Total number, March, 1880	9,280

Advice to Immigrants.—The adventurer from a distance, seeking to invest in sheep husbandry in Texas, is advised to proceed directly either to Corpus Christi or San Antonio, from each of which points he can make observations with convenience, and obtain information as to desirable locations. He should spend three or four months looking around for a range. The ewes may be carried from the West or bought in Texas. Mexican ewes can be purchased at seventy-five cents per head, and improved sheep for from $1.50 to $4. Texas raised rams can be bought for $10, and imported rams for from $30 to $50. It would be more safe to rent a tract of land, which he can probably obtain at a very cheap rate—say $100 per year for enough land to feed two flocks of sheep of 1,100 each. As he may not like the business or the locality, it would be more prudent, at first, not to purchase a range. If he is willing to incur greater risks, to secure the proprietorship of an extensive range at a moderate price, he may go higher into the country, where the land belongs to the State. A 640-acre certificate of State land can be bought for about $640, or a certificate of the alternate lands granted to railroads as low as $100.* Generally, the expense to secure a patent, including certificate and

* Now about half that sum.

cost of surveying, would amount to about fifty cents to the acre. As two acres are required for a sheep, it will be seen, from the statement of increase before given, that the command of a very broad range is required to make the increase available; and that, with such a command, there are chances for very large profits. The adventurer, if he has a family, must place them in some of the towns or villages most convenient to his range. His personal presence on his range will be indispensable for his success, and he will find ample occupation. But he can safely trust the Mexican *baccierros*, when making occasional visits to his family.

The advantages of Texas for sheep-growing are now attracting persons of experience in Australia, and English and Scotch emigrants with capital. Besides our informant with his 15,000 sheep there are others in Nueces and Duval counties with flocks of ten to twenty thousand head. The Callahan flocks, in Star county—the proprietor living at Laredo—numbers sixty thousand head. When we see how rapid the increase is, and that there are 80,000,000 acres of land still unlocated in Texas, we can see that, if there is no legislation to disturb the wool business of the country, and the Mexican and the Indian depredations are checked, it will not be many years before Texas will rival Australia. Mr. Shaeffer states, as an illustration of the rapidity with which sheep husbandry is advancing in this State, that in 1876 San Antonio received but 600,000 pounds of wool, which is sent through Galveston. In 1877 she received 2,000,000 pounds. The wool of Nueces and neighboring counties is shipped from Corpus Christi. In 1866 there were shipped only 600,000 pounds. This year there will be shipped 6,500,000 pounds.

The following statement, illustrative of the profits which may be derived from sheep-growing in Texas, was made to us by Colonel John S. Ford, a State senator, and formerly a member of the Congress of Texas, before annexation. We give it exactly in the language of Colonel Ford, as noted by us and subsequently read to him.

"Dr. Thomas Kearney, formerly collector of customs of the port of Corpus Christi, and Major James Carr, made, in 1870 or 1872, an investment of $5,000 in sheep husbandry; bought ranch and buildings about sixty miles northwest from Laredo, Webb county, Texas—the land about 13,000 acres and the sheep well improved. At the end of five years Dr. Kearney sold out his interest to Carr—that is, one-half interest for $20,000. In August, 1877, Carr refused a $60,000 offer, which he had from William Votaus, for his sheep ranch with the sheep; the exact facts being that Votaus offered $30,000 in cash, and one of the best-improved places on the San Antonio River, which had cost him about $60,000.

Mr. Shaeffer says that Carr ought to have taken the offer.

To Texas, more than any other State, do the textile manufacturers of the North look for the supply of their mills. No other State is making such rapid progress in population, production, and wealth. With an area which exceeds that of the German Empire by about sixty thousand miles; with a capacity to produce almost all the products of the temperate zone; with sugar lands on the Southern

border which could yield double the quantity of sugar and molasses required for our whole consumption, Texas is above all pre-eminent for its resources in textile material. On less than one-half of one per cent. of its area, it produced, in 1875, one-half of all the cotton consumed in the United States; and four per cent. of its area would be capable of producing all the cotton now consumed in Europe and the United States—over six million bales.* Add to this its capacity for wool production, and we have a State without parallel in the extent of its natural resources.

On the first of January, 1878, the number of sheep were as follows, according to the Department of Agriculture:—

NUMBER OF SHEEP IN SOUTHERN STATES, JANUARY, 1878.

States.	No. of Sheep.	States.	No. of Sheep.
Delaware	35,000	Mississippi	250,000
Maryland	151,200	Louisiana	125,000
Virginia	422,000	Texas	3,674,700
North Carolina	490,000	Arkansas	285,000
South Carolina	175,000	Tennessee	850,000
Georgia	382,300	West Virginia	549,900
Florida	56,500	Kentucky	900,000
Alabama	270,000	Missouri	1,271,000
Total			9,887,600

NUMBER OF SHEEP IN NORTHERN AND WESTERN STATES, JAN. 1878.

States.	No. of Sheep.	States.	No. of Sheep.
Maine	525,800	Illinois	1,258,500
New Hampshire	239,900	Wisconsin	1,323,700
Vermont	461,400	Minnesota	300,000
Massachusetts	60,300	Iowa	560,000
Rhode Island	24,500	Kansas	156,000
Connecticut	92,500	Nebraska	62,400
New York	1,518,100	California	6,561,000
New Jersey	128,300	Oregon	1,074,600
Pennsylvania	1,607,600	Nevada	72,000
Ohio	3,783,000	Colorado	600,000
Michigan	1,750,000	The Territories	2,600,000
Indiana	1,092,700	Total	25,852,300

As example is better than precept, we give some examples of fortunes made in Texas in the sheep business. The following is from the *Galveston News*, special edition for September 1, 1880:

"It may please those of your readers interested in sheep matters to learn a few facts about the Las Moras rancho, in Menard county, started on a comparatively extensive scale three or four years ago by Mr. C., a French capitalist.

"After an examination of the frontier, he pitched upon the waters of the upper San Saba as offering rare advantages for range and water. He at once, by judicious purchases, secured valuable water privileges, and moved some six thousand sheep, including some forty-five hundred ewes, up there, built large and substantial buildings, farms and pastures, and gave the business the closest attention.

* Report of Mr. Edward Atkinson, on cotton, at the International Exhibition.

"The result demonstrates the advantages of Western Texas for this fast growing industry, and shows what pluck and intelligence combined with capital can in a short time achieve.

"After grading up his original stock with the greatest care, he now has some 15,000 sheep, including some 400 lambs, all in the finest condition, while his clip for this spring runs over 50,000 pounds, and ranks among the very finest in the State for quality.

"It is rumored that he is so much encouraged that he has secured the co-operation of active gentlemen and capital, both in this State and abroad, with a view of extending the business and adding cattle-raising to it.

"With a few more such men among us, Texas will in a few years astonish the world by the magnitude of her sheep interests, as she has already done with her cattle and cotton.

"The above is but one of many hundreds of similar instances in Texas that might be cited. In three or four years Mr. C's flocks have increased 250 per cent., and probably much more than that in value per head through grading up. He is therefore probably about 500 per cent. better off than he was when he started the business three or four years ago. When it is considered how rapidly sheep increase, and that the cost of keeping them in Texas is next to nothing, outside of the hire of herders, such results are not surprising. There is no business in which fortunes may be more certainly or rapidly made, and all West Texas has many living proofs of it. During the late war the writer's nearest neighbor, in a West Texas county, was a sheepman, who owned a flock of a thousand head at the beginning of the war, and nothing else whatever except a horse or two. He had not a foot of land or a house to cover his head, but rented a small tract with a shanty on it. There was no accessible market for his wool in those days, so he was compelled to keep his clips on hand. He was very hard up and waxed very ragged, but what with wild venison, wild turkey, and wild trout, with an occasional wether and plenty of corn bread, he managed to keep himself fat and healthy. When the war closed he had his clips of five years, and in the meantime his flocks had increased to some nine thousand head. He waked up one morning and found himself rolling in wealth. He sold his fine wool at a high figure, put on broadcloth and silks, visited the cities, turned fool, concluded that he had mistaken his business, sold his fine flocks at a high figure, started life afresh as a big merchant in a big city, and in a short time 'busted'—busted all to pieces, without a copper left to him in the world. Truly the fool and his sheep are easily parted!

"Another one of the writer's neighbors grew into sudden wealth in the same way. But he did not turn fool and turn merchant. He held on to his sheep, and died a short time ago a very rich man, owning a large real estate. The sheep, under his excellent management, did it all for him.

"But this business, like any other, requires very close attention to turn out these fine results. Without this sort of attention, close and intelligent, there is no money in it. "N. A. T."

The *News* of a later date has the following from a San Antonio correspondent:

"Mr. L. McKenzie, born and raised in Texas, and now thirty-five years old, began the sheep business in Maverick county, August 1, 1875. He had $740 dollars, for which he bought 500 head of Mexican ewes. He immediately procured the best merino bucks attainable, and commenced grading his flock. His first year's yield of wool was 1,000 pounds, pure Mexican, for which he received 12½c. per pound, or $125. This, of course, was not enough to keep his herder, but he had credit and was economical. In his second year he had a large number of half-breed sheep, and an increased quantity of wool of an improved quality. This has been continued to the present time, during which he has maintained a family and schooled four children. He has just disposed of his fall clip in this city, and the following is the result of five years in the sheep business.

"Last spring Mr. McKenzie sold his wool at 21½c. per pound, amounting to $1,560, and the sale of his fall clip just made, which amounted to more wool, brought only 20½c. per pound, and netted $1,287. A short time ago he sold 1,000 old ewes, muttons, etc., at $1.50 per head, aggregating $1.500. Total amount of wool sold in 1880, $4,347; including the sheep, $5,847.

"During these five years Mr. McKenzie by close attention to his herds, and always on the alert to take advantage of any trade or business transaction that presented itself, has accumulated property as follows, and on which he does not owe a dollar: Rancho of 2,560 acres of fine land on Palo Blanco, Zavalla county, house, pens, etc., valued at $4,840; 3,300 improved sheep at $2, $6,600; 400 head of cattle at $10, $4,000; 10 head saddle horses and saddles at $25, $250; 500 goats at $1.50, $750; making a grand total as the result of five years' business, adding this year's sales, of $20,787.

"He has now ten men in his employ, all of whom are Mexicans. His sheep-herders he pays $12 per month, gives them a bushel of corn meal, two goats for meat, 50 cents worth each of sugar and coffee, and 25 cents worth of salt per month. This, a blanket, a sheath-knife, probably an antique gun, a faithful dog for watching, not herding, is the simple-hearted Mexican pastora's (shepherd's) outfit. He has no tent or hut, and sleeps with the sheep wherever night overtakes him. Over every three or four pastures is a corporal or overseer, who is required to keep track of the herders' whereabouts, and see that their wants are supplied. There is usually an overseer of the entire rancho, who, next to the proprietor, has charge of the business of the rancho. These pastoras are usually very faithful, and are preferred by those who have become accustomed to them to any other nationality. Mr. McKenzie tells of a man, about forty years old, who has worked for him over four years, and who declares that he will stay with him always. He has been born and raised at the business, and never got more than five dollars per month till he came to Texas and worked for McKenzie. The old man gets a furlough of a few days every six months, when he goes to Eagle

Pass, spends all the money due him and what he can get advanced, amounting to about six months' wages, in drinking, gambling and having lots of fun, according to his idea of the thing, and thus returns to his flock perfectly contented for the next six months. Last year, with the assistance of his faithful dog, he killed over 100 wild-cats and panthers. Herding with these men is a lifetime occupation; they have no hope or wish to do or attain anything better, and they acquire a wonderful proficiency. Mr. McKenzie says that the man Pancho, referred to, has the wonderful faculty of knowing every sheep in his flock. Last spring, when his goats had kids, he had to stake out each kid for several days because they will not follow the dam when very young. He had thus over 150 kids tied to stakes, and when the hot sun came out he untied each one of them, carried them to the shade in the sheds, and in the evening returned each to its proper stake. This feat was witnessed by Mr. McKenzie, who knew that each kid was at its proper place, because the mother does not only know its young, but returns to the stake where it was left, and not finding its own offspring refuses to accept a substitute. Not a single instance of refusal occurred; the old Mexican had properly returned each kid to its stake.

"Probably few men in West Texas can show a better record than Mr. McKenzie, and while not every man has his good fortune, in the five years he never having met a single disaster, still the sheep business now offers greater attractions than any other in Texas. The opportunities are not all gone, and, in fact, sheep husbandry in Texas is only in its infancy. Many improvements have been introduced within the past two or three years, and there is room for many more. Lands are plenty yet, and all it needs is a thorough knowledge of the business and close attention.

"HANS MICKLE."

We cannot better conclude this article (already extended) than by the reproduction of the following letter from Mr. H. J. Chamberlin, of Bell county, (Central) Texas, a man of great experience and success in sheep culture in his section, where more attention is paid to the improvement of the flocks by judicious breeding and careful handling than on the western and southwestern frontier.

FROM BURKE'S TEXAS ALMANAC, 1880.

"In again attempting to furnish an article for the *Texas Almanac* on the subject of wool growing. I am made to look back over a period of nineteen years, when I first engaged in this vocation on Texas soil. Then a few stationary herds, mostly of the Mexican stock, made up the sum total of a seemingly insignificant business. Texas is now regarded as the second largest wool-growing State in the Union, having nearly or about four millions of sheep, and perhaps before another issue of the Almanac Texas will rank first in the production of this great staple in the world.

"Not only has it been proven that Texas is to lead in the quantity of sheep and wool grown, but also in the raising of superior thorough-bred animals, possessing individual merit surpassing any on the face of the globe for weight of fleece and other desirable qualities.

"The hap-hazard, slipshod, penny-wise-and-pound-foolish methods of raising sheep in Texas have yielded to skilful breeders of the very best animals and producers of wool, who know to a certainty that their flocks bred to thorough-bred stock, possessing requisite wool-growing qualities and vigor of constitution, are to them more valuable than mines of gold, and the care of them as pleasant and healthy as any vocation they could undertake.

"About all of the popular breeds of sheep known are successfully grown in Texas. The nature of the large, long-woolled breeds, together with the great distance from our mutton markets, has caused them to be but little grown. Some persons have been prejudiced against Merinos by the use of, or attempt to breed, sheep brought into the State and called thorough-bred animals that were bad grades, not possessing either constitution or other merits; also, by the purchase of stock in such a pampered condition that they were better adapted for quiet security in a box, carefully fed, than for use or profit. It is no wonder that sensible persons become disgusted with such stock. The Spanish Merino, or as we generally term them, American Merinos, on account of the great changes wrought upon them since they were imported from Spain to America, some seventy years ago, can be grown in large herds; they are easily controlled, excel any sheep in the production of wool, and make very good mutton; hence they are most grown on Texas ranches.

"The improved condition of the wool market has given a new impetus to the sheep-growing business. Some men, of course, in their zeal to acquire a fortune without labor or much time, will rush into this business and make a shipwreck of it.

"During last winter a great many sheep died, and in some instances nearly whole flocks were lost. These sheep generally belonged to adventurers, above referred to, were in charge of men not having experience or practical judgment, or perhaps had been driven long distances and went into winter in very bad condition. In no instance did I learn of any serious loss among stock well herded and supplied with such necessary things as are possessed by almost every flock-master. In Central Texas, although the grass cropped from the prairies by the sheep will sustain them tolerably well, yet experience has taught me that a little grain or cotton seed, principally fed during December and January, is an expense doubly repaid by an increased amount of wool and more valuable lambs the following spring.

"Abundance of good sheep-grazing lands can be had convenient to the long lines of railroad that cross and intersect our State, near communities having good society, with church and school privileges, at from two to five dollars per acre; and further out, in new counties and distant from towns, good ranch land can be had in quantities as low as fifty cents per acre.

"Upon these millions of acres of unoccupied lands, nowhere sur-

passed for stock-raising purposes, we give a welcome hand to all honest immigrants, whether they come to invest their capital or by their strong arms aid us in the development of our great Lone Star State, and assure to them the peaceable enjoyment of all the good things their capital or labor may procure.

"BELL COUNTY, TEXAS, September 26, 1879."

GOATS.

MANY persons believe that there is even a larger profit in raising goats than sheep in Texas. Certain it is that in every section, but particularly in the west and southwest, this useful little animal thrives and prospers amazingly. Where the horse, the cow, or the sheep will starve, he finds his choicest food, picking from barren hillside or drouthy plain the thorny leaf of the prickly pear, or cropping with apparent satisfaction and comfort the scantiest herbage.

To the sheep-raiser in the West, the goat is indispensable, as he furnishes meat to the Mexican herders, who prefer "goat's flesh" to anything else. And a small flock for that purpose is generally kept along with the herd of sheep. None, so far as we know, have devoted themselves exclusively to goat raising in Texas, but those who have tried it, on anything like an extensive scale, say it pays very handsomely. A gentleman at Brackett, in Kinney county, told the writer but a short time since, that his flock of about 2,500 goats which he had been managing several years, had netted him forty per cent. per annum on the investment.

Whether goat raising as a *business* be profitable or not, nearly every farmer will find a small flock a valuable addition to the economy and pleasure of his living. A beef or a hog cannot always be safely killed, for fear of losing the meat, but the smallest family can dispose of a kid, and there is nothing better for the table.

THE ANGORA GOAT.

In 1849 eight head of these goats were brought to Austin, Texas, by Mr. R. Williamson, agent of a Tennessee company. They were then known as the Cashmere Shawl Goat. With these and the occasional importation of others, the goat has become generally distributed through Texas. There is a fine flock at Leon Springs, Bexar Co.

In October, 1875, Mr. J. W. Dunn, of Corpus Christi, imported a small flock purchased from Col. Robert W. Scott, of Frankfort, Kentucky. After four years' experience, Mr. Dunn says: "I find them to be both healthy and hardy—standing our wet northers better than the common goat. The males will shear about five pounds and the females about three and a half pounds each. My last spring clip was sold to Messrs. Kitching Brothers, of New York, for seventy cents per pound, for the entire lot. And this when the best Texas

improved wool from sheep sold at eighteen cents. The goat is nearly omnivorous, eating almost every shrub, and can live with but little grass. There are in Texas millions of acres of rough, hilly country admirably adapted to range for goats, and where nothing else could be made to live. The goat is naturally a hardy animal, and free from the diseases so destructive to flocks of sheep. The Angora is a success in California, and from my experience I have no hesitation in saying they can be made as profitable in Texas as in California, or even Natalia, their native Asiatic home."

HORSES AND MULES.

THAT Texas is well adapted to the raising of horses and mules, as well as cattle and sheep, is amply proved by the fact that, upon the first settlement of the country by Americans, and for thirty years thereafter, there were more or less wild horses or "mustangs" in all sections, and in the unsettled portions they were numbered by hundreds of thousands. The wild horse of Texas sprang from escaped gentle stock, first introduced by the Spaniards in their conquest of Mexico, of which Texas was then an integral part. They were the true Andalusian horse, with more or less Arabic blood, and as beautiful specimens of that noble animal as could be found in the world.

Our present stock of horses in Texas are grades upon the "mustang" (mostly half-breeds), but with the exception of a little gain in size and improvement in temper and natural tractability, have no great advantage over the original stock. These half-breeds average about fourteen hands in height, but are very strong, active and enduring. A good one will carry a man upon his back day after day from forty to fifty miles, and live on grass. Their qualities as saddle animals are unsurpassed, and for the purpose that they are mostly used (driving cattle) they are better adapted than thorough-breds. A Texas pony will carry his rider in a wild chase after cattle day after day, with nothing but the prairie grass to subsist on. These ponies are worth from fifteen to fifty dollars, according to size and quality. The average price for a broken animal would probably be thirty dollars. The cost of raising them is but little more than the cost of raising a "beef steer," perhaps no more. They live upon "the range," and only require a little looking after and an occasional salting to keep them gentle.

Of late years, however, much attention has been paid to the improvement of horses and mules, and at any of the county fairs first-rate specimens of the Texas bred racer or the trotter can be seen.

The Texas mule is generally small, but tough and wiry, and capable of immense endurance. Like his half-brother, the "cow-pony," he is admirably adapted to the country and its demands. The price of good broken Spanish mules, as they are called, will range from forty to seventy dollars. It costs no more to raise them than it does the "cow pony."

HOGS.

TEXAS is peculiarly adapted to raising hogs, and the success attending this business is leading to a large annual increase. The greater portion of Eastern Texas is well timbered with oak and nut-bearing trees, which furnish abundant food for hogs, while the large extent of post-oak timber and the "river bottoms" of Central and Southern Texas, supply enormous quantities of the "porker's" favorite food, acorns and pecans.

Very few men have made the raising of hogs a special business, or acquired wealth at it, for the reason that until very recently we have not had railroad or other facilities for getting live hogs to market, and the climate of Texas is too warm to make the saving of pork on a large scale a certainty. Farmers can always save meat for their own use and as much for sale, but they must have everything in readiness, so that when a "norther" comes, they can commence killing at once, and make the slaughter "quick and lively," so that the animal heat may be thoroughly expelled before warm weather sets in again.

The "northers" in the autumn are but of short duration, but in January and February they extend sometimes over a period of several days, and the watchful farmer will have several opportunities to slaughter with safety as many animals as he is likely to take care of or desire.

The best range for hogs is open post-oaks, and near a river bottom where there is an ample supply of pecan trees. This furnishes them an abundance of grass in summer, and nuts and acorns during fall and winter. Hogs left to themselves soon get wild, and to make the business pay they must either be confined in pastures, or some one must go among them every day or two and call them together, feeding a little corn. A very little will suffice to keep them gentle.

Considerable attention has lately been paid to the improvement of the stock, and the "Berkshire," "Chester White" and "Poland China" and other choice breeds are rapidly taking the place of the lank Texas "razor-back."

With the railroad facilities now at hand for shipping live hogs, considering the cheapness of rearing them, no better opening presents itself to the man of moderate means, than a "hog ranche" in a proper locality.

POULTRY.

DOMESTIC fowls of all kinds do well in Texas, and require but little care or attention. The main thing is to provide an abundant range, fresh clean water, and allow them to live out of doors and roost in the trees. Under these favorable conditions domestic fowls "increase, multiply and replenish the earth," in Texas with amazing rapidity.

GAME AND FISH.

TEXAS has long been noted for the vast number and varieties of its game, from the noble buffalo (bison) to the smallest of the feathered tribe. Nowhere else on the American continent can the eager sportsman spend his time more pleasantly, whether his favorite weapon be the rifle or the shot-gun. Of course here, as elsewhere, the larger game animals have receded before the march of civilization, but there are still enough left to satisfy the most exacting.

Among the principal game animals we have the buffalo, big horn (rare) bear, antelope, deer (two varieties), cougar, wild-cat, wolf (three varieties), squirrel (three varieties), raccoon, opossum, rabbit (three varieties), prairie dog, havalina (Mexican hog or "peccary") and others of lesser importance.

The buffalo (*Bison Americanus*) is still quite plentiful on the extreme northwestern frontier, but he is rapidly disappearing before the destructive long-range rifles of the cow-boy and the hunter. When they are known to be "down," hunting parties are organized at all the frontier posts, and the work of destruction goes remorselessly on. The buffalo hunter lives on the "range" and follows the poor beast with untiring activity, his object being only to secure the hide and tongue. Thousands are thus slaughtered every winter.

The buffalo ranges from the "Panhandle" of Texas to the Pecos River, but is rarely seen west of that stream.

The black bear (*Ursus Americanus*) is found all over the State wherever the covert is sufficient. He is very plentiful among the rugged hills of the west where the "bear-grass," his favorite food, is abundant. This he tears up, devouring the soft, pulpy mass of which its root consists.

The big-horn, or Rocky Mountain sheep, has been observed in but one locality, viz., the Guadalupe Mountains, on the southern boundary of New Mexico.

Antelope are found everywhere on the western prairies, remote from the thickly settled districts. They go in herds of from ten to five hundred and are extremely difficult to approach. They are gifted, however, with a most inordinate curiosity, and can frequently be enticed within gun-shot by the concealed hunter throwing up his hat or waving a handkerchief.

Of deer we have the "Black-tail" (*C. Maceatis*) and the common Virginia deer (*C. Virginianus*). The first named is not found east of the Pecos River, and not in very great numbers anywhere. They frequent the high, bald mountain ranges, and usually go in small herds. The "Black-tail" is somewhat larger than the common deer. Long and prominent ears and a small black tuft of hair on the tail are its distinguishing features. The Virginia or common red deer is too well known to require any particular description. He is scattered all over the State and in many sections is very abundant. On the coast prairies, large herds of them may still be seen from the windows

of the passing railway carriage. Here, in former years, before the scream of the iron horse startled these peaceful plains, was his favorite feeding ground. The writer remembers, on one occasion, twenty-five years ago, on the extensive prairie bordering the coast near Aransas Bay, to have seen countless thousands of deer and several noble herds of the wild horse (mustangs). But there were no long-range rifles in those days and but few hunters.

The cougar (Mexican lion) and panther, though not plentiful, are still found in various portions of the State. They are very timid, except when wounded or starved, when they become formidable.

Wild-cats are plentiful and are usually found in the mountains or heavily timbered river bottoms. They are generally hunted with dogs.

Of wolves we have three varieties, viz.: the Black, Coyote, and Lobo (in the vernacular, "Loafer"). The first named is rare and its pelt is highly prized. Coyotes are very abundant on the prairies, and the lonely wayfarer who camps out by himself is apt to be rendered a little nervous by their incessant howling. But they are great cowards. The Lobo is the largest of the three and looks formidable, but he is as timid as his half-brother, the coyote. Both are great pests to the sheepmen.

Of squirrels there are the fox, black or cliff, the grey and ground. The cliff squirrel alone is peculiar, living as he does in the rocks and cliffs, and never so far as the observation of the writer extends, taking to a tree.

'Coons and 'possums are found everywhere in the greatest abundance, and afford much sport to the boys and "cur dogs."

One of the distinguishing features of the Texas prairie is the "mule-eared" or "jackass" rabbit, as he is commonly called, an animal in fact identical with the English hare, with some slight modification, perhaps, induced by difference of habitat. The common "swamp" and "cotton-tail" varieties are found everywhere.

Prairie-dogs are found in great numbers west of longitude 99°.

The Peccary, Havalina, Mexican or wild hog (all local names for the same animal) is found in Southwest Texas and on the sand-hills of the Llano Estacado. They go in droves of from half a dozen to twenty and are exceedingly belligerent if disturbed. They are not considered very good eating.

Of foxes we have only the common small grey fox, a very contemptible specimen of his tribe.

GAME BIRDS.

At the head of these stands the noble wild turkey (*Meleagris gallopavo*), which is very abundant in many parts of the State, but so well known as to require no special description.

Of the aquatic birds we have the swan (*Cygnus Americanus*), the Canada and snow goose, and Brant (*Anser bernicla*); these begin to arrive about the 10th October, and remain till May 1st. Ducks visit us in vast numbers every winter, and of them we find some

twenty varieties, including Teals, Mallard, Canvas-back, Pintail, Black, Wood, Shoveller, Ringneck, Widgeon, Red-head, Ruffle-head, Butter-ball, Scaup, Gadwall, Ruddy and three varieties of Merganser. The coast region of Texas is especially remarkable for the number and variety of the water-fowl that frequent it. Myriads of ducks, geese, swan, plover, snipe and curlew assemble here every winter, and the sportsman can then satiate himself with slaughter. At the mouth of the Trinity River is a famous "roosting" ground. On certain low, marshy islands here assemble every night countless thousands of water-fowl from their feeding grounds round about. In the morning when they disperse in search of "breakfast," the sky is fairly darkened with their numbers.

Two varieties of cranes are with us during the winter, the "Sand-hill" (*Grus Canadensis*), and the Trumpeter crane (*Grus Americana*). These arrive in September, but few of them are killed, as they frequent the prairies and open fields, and are very wary. The Trumpeter crane is a beautiful bird, standing quite six feet high, with white plumage relieved by black wings and back. On the level prairies of the coast they may be seen stalking, with dignified steps, in every direction, lazy looking, but having a watchful eye on the intruder. They must be shot with the rifle at long range.

Quail are abundant, and of them we have five varieties, viz.: the Virginia (*Ortyx Virginianus*), Massena (*O. Massena*), Blue (*Calipepla squamata*), Gambel's (*Lophortyx Gambeli*) and the Texas quail (*Ortyx Texanus*). Of these the Virginia quail, or common "Bob White," is found in Northern Texas only. The Texas quail has the same note as *O. Virginianus*, and the only perceptible difference between them is that the former is not so large or so brilliantly marked as the latter. The Texas quail is found all over the State in vast numbers, lies well to the dog, and is in all respects equal in *gamy* qualities, both in the field and on the table, to his twin brother *Ortyx Virginianus*. The Blue, Massena, and Gambel's quail have all the same range, viz., between latitude 27° and 30°, and west of the 100th degree of longitude through to Mexico and New Mexico. The blue quail is of a steel-blue color, about the size of a Virginia quail, very strong and active, rarely lying to the dog. They go in large flocks, and have a call similar to that of the Guinea fowl. The Massena quail the writer has found very abundant in Crockett county, along the rough lands of Devil's River. They lie well to the dog, indeed too well.

The pinnated grouse, or prairie-chicken (*Tetrao cupido*) is found in all the prairies north of latitude 29° and east of 98° longitude, though on Red River it is found as far west as longitude 100°. In our climate the season opens about the middle of July, when the young birds are well grown and quite strong on the wing. At this season a more toothsome delicacy can hardly be found.

Two varieties of snipe are with us during the winter. The common snipe (*Scolopax Wilsonii*) and the red-breast or New York snipe (*S. Noveboracensis*). The woodcock is not abundant in Texas, though found in the eastern part of the State.

Of the plover and sandpiper tribe we have many varieties, of which the principal are the Tattler (*Tringa bartramia*), Golden (*Fulrus charadrius*), Bull-head or Swiss plover (*Charadrius Helvetica*), Marlin or mountain plover (*C. montanus*). Of the waders we have the greater and lesser Telltale, and all kinds of sandpipers. We have also the common long-heeled curlew (*Numinius longirostris*), which is found in immense flocks on our prairies. The wild-pigeon (*C. Canadensis*) is common in the timbered regions of the State. The Carolina dove (*Columba Carolinensis*), is everywhere met with.

Although not a game bird, one well worthy of description, and peculiar to Texas and possibly Mexico, is the ground cuckoo (*Geococyx Mexicanus*), locally known by various names: "Carre-camino" (*road runner*), "Paisano," "Chapparal Cock," "Prairie Cock," etc. This bird, somewhat larger than a quail, has a very long tail and crested head, with brown and sombre plumage. It is solitary in its habits, possesses great fleetness of foot, and never takes wing unless pushed, when it flies only a short distance. There are numbers of birds and beasts beside those named, but none of much interest to the sportsman.

FISH IN TEXAS.

The game fish *par excellence* of Texas is the black bass or trout, as he is improperly called. He is found in all the clear streams and lakes, and ranges from four ounces to as many pounds, or even larger in size. Even the smallest spring branches are usually stocked with this fine fish, if they have deep pools here and there. The white perch abounds in some of the streams, and most of the lakes and ponds. The catfish is found in all the waters, and is of three or four varieties, the Channel or Blue Cat being the best. In the clear streams of West Texas this fish is gamy, strong, active and an excellent fish for the table. He is not esteemed more highly, only because he is abundant.

The *Buffalo* fish is the largest of the numerous sucker family in the State. It often attains a weight of twenty pounds and upwards. It is a good food fish, and found in every part of the State. It is especially fond of sluggish waters. Its habits are very similar to the European carp, which is also a sucker.

Of the perch family there are many varieties.

The soft-shell turtle inhabits all of our streams west of the Brazos. In the quality of his flesh he is equal to any turtle.

The coast or salt-water fishes, which furnish fine sport and fine eating, are too numerous to describe, but we may mention the pompano, the sheepshead, the red-fish, the Spanish mackerel and sea bass as among the best. Oysters are common along the whole coast, and sell all along the railroads far in the interior, at about one dollar per hundred.

GERMAN CARP.

This valuable food fish has been successfully imported from Germany into the United States, and a supply has been furnished to our fish commissioner in Texas. Those that have been placed in Texas waters have grown with amazing rapidity, showing that our lakes and rivers are well adapted to the fish. The carp can be as easily cultivated as pigs or chickens, and there is no reason why all the streams, lakes and ponds of the State should not be stocked with them in a few years.

PUBLIC INSTITUTIONS.

THE public institutions of Texas are such as one might expect to find in a liberal, high-spirited and benevolent community. Ample provision is made for the blind and the deaf mutes and the insane. The former are taught remunerative occupations, so that they may go abroad in the world occupying the honorable position of self-supporting citizens. The latter receive the services of the best medical skill in aid of their restoration to reason. All these buildings are located at Austin.

By the terms of the treaty of annexation between the United States and the Republic of Texas, ten millions of dollars were paid to the State of Texas. A large portion of this money was expended in the building of deaf and dumb, blind, and lunatic asylums, and certain portions of the public domain were set apart for their support. As these lands are sold; the proceeds are invested in bonds and become a permament fund for their support.

THE BLIND ASYLUM.

The Blind Asylum is located, as all the asylums are, on an elevated site in the suburbs of Austin. The air is salubrious. The water excellent, the buildings commodious and comfortable. Through the influence of Senator (then Governor) Coke, the services of an oculist of great skill and national reputation were secured for the institution; the result has been that several who were supposed doomed to perpetual darkness, now see. The present number of pupils is eighty-four; these are all being educated and instructed in such useful arts as they are capable of practising.

Some of the male graduates are in the business of broom and brush making; others earn independent livings as music teachers and piano tuners. Among the lady graduates are accomplished musicians and dressmakers. Some of the latter compete in skill and dexterity with those who are blessed with the sense of sight, and reproduce, by the sense of touch, fashions and styles of dress that they will never see. The institution is supplied liberally with pianos,

organs, brass and string instruments, sewing machines, and all other necessaries for the instruction of the pupils. The annual expenditures are about $20,000. It may be mentioned in this connection as indicative of the forms taken in Texas by private benevolence, that H. M. Hoxie, Esq., general manager of the International and Great Northern Railway, furnishes any and all the pupils of the blind and deaf mute asylums with free railroad passes, whenever it is desirable for them to visit their homes, which they all do at least once a year. Dr. Frank Rainey, in his circular to parents, says: "Pupils admitted at any time. Everything here is free of charge—board, washing, tuition, books, instruments, doctors' bills, etc."

THE TEXAS INSTITUTION FOR THE DEAF AND DUMB.

The location of the Deaf and Dumb Asylum is on one of the Austin hills and affords numerous views of most charming landscape. Besides the usual instruction in sign language, and the arts usually taught in such institutions, a most successful effort has been made during the last few years to instruct the deaf mutes in practical printing. A very large proportion of the State printing is now performed by the pupils. Its accuracy, neatness and even elegance attest their skill. The pupils now have the opportunity of acquiring skill in an art that will always afford them lucrative employment. This is an application of practical benevolence which will commend itself to every philanthropist. The number of pupils at present residing in the institution is about seventy.

All deaf mutes of the State between the ages of ten and twenty years, of sound mind, good moral character, and free from contagious disease, are entitled to admission.

No charge is made for board, tuition, washing, medicines, medical attendance, books, or stationery, all these expenses being paid by the State.

TEXAS LUNATIC ASYLUM.

The Lunatic Asylum is delightfully located, and has ample grounds for the exercise and recreation of patients. These grounds are elegantly laid out and beautified with flowers and growing plants. It was first opened March 1, 1861. From that date until October 3, 1880, there had been 1,418 admissions, of these 636 recovered—138 improved. Remained unimproved 59. Died and escaped 216. Remained, October 31, 1880, 369.

A large farm attached to the institution supplies an abundance of milk and vegetables. Because of the increase of population the buildings already in use have been over-crowded, and the project of either enlarging those, or building another asylum in some other locality is under consideration.

TEXAS PENITENTIARIES.

Texas is perhaps the first State to apply the just rule, that convicts are to be treated kindly, but they are not to be made public

beneficiaries. As a very large proportion of crime arises from a hatred of work, Texas prescribes hard work as the cure. Honest men are not taxed to feed rogues. The Texas penitentiaries are more than self-supporting. The surplus being nearly $100,000 annually. The convicts are well fed, comfortably clothed, are taught useful employments, and are liberally dealt with on discharge; but they are not petted as in some States, and they are made to work. Divine wisdom prescribed labor as the proper punishment for the first crime, and human intellect has not yet found a better. On his discharge each prisoner receives a suit of clothing, $20 in cash, and transportation to the county from which he came or its equivalent in money.

The labor of the prisoner is let out to the highest bidder. These can sublet the labor of such portion as they cannot employ. The following figures taken from the report dated October 31, 1880, will show how convict labor is made productive:

The convicts on hand are distributed as follows, viz.:

In prison proper	342
Engaged in prison construction at Rusk	256
On railroad construction trains	159
In wood-cutting forces on Texas and Pacific railroad	215
At Kelly's iron furnace, Marian county	104
On plantations in different localities	1033
Miscellaneous employment	39
Total	2157

There is a regular and systematic inspection of all gangs hired out, and it is believed that the convicts of Texas are better cared for than those of most other States. The old penitentiary at Huntsville having become insufficient to accommodate the greatly increasing population another has been constructed in Rusk, Cherokee county. That location was selected with a view to utilize the labor of the convicts upon the iron mines in the neighborhood.

The Rusk penitentiary has been constructed after the very best models. It contains 500 cells intended each for two prisoners. The penitentiary at Huntsville, while upon an older model, is an excellent institution.

EDUCATIONAL ADVANTAGES.

GREAT as are the manifold attractions offered by the climate, the soil, and other physical advantages of Texas, none of them equal the princely provision which the fathers of the Republic made for the education of the millions of youth who will in the near future be numbered among her population. The far-sighted statesmanship of

those who laid the foundations of the "Lone Star" Republic, provided for the education of generations yet unborn, a more generous revenue than is enjoyed by the schools of any State in the American Union. Nay, more than this, as we read the page on which these princely revenues are dedicated to education, we shall see that neither Oxford nor Cambridge have such royal endowments as the sages of Texas gave to the University of Texas.

In the declaration of Texas independence one of the grievances set forth as compelling the people to cast off their allegiance to Mexico, was the refusal of that government to make suitable provision for the support of a general system of free education. Within three years of the declaration we find President Lamar urging Congress to set apart 221,400 acres of the public domain for the endowment of a university.

In the same year, 1839, three leagues of land, 13,284 acres, were donated to each county as a free school dowry. The next year, while the infant republic was still harassed by threatened invasion and devasted by the torch and tomahawk, the dowry of the schools was increased to 17,712 acres for each county. Nor were these lands and their proceeds squandered as is the political fashion of these later times. They were carefully selected from the richest parts of the then untouched domain. Some of the counties have sold portions of their lands for as much as $80,000, and invested the fund for the support of common schools. These county school lands aggregate 2,833,920 acres. Princely as was this dowry, it is but a fragment of the whole that has been set apart for education. Nor was this generous people content to give only land; they set apart $2,000,000 cash in the treasury as a permanent school fund. All through the weary years of the war, that fund was accumulating. It was a sacred fund. It wasted not. To-day it amounts to $3,500,000 cash in the Texas treasury, and its interest is used for the support of free schools. The permanent school fund of Massachusetts is $2,067,581.71, only two-thirds that of Texas. The constitutional convention of 1866, convened under the reconstruction policy of President Johnson, not only reaffirmed all that had been given to schools, but inaugurated that wondrously liberal policy of reserving for common free schools the alternate sections retained by the State in grants made to railroads and other works of public improvement. Wherever one section of land is given to build a railroad, there is one beside it set apart for the support of free schools forever.

It is true that the federal authorities rejected the constitution then adopted, and relegated the State back to military rule. But when the State again assembled in convention to frame a constitution, this provision was retained and is now a part of the organic law of the State. Thus fifty million acres of land were added to the free school dowry, which now contains 6,000,000 more acres than all New England. So much for the permanent support of common schools. The same convention which reaffirmed the above provision, added one million acres to the university fund, so that the Texas University

has now an endowment of 1,221,400 acres, a domain equal in area to the whole State of Delaware. There is no other university which will have such a revenue. It will be a seat of learning worthy the New World. With the wealth at its command, professorships can be endowed, libraries established, observatories erected, and museums collected, such as exist in no country of Europe. Let us recapitulate the lands set apart for education in the State of Texas.

For a university	1,221,400 acres
County school domain	2,833,920 "
General school domain	50,000,000 "
Total	54,055,320 "

So much for the permanent support of the schools. Let us see what provision is made for their present maintenance, besides the interest on the $3,500,000 permanent fund. This is yielding an annual income of more than $200,000, and is increasing from land sales $100.000 a year.

The constitution sets apart not more than one-fourth the general revenue of the State for the support of common schools. In the year 1880 this amounted to $919,880.00. Besides this amount, there is the interest on the county school fund, $550,020.00, being the amount realized and invested by those counties which have sold their lands in whole or in part. In some cities an additional local tax is levied for the support of schools.

So much for the provisions for schools. What is being done with the money that is available now?

Of course, in sparsely settled communities the inauguration of schools is difficult. And it is almost impossible to apply any strict system. There must be more or less flexibility. Free schools are maintained in 159 counties. Of these reports have been received from only 132 counties; yet in these counties there were 4,523 schools. These were attended by 133,667 white children, and by 45,465 colored children. In them there were employed 3,258 white teachers, and 991 colored teachers, being a total of 4,249 teachers.

If all the counties had reported, these figures would have been largely increased. Thus we see how the school system is expanding, and rapidly occupying every portion of the State. The time has not yet arrived in which the thousands of schools scattered over the broad State can be consolidated into a compact system like that which the labor of a century has established in the older States. But this much is attained, wherever there is a community, there the people can draw their fund and establish their school, which month by month and year by year develops into a more and more perfect scholastic system. The schools established last year will be better schools this year, and where there are no schools this year, schools will be established next year. The Sam Houston State Normal School is supported at an expense of $14,000 a year, and is each year graduating classes of trained teachers, who are covering the State with an educational network. What other young State has done as much for the common school education of the present genera-

tion? What other State has made such princely provision for the future?

When it is remembered that no attempt was made to establish a system of schools until the year 1870, it will become apparent that no State has made such progress in the education of her children as Texas. He who casts his fortunes in this land, may feel fully assured from its munificent endowments and the liberal sentiments of its citizens, that his child will enjoy the highest educational advantages.

Besides the common free schools, the proposed university—the normal school and numerous private schools and colleges, there is located at College Station, near Bryan, on the Texas Central railroad, an Agricultural and Mechanical College, established under the Act of Congress, appropriating lands for that purpose. Texas accepted the conditions of the act, and received from the general government scrip for 180,000 acres of public land, the proceeds of which constitute the present permanent endowment fund of this college, and is invested now in Texas seven per cent. bonds to the amount of $174,000. The legislature has made successive appropriations aggregating $202,000 for the building and equipments necessary for putting the institution in operation. The present college farm, a tract of 2,416 acres, five miles south of the town of Bryan—was donated by the County of Brazos. By an act of the legislature this college was made and constituted a branch of the University of Texas for instruction in agriculture, the mechanic arts, and the natural sciences connected therewith. The college was formally opened for the reception of students, October 4, 1876.

It is organized with a full corps of able professors, who give instruction in the department of English, philosophy and political economy, chemistry and physics, biology, hygiene and veterinary science, agriculture and horticulture, engineering, mechanics and drawing, mechanical industries, military science, commerce, the ancient and modern languages. The number of students for 1879–80, was 144. The total college charges are $160 per annum.

FINANCIAL.

An examination of the finances of the State of Texas will exhibit features of the most commendable character. Texas has always been renowned as a debt-paying State. It has been her peculiar pride to meet her obligations with commercial promptitude. When her sister States have been plunged into financial discredit, and have been compelled to cast about for measures of relief, Texas has always maintained her financial integrity without the aid or assistance of any.

The bonded debt of the State on the first of January, 1881, was

$4,996,920, a reduction since September 1, 1880, of $33,000. Of the above debt there is held by the special funds as follows, viz.:

Permanent school fund	$1,281,800
University land sales	322,900
Blind Asylum land sales	11,400
Deaf and Dumb Asylum land sales	13,500
Lunatic Asylum land sales	8,500
Total held by special funds	$1,638,100
Balance in circulation (debt proper)	$3,358,820

In his last report, the State comptroller makes the following observations:

"It will be observed that in the estimate for appropriations for the next year, an appropriation is asked for only $67,176.40 for sinking fund, which is two per cent. of the amount of State bonds not owned by the special funds. No sinking fund is needed for the bonds held by the several special funds, for the reason that there is no law by which the bonds so held can be redeemed. These bonds originally, for the most part coupon bonds, have been converted into manuscript bonds of large denominations.

"State bonds are held at so high a price that it is with difficulty the sinking fund can be invested. At no distant future the whole of the outstanding State debt will be taken up by the special funds now accumulating in the treasury from the sale of school, asylum and university lands."

It is apprehended that but few States experience this difficulty. It sometimes appears a misfortune to have too good a credit.

We quote again from the comptroller's report, dated January 5, 1881:

Estimated receipts for the two years ending August 31, 1882	$3,558,305 00
Add net cash revenue on hand January 1, 1881	794,849 79
Total cash on hand and to be received to August 31, 1882	$4,353,154 79
Expenditures for same period including interest on public debt and sinking fund of two per cent.	2,311,944 36
Excess of receipts over expenditures to August 31, 1882	$2,041,210 43

"While it is necessary that the State treasurer should at all times have in the treasury a reasonably large cash balance to meet any contingency that might arise while the taxes are being collected, and to insure at all times prompt payment of every obligation of the State, yet the above estimates, which are believed to be approximately correct, show an excess of revenue greater than any probable necessity of the State will demand, and which, instead of being locked up as a reserve fund, should, as far as it is prudent to do so, be left in circulation among the people. I therefore suggest to your Excellency the propriety of reducing either the occupation or *ad valorem* tax. It is believed that a reduction of the *ad valorem* tax

from fifty cents on each one hundred dollars of property—the present rate of taxation—to forty cents on the hundred dollars, will furnish ample revenue to pay all expenses of the government, and leave in hand a reserve fund sufficient to meet any emergency."

The bulk of the outstanding indebtedness of the State bears an annual interest of six and seven per cent.; but unfortunately the bonds are not yet due, nor can they be purchased in open market, except at very exorbitant prices. The taxable valuation is $320,000,000.

COUNTY AND CITY INDEBTEDNESS.

No reliable statistics are available that will enable us to even approximate what this is in figures, but it is generally the fact that these debts are inconsiderable, and they are likely to remain so, as the power of such municipalities to contract debts is effectually limited by the constitution of the State.

ADVICE TO IMMIGRANTS.

MANY immigrants go astray, and suffer much loss and many disheartening experiences, for the want of intelligent thought and prudent foresight before starting out.

WHO SHOULD GO TO TEXAS.

1. Those who wish to engage in agricultural pursuits.
2. Those who wish to engage in manufacturing enterprises.
3. Those who wish to engage in stock-raising.
4. Those who seek a field for the profitable investment of capital.

Under the first heading are included those who wish to hire out as farm hands, those who wish to rent lands, and those who wish to become owners of farms. The demand for farm hands is great, and the wages paid are fair. For a young man who is entirely destitute of capital, it is a good idea to work on a farm for one year. By so doing, he will gain a valuable experience and make some money, and if he is industrious and worthy, can easily rent or buy land for himself for the next year.

The difference in favor of settling in Texas, as compared with the older States, consists in the fact that the poor man can succeed in establishing himself in a home of his own here more easily than elsewhere.

WHEN TO GO TO TEXAS.

Going early in the year will give the immigrant time to look about and locate himself advantageously, to buy or rent land, and in case of purchase, to clear and fence his land, build his house, break

his land, and be in readiness to plant in time to make a crop. Arrangements for renting land are usually made in December, and renters generally take possession of their land by or before Christmas, but lands can be rented as late as April.

Immigrants from the Northern States should not forget that they are going South, not West, and that the climate and the seasons for sowing and reaping are much sooner than they have been accustomed to, therefore they should start in the late summer or early autumn. The preparation of lands for seeding of wheat, and the harvesting the cotton crop always causes an active demand for labor, when immigrants can obtain immediate employment at remunerative prices, and at the same time secure suitable employment for the coming year. The best places are most frequently engaged in the fall, both in the renting of lands or as laborers. So great, however, is the demand for good and reliable labor, there is no season when employment cannot be obtained.

The constant development in all departments of life which are going on in the State, assures the patient and industrious immigrant a certainty of remunerative employment, extending the season for immigration to the whole year.

WHERE TO GO IN TEXAS.

This is a question each immigrant will decide for himself. The pursuit he chooses to follow and his individual taste, will direct him to select that place for a home which offers the best prospects of success, and would be most agreeable to himself and family. It is best to seek information from reliable and trustworthy sources, by specific inquiries in relation to the business in which you propose to engage. The Southwestern Immigration Company has no other interest to serve than to people the country, by exhibiting its resources and advantages, and will be impartial as to localities. It will advocate no special sections, but its agents will be instructed and enjoined to furnish truthful information of all locations of which they are inquired. Having obtained correct information from them, and such other sources as are at command, proper and suitable selections can be made without much difficulty.

HOW TO GO TO TEXAS.

This will be determined from the immigrant's location and circumstances. Rates of passage over the routes of travel vary so frequently that a list of rates given now would be incorrect in a few weeks. This company contemplates making arrangements, and the work is now under progress of perfecting a system of rates over the important trunk lines of railroads and water routes, both by river and ocean, which it hopes will be uniform and cheap. An effort will be made to establish low rates from all important points on railroads in the United States, and from the principal shipping cities of Great Britain and Continental Europe directly to the Southwest. For the

present, the immigrant can learn from the nearest station-agent, the rates to any given point in Texas as now charged. It is also contemplated to make arrangements for the transportation of the household effects, tools, and implements of immigrants at the lowest class freight rates. As to routes of travel, the Southwestern Immigration Company will strive to be wholly impartial, seeking at all times to secure the most accommodating terms for the immigrants.

In advising immigrants how to come to Texas, the plan of coming by land, with their wagons, teams, and some of their best stock, is recommended for their careful consideration. It is true, as a rule, that a family in selling off everything preparatory to moving to a new country by rail or water transportation, sacrifices much in the low rate at which the property sells. This is especially true of horses and cattle, both of which they must have in their new home.

The autumns in Texas, from September to December, are generally mild and pleasant, and a family properly equipped for travelling with wagon, ambulance, or carriage, which can be purchased at slight cost, will be enabled to travel with ease and comfort many hundred miles; bring with them as much of the home stock, including the work horses or mules, as they see proper; purchase on the way forage and subsistence at a very small outlay in money, and by this course can reach their new home with these ready for use. If they have, after getting here, a surplus horse, mule, wagon, carriage, or ambulance, it can readily be sold in any neighborhood for a fair price. A pair of horses or mules will bring a year's supply of provisions, or make an important payment on a tract of land, should they conclude to buy. Brood mares and colts, as well as half or full bred cattle, command a good price in all parts of Texas. While this would be a slow way to travel, its advantages over that of coming quicker by rail, after arrival of the family here, would be in having the necessary stock for farming or other purposes, as required, instead of having them to purchase.

RENTING LANDS.

There is a large amount of land for rent each year on the most favorable terms. Where the landlord furnishes the land and improvements only, and the tenant the team, tools, and provisions, the landlord receives from one-fourth to one-third of the crop, and the tenant has the remainder. Where the landlord furnishes everything necessary to the making of the crop except the provisions for the family of the tenant, the crop is usually divided equally between the parties. The two systems of leasing offer industrious poor men, and especially those with considerable families, golden opportunities to become independent and the owners of farms at an early day. Thousands of men in Texas, who are to-day independent and the owners of fine farms, made the first step towards success by renting land in the manner described, and many of them purchased farms with the profits of a single year's lease. Of course it is more profitable for a man to buy land and improve and work his own farm, if he has the means to do so, but for those who are destitute of capital and are possessed of industry and some knowledge of farming, the system of renting land for a share of the crop cannot be too highly recommended.

When the immigrant has got to Texas, he will, of course, first seek to erect a shelter for himself and family. The climate is such that a very cheap structure will be found perfectly comfortable, until time and means afford the opportunity for greater convenience and elegance.

THE COST OF MAKING A HOMESTEAD.

We assume, as an average, that the immigrant's family consists of himself, wife, and three children, two of whom are over five years of age and one under; and that the railroad fare is $32, and while to some points it is less than this, to others it is more. This would call for—

Three tickets at $32	$96.00
Lunches and incidentals	25.00
Total cost of taking a family of two adults and three children to Texas	$121.00

HOUSE.—Cost of constructing a house of two rooms and shed:

Lumber	$100.00
Nails	5.00
Sash	10.00
Doors	6.00
Extra labor	50.00
Total cost of house	$171.00

AGRICULTURAL IMPLEMENTS:

Plough	$10.00
Hoes and other implements	10.00
Total cost of implements	$20.00

ANIMALS, ETC.:

One yoke of oxen	$40.00
One horse	25.00
Saddle, etc	10.00
Six chickens	1.25
Pair of swine	5.00
One cow	12.00
Total cost of animals	$93.25

FENCING, say 40 acres	$200.00
PROVISIONS, for one year	$150.00

RECAPITULATION, showing the cost of moving to Texas, establishing a homestead there, and living until the first year's crop is made:

Passage	$121.00
Building house	171.00
Agricultural implements	20.00
Animals	93.25
Fencing	200.00
Provisions for one year	150.00
Total cost	$755.25

Of course, a man with pluck and energy can start life in Texas on a smaller sum, but this, with ordinary prudence and industry, will make success certain.

This calculation is on the supposition that the chosen location is on the prairie. Of course in the timber, where the immigrant cuts his own logs and buys no lumber for fencing, the expenditure of ready money is much less.

GENERAL INFORMATION,

INTERESTING TO ALL WHO MAY THINK OF GOING TO TEXAS OR BUYING LANDS THERE.

WAGES AVERAGE ABOUT AS FOLLOWS:

Blacksmiths, per day	$2.00 to $3.00
Bricklayers, "	2.00 to 3.00
Stone Masons, "	2.00 to 3.00
Carpenters, "	2.00 to 3.00
Plasterers, "	2.00 to 3.00
Painters, "	2.00 to 3.00
Shoemakers, "	2.00 to 3.00
Printers, "	2.00 to 3.00
Wagon Makers, "	2.00 to 3.00
Tailors, "	2.00 to 3.00
Harness Makers,	2.00 to 3.00
Farm Hands, per month, with board	10.00 to 15.00
Laborers in town, finding themselves, per day	1.00 to 1.25
Laborers at saw-mills, per month	20.00 to 35.00

PRICES OF STOCK, TOOLS, PROVISIONS, ETC.

Spanish ponies, broken and unbroken, sell at	$10.00 to $ 30.00
Good, large American horses are worth	75.00 to 100.00
Mules, well broken	75.00 to 125.00
Beef cattle, 3 to 5 years old, sell at	15.00 to 20.00
Fat cows, for beef	15.00 to 18.00
Milch cow and calf (young)	12.00 to 20.00
Choice beef is had in most Texas markets at	4 to 8 cents per pound.
Good clear bacon sides	9 to 15 " "
Average price for corn, about	40 cents per bushel.
" " oats, "	30 " "

Wheat sells according to quality, locality and facility for shipping, at 75 cents to $1.15 per bushel.
Texas flour sells at $3.00 to $4.50 per hundred pounds, according to grade.
Sweet potatoes, 30 to 50 cents; in winter and spring, 50 cents to $1.00 per bushel.
Irish potatoes .75 " " 1.50 "
Pork 3 to 6 cents per pound.
Lard 9 to 12½ " "
Butter 15 to 30 " "
Stock Hogs $1.50 to $3.00 each.
Sheep 2.00 to 3.00 "
Oxen $40.00 to $50.00 per yoke.

Farming implements and machinery, groceries and provisions, are as cheap as in any Southern State.

In drygoods there is but very little variation from the prices in Northern cities.

Brick delivered, $6.00 to $10.00 per 1,000.

LUMBER.—CAR LOAD RATES AT THE MILLS, DELIVERED ON CARS.

Boxing, all lengths and breadths	$ 8.00 to $10.00 per M.
Fencing, 6 inch, 16 feet	8.00 to 10.00 "
Framing, special order	10.00 to 12.00 "
Lathing and rough edge	6.00 to 8.00 "
Shingles, cypress	4.00 "
" pine	3.00 to 3.50 "

NOTE.—West of Brazos River there is no pine timber, and lumber sells there at from $16.00 to $19.00 per M.

RAILROADS IN TEXAS.

NOTHING connected with the material growth and prosperity of Texas presents so striking a picture as the history of the various railway enterprises constructed or projected within her borders.

Each year leaves a record of still further development in internal improvement, the faith and energy displayed by both home and foreign capital showing the importance of Texas among her progressive sister States, and arguing well for the future. The large increase in our population during the past ten years, the numbers being nearly doubled, is to be accounted for in great degree by the completion of railroads through all eligible sections of the State. Thus we have been brought in connection with the outside world and have had the products of the manufacturing centres placed within easy grasp. The fertility of our soil and attractions of climate became known to capitalists and enterprising men looking for fresh and safe fields of investment, and so shrewd were the calculations of these moneyed elements that immigration seemed to begin simultaneously with the laying of the first rail. Towns sprang up as if by magic as roads were extended, and daily grew under the support of fast settling rural districts surrounding them.

At the close of the war in 1865, there were but six railroads in Texas that had track laid in running order, viz.: The Buffalo Bayou, Brazos and Colorado railroad, from Harrisburg to Alleyton, eighty miles; the Houston and Texas Central railroad, from Houston to Millican, eighty miles; the Washington county railroad (now the Austin division of the Central) from Hempstead to Brenham, thirty miles; the Galveston, Houston and Henderson railroad, from Galveston to Houston, fifty miles; the Texas and New Orleans railroad, from Houston to Liberty, forty miles; and the Columbia and Brazos River railroad, from Houston to Columbia, fifty miles—making a total of 330 miles of railroad in actual operation fifteen years ago. The Southern Pacific railroad (now the Texas and Pacific) was under operation from Shreveport, La., to the Texas line, but at that period had not penetrated the State.

Now there are twenty-six different lines of railroad in actual operation within the State, with a total mileage in running order of 3,303 miles, showing that since the year 1865, no less than 2,973 miles of railroad have been constructed and placed in running order.

No other part of the world now witnesses such pronounced activity in the construction of great lines of railway as Texas. The eyes of the financial world are turned upon her, and schemes of gigantic magnitude are being consummated within her borders—what is popularly known as the "Gould combination" is now supposed to control the Missouri Pacific, the Missouri, Kansas and Texas, the Texas and Pacific, the St. Louis, Iron Mountain and Southern, and the International and Great Northern, with their various branches and adjuncts. The Missouri Pacific, from its terminal point on Texas soil at Denison, is extending its arms, one on the east through the counties of Grayson, Fannin, Hunt and Raines, to a connection with the Texas and Pacific, and the International and Great Northern at Mineola, Wood county; the other, on the west through Denton and Fort Worth (where it crosses the Texas and Pacific); thence nearly due south, through Johnson and Hill counties, to Waco, in McLennan county; thence to Belton in Bell county, where it crosses the Gulf, Colorado and Sante Fe Railway, thence to Georgetown, Williamson county, where it merges into the International and Great Northern Railway.

The International and Great Northern road, already completed to San Antonio, is pushing for Laredo, on the Mexican frontier, with great rapidity. The Texas and Pacific is proceeding westward at the rate of more than a mile a day. The Houston and Texas Central is building right on with the projection of its Waco branch crossing the the Texas and Pacific in Eastland county. The Texas and St. Louis railroad, already completed from Texarkana to Corsicana, is letting its contracts from Corsicana to Waco. The East Line and Red River Narrow Gauge is working on steadily west, has reached Greenville and will go thence to McKinney. The East and West Texas Narrow Gauge is finished from Houston to Moscow, Polk county, and will be pushed thence to Marshall, and with its various proposed connections will constitute a complete narrow gauge system.

The Gulf, Colorado and Santa Fe railroad, already running to Belton and beyond, is pushing forward in two directions, its branch on the east running north from Temple Station, in Bell county, to Fort Worth, where it connects with the Texas and Pacific. Its main line on the west, projected through the counties of Lampasas, Brown, Coleman, and Taylor, where, at Abilene, it will cross the Texas and Pacific, on through the Panhandle towards Santa Fe, New Mexico, its ultimate destination.

The Texas Trunk is running from Dallas to Kaufman, and will push its line rapidly to Sabine Pass on the Gulf of Mexico, through the counties of Henderson, Anderson, Cherokee, Angelina, Tyler, Hardin, and Jefferson.

The Chicago, Texas and Mexican Central are running their surveys southwest from Dallas, and have already established their line thirty or forty miles. Work will soon be, if not already commenced.

So rapidly are these various enterprises being constructed, that it is difficult to keep up with them, and our design is only to indicate, in a general way, their magnitude and extent, and the bearing they necessarily have upon the near future of our State. Already we feel the effect of the vast sums of money expended in their prosecution. Labor is in demand at high wages, trade in every department is stimulated, and the State seems to have entered upon an era of unexampled prosperity. The immigrant can now come to Texas with the certainty that remunerative occupation awaits him. Lands are cheap, wages are high, crops, the past season, have been abundant, and bread and meat are plentiful.

The first railway projected in Texas was the Buffalo Bayou, Brazos and Colorado (now absorbed by the Galveston, Harrisburg and San Antonio Railway). Work was commenced on this road in 1852. By August the year following twenty miles toward Richmond, were completed and in operation, but the war coming on some years later all railroad building ceased, until 1865, when, as stated above, only 330 miles were in actual operation, and these so worn and dilapidated from rough usage and the lack of means and material to keep them in repair, that practically they had to be reconstructed. So that railroad building in Texas may almost truthfully be said to have begun only with the close of the civil war in 1865.

We are indebted to Mr. Henry V. Poor, of New York, publisher of "Poor's Manual," for most of the following figures, which exhibit, in tabulated form, all the railways now in operation in the State, their gauge, total miles in operation, and miles constructed in 1880. It will be remembered that the "Standard" gauge is 4 feet 8½ inches; the "Narrow" gauge, 3 feet.

RAILROADS IN TEXAS, 1881.

GAUGE.	ROAD.	Miles in Operation.	Miles constructed 1880.
Standard.	Houston and Texas Central and Texas Central	618	47
"	Texas and Pacific	608.81	160
"	International and Great Northern	609.60	80.30
"	Galveston, Harrisburg and San Antonio	233	18
"	Gulf, Colorado and Santa Fe	226	115
Narrow.	Texas and St. Louis	203	123
"	East Line and Red River	123.50	30.50
Standard.	Texas and New Orleans	108	None.
Narrow.	Corpus Christi, San Diego and Rio Grande	58.50	5
"	Houston, East and West Texas	64	15
Standard.	Gulf, Western Texas and Pacific	66.80	None.
"	Denison Pacific (West Branch Missouri Pacific)	41.50	"
"	Dension & Southeastern (East Branch Mo. ")	52	31
"	Galveston, Houston and Henderson	50	None.
"	Rio Grande	22	"
"	Dallas and Wichita	39	20
"	Montgomery and Central	25	None.
Narrow	Texas Western	41	"
Standard.	Henderson and Overton	16	"
Narrow.	Galveston, Brazos and Colorado	15.50	"
Standard.	Waxahuchie Tap	12	"
Narrow.	Longview and Sabine Valley	12	"
"	Sabine Pass and Northwestern	11	"
Standard.	Texas Transportation	7.75	"
"	East Texas	25	6
"	Chicago, Mexican Central and Rio Grande	None.	None.
"	Texas Trunk	12	12
	Totals	3,300.96	662.80

According to the latest reliable statistics, the total mileage completed road in the United States is 86,500.

By comparison it will be seen that Texas has nearly one twenty-sixth of this mileage.

The approved railway manuals make the average cost of construction and equipment per mile of railway in the United States $51.543. By this standard $170,091,000 have been expended in railway building in Texas, and as it is not unreasonable to estimate that fifteen hundred miles of railway will be constructed and equipped within the State in the year 1881, it will be seen that a farther expenditure of seventy-five millions of dollars may be safely calculated upon. It will be hard to estimate the stimulus that will be given to every branch of business by the diffusion of this enormous sum of money.

Recurring to our tabulated statements we see—

Number of miles standard gauge.....2,772½
Number of miles narrow gauge..... 528½

Fifteen of the Texas roads are extending their tracks, most of them rapidly.

Texas is the tenth State in the Union in respect to railroad mileage, and considered in her relation to that gigantic scheme of railroad extension, which has for its object the control of the carrying trade of our neighboring Republic of Mexico, is assuming a vast importance. Situated as she is, in an intermediate geographical position, across her face must necessarily pass those great arteries of trade which will soon send the life blood of commerce from the east to the Gulf of California on the west, and the remotest regions of Mexico on the southwest. Much of that vast country, grand in its resources, no less than its extent, is undeveloped, shut out from immigration and capital, hitherto by the lack of transportation.

But two lines of railway are competing in their race for Mexico. The Atchison, Topeka and Sante Fe is pushing down through New Mexico with remarkable vigor, and, by the time this publication leaves the press, will, in all probability, have reached El Paso, in the extreme western corner of Texas. After effecting a junction with the Southern Pacific at that point, the Atchison road may be expected to push southward into Mexico as fast as possible, for the rich traffic of that yet undeveloped country is a prize great enough to prompt the most strenuous exertions. In point of distance, however, what is known as the "Gould system," by its acquisition of the International and Great Northern Railway of Texas, gains an important advantage.

That road has already reached San Antonio, Texas. From that point the distance to Laredo, on the Mexican border, is about 160 miles, thence to the city of Mexico is less than 600 miles on the map. But the air line distance from the present terminus of the Atchison road to the City of Mexico is about 1,000 miles. If there be an advantage possessed by either road in avoiding rough country, that advantage must be greatly in favor of the Texas route; but a much more important point as to possible rapidity of construction is that the builders of the Southern line can commence on the Rio Grande and build both ways, thence as well as southwestward from San Antonio, while the northern road can be pushed from one point only. And again, as to cost of construction, the advantage will be very greatly in favor of the route which can deliver its iron and heavy materials on the Rio Grande by water, while the Atchison road will be compelled to transport everything nearly 1,500 miles by rail, from the banks of the Mississippi to the starting-point of its Mexican movements. These advantages ought to be decisive. The Texas road will be completed to the city of Mexico years sooner than any other, and at many millions of dollars less cost.

THE TEXAS AND PACIFIC RAILWAY AND THE COUNTRY THROUGH WHICH IT PASSES.

WHEN it first became apparent that the necessities of the nation would soon require a railway to the Pacific Ocean, engineers studying the geographical features of the country and the commercial necessities of the road, designated the 32d parallel of latitude as its proper location. Major-General, then Captain Pope, an officer distinguished for his scientific attainments, was placed in charge of the survey. After a thorough study of all the factors which entered into the problem, he fixed upon the 32d parallel as the best for the proposed road, and it has ever since remained the favorite route. Although other routes have been built and operated for years, each recurring winter demonstrates anew that near this parallel a road can be constructed which shall be free from the annually recurring vexation of snow blockade.

And it is a well ascertained fact that never will the American people possess a trans-continental road, open at all seasons of the year and fully adapted to all the growing necessities of commerce, until the Texas and Pacific shall have been completed along the parallel indicated. A glance at the history of this enterprise will be interesting.

In 1852 the legislature granted a charter, amended in 1854 and 1858, to what was known as the Southern Pacific Railroad Company, with a grant of sixteen sections of land to the mile. This road was to begin at the State line, twenty miles east of Marshall, and extend westward to a connection with the Trans-continental, or, in case of a failure of the latter to construct its line, then to build independently to El Paso. No part of this line was built before the war, and only twenty-two miles during that period by the Confederate government as a military expedient. On the 3d of March, 1871, the congress of the United States chartered the Texas Pacific Railway Company, the name of which was changed to Texas and Pacific, granting the right of way through the territories.

The initial points of this road on the Atlantic and Pacific slopes were respectively, Marshall, Texas, and San Diego, California, with El Paso and Fort Yuma as intermediate points. Texas approved this charter, so far as her own territory extended. In 1872 Colonel Thomas A. Scott and his associates purchased all the chartered rights and franchises of the three roads, viz.: The Southern Pacific, the Trans-continental, and the Texas Pacific, uniting all under one and the same corporation, viz., the Texas and Pacific Railway Company. During the long time that these companies had existed they had built only forty-four miles of road within the limits of Texas.

ITS EXTENSION.

Its initial point is Texarkana, a growing and prosperous city on the line between Arkansas and Texas, and the southwestern terminus of the St. Louis, Iron Mountain and Southern Railway.

From this point two lines of the Texas and Pacific Railway penetrate the State of Texas. The Trans-continental Division, completed at present westwardly across the northern tier of counties, through Clarksville, Paris, and other growing towns, to the city of Sherman, a distance of 154½ miles. This division is now being extended from Sherman *via* Whitesboro, Pilot Point and Denton to a junction with the Southern Division at both Fort Worth and Dallas. The main line extends from Texarkana in a southerly direction through the city of Jefferson to Marshall, seventy-four miles.

From Marshall the Southern Division is completed eastwardly to Shreveport, in Louisiana, an old city of some 15,000 inhabitants, a place of extensive trade and one of the largest cotton markets in the South. From here the road is now being extended (under the charter of the New Orleans Pacific Railway) to the city of New Orleans, distant about 325 miles. Negotiations have just been effected which doubtless will result in the completion of this road within the next eighteen months to the aforesaid city, the metropolis of the South.

From Marshall the main line of the Texas and Pacific extends westwardly through the important towns of Longview, Mineola, Wills Point, Terrell, the city of Dallas, to Fort Worth and beyond.

The road was completed to Fort Worth late in the year 1876, its terminus remaining here until May of the present year (1880). Arrangements are now perfected that will insure its completion by January, 1882, to El Paso, on the western border of Texas. Construction is progressing rapidly; grading on the third one hundred miles is far advanced; track has at this date been laid a distance of about 200 miles west of Fort Worth, and is progressing at an average rate of more than a mile per day.

The rapid extension of the Texas and Pacific is opening up new and vast fields to enterprise and is infusing new life into the country through which it is being constructed.

DESCRIPTION OF COUNTIES CONTIGUOUS TO THE TEXAS AND PACIFIC RAILWAY.

BOWIE COUNTY,

(*Area*, 830 *square miles*. *Population*, 10,103.)

Is a well-watered and timbered county, having extensive pineries. The Red River valley lands are of proverbial fertility, while its other lands yield fair crops of cotton, wheat, corn and other products.

The soil of the valley lands give to the river its color and name,

which in Bowie county contains considerable sand. The uplands are a dark red and grey loam, of great natural productiveness and easy culture. The timber of Bowie is very heavy, especially in the valley, and consists of oak, elm, hickory, ash, and other varieties. The railway advantages of this county are unusually large, as it is traversed from north to southeast and west, and northeast to southwest by roads. It would be difficult to select a farm in the whole county which is not within five miles of a railroad.

Lands are cheap, varying in price generally from $1 to $5 per acre, the Texas and Pacific Railway owning and having in market over 20,000 acres.

TEXARKANA, which is the chief town of the county, is the junction point of the Texas and Pacific and St. Louis, Iron Mountain and Southern railways, and is situated about equally in Bowie county, Texas, and Miller county, Arkansas.

It is also the initial point of the Texas and St. Louis Railway, a new but important road, which is already completed to Tyler in Smith county, and is being rapidly extended.

Though a comparatively new town, Texarkana has taken an important place in the commercial interests of Northern Texas. There are located here large stock-yards, a large cotton compress is in active operation, and a large lumber business is done here. Some forty-five business houses have a fine wholesale trade in the surrounding country. The population of Texarkana is placed at about 4,000.

Bowie county, with her fertile lands and wealth of timber, is now attracting the attention of immigrants, and has during the past year gained rapidly in population and wealth.

DOLBY SPRINGS, noted for their health-giving waters, are located near the western line of the county.

CLARKSVILLE, the county seat of Red River county, is one of the old established towns located in the upper Red River region, the lands of which are productive and fertile. Clarksville is sixty-one miles west of Texarkana, on the Trans-continental division of the Texas and Pacific Railway, the completion of which division has given the town ready and direct access to all commercial points. The town is one of solid and substantial wealth, having a population of 1,000. The annual cotton shipments of Clarksville amount to about 11,000 bales, cotton seed 35,000 bushels, hides about 50,000 pounds. The country immediately around Clarksville is admirably adapted for fruit raising and market gardening. Land can be purchased at low figures and on easy payments.

It is proper to remark that no correct description can be given of the towns throughout the whole of this section. They spring up with such frequency and grow with such rapidity that if we were to write a perfectly accurate statement, it would be far short of the truth before this book had reached the reader.

Annona, Bagwell's and Bennett's are new and thriving railroad stations.

Red River county is situated within the great fruit region of Texas,

where every variety of fruit known to the middle and western States is grown in abundance. Those who will visit the exhibition of the natural products of Texas at the New York office of the Southwestern Immigration Company, will find that the apples, cherries and pears, especially of Red River and the contiguous counties, are equal in every toothsome quality to any produced elsewhere.

RED RIVER COUNTY

(*Area*, 972 *square miles. Population*, 17,194.)

Is an old settled and rich county, part prairie and part timber. About one-half of its lands are as fertile as any in the State, producing crops of every variety in abundance; it is well watered.

In soil and other natural features, Red River bears a strong resemblance to Bowie, already described, with perhaps this difference, which is true of all the counties in this belt, that the further west we go, the deeper becomes the soil.

Lands range in price from $3 to $20 per acre, depending upon location and quality. Improved farms can be bought at from $10 to $25 per acre, but improved farms are not a plentiful commodity in any Texas market. Those who have them are very seldom disposed to sell. There is another reason for this, the ease with which wild land can be transformed into a productive farm dissuades the immigrant from paying the enhanced price.

LAMAR COUNTY.

(*Area*, 1,015 *square miles. Population*, 27,191.)

Lamar possesses the same general features as the county last described, save that it has perhaps a greater abundance of small streams and that the proportion between rolling prairie and timber changes from half and half to two-thirds of the former, and one-third of the latter.

Nowhere can better crops of cotton, grain, fruits and other products be grown. Throughout the county, schools and churches of the principal denominations are found.

The remark may be made here, that this northern section is largely peopled with immigrants from the Western States, and that these always carry with them their cherished institutions. In new settlements, the school-house, which answers also for Sunday services, is quickly constructed, and is soon followed by a sightly church.

Improved lands are worth from $8 to $25, and unimproved lands from $3 to $8 per acre.

PARIS, ninety-one miles west of Texarkana, on the Trans-continental division of the Texas and Pacific Railway, is the county seat of Lamar county, and is one of the most elegantly finished towns in the southwest. In 1877 nearly all the business portion of the town was destroyed by fire, but the energetic and go-ahead citizens at once rebuilt, and now handsome stores and brick blocks fill the places formerly occupied by frame buildings. In addition to her elegant

business houses, Paris has one of the largest and handsomest court-houses in the State, of which we present a view. Valuable stone is found in inexhaustible quantities in the immediate neighborhood, and is used for building purposes. Paris has an excellent record as a commercial point, and one which is rapidly improving through the energy and business enterprise of her citizens. Two solid and substantial banks afford the best financial advantages. The magnificent farming country around Paris is supplied with all classes of merchandise by over sixty business houses. There are here three large flouring mills, one sash, door, and blind manufactory, two planing mills and two furniture factories. A street railroad traverses the town, and is doing a good paying business. Paris ships annually about 30,000 bales of cotton, 50,000 pounds of wool, 200,000 pounds of hides, 20,000 pounds of tallow, besides large quantities of country produce. Paris is surrounded by a splendid agricultural country, capable of untold developments, and benefited in all the essentials of excellent facilities for transportation, a healthy region, and the influence of an enlightened society.

Blossom Prairie and Brookston are improving railway stations.

FANNIN COUNTY.

(*Area*, 900 *square miles*. *Population*, 25,501.)

In all natural features Fannin is the twin sister of Lamar. The soil, water, and timber are alike. The description of one is the description of both.

Improved lands are worth from $8 to $30, and unimproved from $3 to $12 per acre.

HONEY GROVE, on the Trans-continental division of the Texas and Pacific Railway, is 112 miles west from Texarkana, and 42 miles east from Sherman. It is located near the eastern line of Fannin county, and is one of the most prosperous small towns in the State. It has a population of about 1,500, and many fine substantial brick business houses and dwellings. Among its most attractive features is a large college building, which is under charge of a competent faculty, and has a large attendance of scholars from the town, as well as many from the surrounding country. Few towns in the State or elsewhere enjoy educational advantages superior to those to be found in Honey Grove. The town is situated in the midst of a fine agricultural country, which is being rapidly settled up by a superior class of immigrants. Honey Grove ships annually about 8,000 bales of cotton, 15,000 pounds of wool, 40,000 pounds of hides, 20,000 bushels of corn, 20,000 bushels cotton seed, and its shipping interests are continually increasing.

BONHAM, the county seat of Fannin county, is 128 miles west from Texarkana, and 26 miles east from Sherman. It is on the Trans-continental division of the Texas and Pacific Railway, and has a population of 3,000; has two fine flouring mills, and a carriage and wagon factory, one bank, and thirty well established business houses. It is surrounded by a fine agricultural country, which is

rapidly filling up with thrifty and industrious farmers, many from the north and west having located in this vicinity during the past two or three years. Bonham ships annually 10,000 bales of cotton, 20,000 pounds of wool, 40,000 pounds of hides, 25,000 bushels of corn, and 15,000 bushels of cotton seed. No better or more industrious class of immigrants have come into the State than those located immediately around Bonham.

Savoy and Dodd's are promising railway towns, surrounded by a rich country, that is rapidly filling with an enterprising population.

These counties lie in the great wheat belt of Texas, and their soils are celebrated for the quality as well as quantity of wheat produced. Fannin county is well known as one of the best fruit counties of the State, rivalling Benton and Washington counties, both in the flavor and size of apples.

GRAYSON COUNTY.

(*Area*, 980 *square miles*. *Population*, 38,108.)

Grayson is an old settled and the most populous county of the State. In agricultural advantages no area of the same vast extent east of the Mississippi River will bear comparison. In productiveness of cereal crops it cannot be surpassed by any portion of Ohio or Pennsylvania. Its wheat is more weighty and its oats command the highest price in the New Orleans market. There is scarce an acre of land in the county which is not arable and adapted to a highly diversified agriculture. Its annual shipment of cotton attests its adaptability to the production of this great staple of commerce. The lands are either high black-waxy, rolling sandy prairie, or a loamy post-oak soil, very rich and easily cultivated. The population is largely composed of northern and western people, well educated and refined. Its husbandmen are thrifty, prosperous, and generally out of debt.

SHERMAN, the county seat of Grayson county, is 154 miles west from Texarkana, and is the point at which the Trans-continental division of the Texas and Pacific Railway crosses the main line of the Houston and Texas Central Railway. This is one of the most important commercial cities of Texas, and is in the midst of one of the finest agricultural regions in the entire southwest. It has a population of about 12,000, and is substantially built with handsome stone and brick business blocks. It has a handsome stone and brick court-house, twelve churches, two large and handsome banks, and about one hundred and fifty stone or brick business houses, five flouring mills, an ice factory making twenty tons of ice per day, a carriage factory, a grain elevator, and one of the largest cotton compresses in the State. There are also gas works and a street railroad in successful operation, a large foundry, and two planing mills. The lumber business of Sherman is very large, there being immense yards in the city, and large quantities of lumber are constantly shipped to the West. Sherman has educational facilities unsurpassed by any city in the State. Besides efficient high schools, there is Austin College,

chartered by the State in 1849, and is under the control of a most excellent faculty. The new building and grounds of this college constitute one of the most attractive features of the city. The Sherman Female Institute is a most thorough school for young ladies, and is liberally patronized by the best families in the State. St. Joseph's Academy is under the direction of the Sisters of St. Mary, and is well attended. The annual shipments of Sherman are: cotton, 60,000 bales; buffalo hides, 300,000 pounds; green salted hides, 200,000 pounds; dry hides, 600,000 pounds; wool, 70,000 pounds; tallow, 150 barrels; corn, 40,000 bushels; oats, 30,000 bushels; cotton seed, 20,000 bushels. Sherman's commerce has shown a steady increase year by year, and is certain of greater prosperity in the future from the superior nature of her local surroundings.

The flour produced at the Sherman mills from Grayson wheat is not excelled by any, and gives promise in time of having a large demand for export to Brazil and other South American States. Experience has proven that it is entirely free from that tendency to ferment and become sour which is a great source of loss and vexation in this branch of commerce.

DENNISON, nine miles north of Sherman, is familiarly known as "the infant giant of Texas." This town has a population of 4,000. It is the terminus of the Missouri, Kansas and Texas Railway, which enters Texas at this point, after passing through the beautiful Indian territory. The "new blood" and increased activity infused into this road by recent changes and extensions, promises that the growth of Dennison shall in the future surpass even its rapid progress in the past. The immigrant entering Texas is surprised to find among the many excellent buildings of Dennison, a school-house costing $20,000, equal in all its appointments to the much boasted academies of New England.

COOKE COUNTY.

(*Area*, 933 *square miles*. *Population*, 20,391.)

Cooke, which adjoins Grayson on the west, possesses the same character of soil. It is, if anything, more abundantly watered, for it gives rise not only to numerous small streams which flow into the Red River, as do those of Grayson, but also to a new system which unites and forms the head-waters of the Trinity River, that crosses the entire State and enters into the Gulf of Mexico. Timber is abundant along all these streams. A portion of the Cross Timbers, a unique belt of forest, of which we shall speak more at length elsewhere, is found in its southern portion.

GAINSVILLE, the county seat of Cooke, which has within the last year been connected, through the extension of the Missouri, Kansas and Texas, *via* Whitesboro, with Dennison and Sherman. That which was a handsome small town has, by this connection, been transformed into a bustling active city, with a daily increasing trade. As the country west of Cooke becomes settled, Gainsville will grow rapidly in wealth and population.

The price of land in this county is rapidly enhancing, because of its new and increased facilities for trade; they are still, however, held at lower prices than those of the same quality in Grayson. Excellent building stone is abundant in Cooke.

THE COUNTIES OF THE "QUADRILATERAL."

MORRIS, TITUS, FRANKLIN, HOPKINS, DELTA, HUNT.

In the north and northeast of Texas is a quadrilateral formed by the Texas and Pacific Railway on the south, the Trans-continental division of the Texas and Pacific on the north, the Marshal and Texarkana division of the Texas and Pacific on the east, and the Houston and Texas Central on the west. The region within these lines is the quadrilateral, so-called. Several other lines of railway penetrate and cross the quadrilateral in various directions. The counties which lie within the quadrilateral, for the most part bear so close a resemblance that a notice of each would be a superfluity. Their products are the same and they generally very closely resemble each other in soils and physical features. To the east of Titus timber prevails largely; to the west of Titus the rolling prairies are the general feature. See description of the line of counties which lie along the Trans-continental division of the Texas and Pacific Railway, and you have the whole picture. Nothing can be added to it, and nothing taken away. It is a remarkably fine country, of rich soils, varied productions, healthful climate, agreeable seasons and pleasing scenery. It would be difficult to say what this country is lacking in to make it exceedingly desirable for human residence. Suffice it to say that those who go there, stay and feel no desire to change their quarters. It is a rapidly advancing country, but there is abundant room for hundreds of thousands more. And their coming would be welcomed by an intelligent, industrious, and hospitable citizenship.

HUNT COUNTY.

(*Area*, 869 *acres*. *Population*, 17,229.)

Hunt county lies south of Fannin, and possesses a greatly diversified and very fertile soil. The eastern portion is largely covered with post, black and white oaks, ash, hickory, and other valuable timber, interspersed with occasional prairies of dark sandy soil, easily cultivated and productive to an astonishing degree. The western portion of Hunt is a deep black-waxy prairie, with streams whose banks are fringed with skirts of timber. The lands in this portion of the county are unsurpassed in depth of soil and adaptation to varied productions. The principal field crops are cotton, corn, wheat, oats, rye, barley, sorghum and potatoes. Vegetables of all kinds grow luxuriantly. Fruits of nearly every variety are raised upon every farm. The county, until within the last year, has not had the advantages of railroad facilities, but from its rich soils, its healthfulness, and other advantages, has kept even pace in its progress with counties

whose artificial facilities have been greater. School-houses, churches, grange halls, and masonic lodges are established in every community. The population is industrious, thrifty, and law-abiding. It now has the advantage of two railways connecting its county seat, Greenville, with the railway system of the State. The southeastern extension of the Missouri, Kansas and Texas unites it with Dennison, the terminal point of that road going north, and of the Houston and Texas Central going south, while the East Line and Red River road makes another valuable connection with the Texas and Pacific at Jefferson.

GREENVILLE is a beautiful town, situated upon the edge of high undulating prairie, and near-by flows a limpid stream of pure water, upon whose banks are situated several large flouring mills and cotton gins. The town is rapidly improving and property appreciating in value. Hunt is one of the best landed counties in the State, and the farmer, merchant or mechanic, who makes his home in this county, will find that he has cast lot in a good land, and that by ordinary diligence and prudence in business, he will wax rich.

RAINS COUNTY.

(*Area*, 267 *square miles*. *Population*, 3,025.)

Rains is one of the smallest counties in the State, but in every natural advantage it is fully equal to the most favored in its section. The soil is chiefly a dark sandy loam. The products, corn, cotton, wheat, oats, rye, millet, sorghum, potatoes and vegetables. Being in the fruit belt of Texas—that which has been said of peaches, grapes and apples in other counties, is true of this. There is plenty of excellent water, and every natural advantage that the husbandman can desire.

The Missouri, Kansas and Texas crosses directly through the county to Emory, the county seat, which is a small and thriving place. The Texas and Pacific runs within three or four miles of its southern boundary. And there are several stations on the East line and Jefferson, within easy hauling distance of its northern and eastern boundary.

CASS COUNTY.

(*Area*, 900 *square miles*. *Population*, 16,723.)

Almost the entire county is timbered with pine and oak, and along the line of the railroad are more than thirty saw-mills. Twice that number would find remunerative employment.

Iron ore is abundant and of the same excellent quality as that found in Marion, and a good geological authority predicts the discovery of an abundant deposit of lignite. It has abundant water, and its soil, though not as rich as in the prairie counties, produces fair crops of cotton, corn, vegetables and fruits. Its lands are low in price, ranging from $1 to $8 per acre. It has no large towns. Linden, the county seat, with some 400 people, is about eight miles west of the railroad.

Its principal railroad stations are Atlanta, Queen City, and Kildare.

Besides the Texas and Pacific, the East Line and Red River, a narrow gauge road, extending from Jefferson to Greenville—125 miles, passes through Cass county.

MARION COUNTY.

(*Area*, 500 *square miles*. *Population*, 10,985.)

The general surface features of Marion resemble those of Bowie, save that it is somewhat more hilly. These hills contain inexhaustible quantities of hematite iron ore, which are reduced on quite an extensive scale, at Kellyville, four miles east of Jefferson. These ores yield an average of fifty per cent. of metal, of above average quality. The ores are apparently inexhaustible, and are mined with but little expense and trouble. The indications are that this county will become distinguished for its production and manufacture of iron. There is no coal in the county, but wood for charcoal is abundant and cheap. Founderies have been established, at which a remarkably good quality of stoves, hollow ware, ploughs, car wheels and other castings are made.

JEFFERSON, the county seat of Marion county, is on the line of the Texas and Pacific Railway, fifty eight miles south of Texarkana, and is at the head of navigation on Cypress Bayou (a tributary of Red River), thus giving it water communication with New Orleans. Jefferson is also the eastern terminus of the East Line and Red River Railway, which is now in operation to Greenville, 126 miles. The annual shipments of Jefferson are: cotton, 50,000 bales; wool, 20,000 pounds; hides, 50,000 pounds. One of the principal commercial interests of Jefferson is the foundry and blast furnace before spoken of.

The country adjacent to Jefferson is one of the finest in the world for fruit and vegetables, and being within easy access to large markets is admirably adapted for fruit and garden farming. The population of Jefferson is about 5,000. There is here a large cotton compress, and a large number of business houses which do a fine trade with the surrounding country, which is thickly settled. There are four academies in Jefferson, all excellently conducted and largely attended, besides a number of private schools.

Among the natural features of Marion is a small lake known by the local name of "pitch lake." This has not been scientifically examined, but its product is generally held to be pure asphalt, of a quality equal to that found at Trinidad. Should such be the case, it will become a source of considerable wealth.

HARRISON COUNTY.

(*Area*, 1,100 *square miles*. *Population*, 25,175.)

This is one of the oldest settled and most important counties in the State. It is abundantly supplied with timber and water, and

produces excellent crops of vegetables and fruit, and fair crops of cotton, corn, and other products.

This county is famous for its picturesque scenery. The Sabine River skirts its southern boundary. On the north is Cypress Bayou and on the southeast Caddo Lake, an extensive and beautiful sheet of water lying partly in Louisiana. There are numerous other streams which might readily be made available for water-power. There are numbers of mineral springs chiefly of chalybeate. Some of these have quite a reputation for medical virtues ; among these the most famous are the Iron Mountain Springs, a few miles from Marshall.

Improved farms are worth from $5 to $15, and unimproved lands from $2 to $6 per acre.

MARSHALL, the county seat of Harrison county, is one of the oldest settled towns in Eastern Texas, and is 74 miles south from Texarkana, 40 miles west from Shreveport, Louisiana, and 147 miles east from Dallas. The city is located on a number of small hills, and is noted for its beauty and great healthfulness. The country surrounding Marshall is (like most of Eastern Texas) finely adapted to the raising of fruit and vegetables, and offers great advantages to fruit growers and market gardeners, being within easy access to excellent markets. The general offices and machine shops of the Texas and Pacific Railway Company are located here, thus bringing a large local trade to the city. The Marshall Car and Foundry Company have recently completed large works here, and have just commenced the manufacture of cars and castings on a large scale, giving employment to a large number of mechanics. The Gullett Cotton-Gin Factory has been in operation for nearly a year, and is prospering finely, shipping a large number of their improved gins to the surrounding country. The Marshall Ice Factory has been in successful operation a few months, and is manufacturing a superior quality of ice, which not only supplies the city, but is being constantly shipped to neighboring towns. Marshall has unexcelled educational facilities, the Marshall College (male) and Masonic Female Institute, both being in successful operation, with competent faculties. There is also a large Catholic school here, besides many private schools, all under experienced and able teachers. The population of Marshall is 7,000. About 10,000 bales of cotton are shipped from here annually, besides large quantities of wool, hides, and farm products.

GREGG COUNTY.

(*Area*, 240 *square miles*. *Population*, 8,530.)

Gregg is almost entirely covered with woodland. The pine forests are dense and of large growth. A large number of saw-mills convert it into lumber, which is transported by the railroads into all portions of the State. The soil of the pine lands is unusually rich, having a subsoil of red clay, filled with gypsum. There are large oak, hickory, mulberry and walnut districts which are rich and productive. There is an abundance of iron, and many out-croppings of cannel coal have been reported, which will propably prove to be lignite of a superior quality.

LONGVIEW, the county seat of Gregg county, is ninety-eight miles south and west of Texarkana, and is the junction point of the Texas and Pacific Railway and the International and Great Northern Railroad. Longview has a population of 2,500, and is compactly built, having something over thirty business houses, most of them built of stone, of which there is an unlimited quantity of the most excellent kind for buildings and bridge work. A wagon factory supplies the local demand, besides shipping to neighboring towns wagons of excellent make. There is a cotton compress here of 600 bales per day capacity. Longview ships annually about 9,000 bales of cotton, 80,000 pounds of hides, and large quantities of lumber, fruit, and country produce. Longview has a handsome court-house, several handsome churches, and excellent schools.

KILGOUR, a town on the International and Great Northern, is of rising importance.

UPSHUR COUNTY

(*Area*, 720 *square miles*. *Population*, 10,266.)

Is a timbered county, having extensive pine forests. Its lumber interests are developing with rapidity. Soil and productiveness about the same as Harrison county. Lands are worth from $2 to $10 per acre. Gilmer, the county seat, is some twelve miles north of the railroad.

BIG SANDY is a new and growing railway town at the junction of the Texas and Pacific with the Texas and St. Louis Narrow Gauge. A road which passes directly through the middle of the county giving all portions convenient railway facilities.

WOOD COUNTY.

(*Area*, 418 *square miles*. *Population*, 11,212.)

It is well watered and generally timbered with hickory, oak, black-jack and pine. Fair crops of the various products raised in this section are grown here.

Lands are worth from $2 to $15 per acre, depending upon location, quality and improvements.

MINEOLA, Wood county, is on the line of the Texas and Pacific Railway, 143 miles from Texarkana, and 78 miles east of Dallas. The town was first located in 1873, on the advent of the railroad, and has had a steady and solid growth ever since. A branch of the International and Great Northern Railroad extends to Mineola, giving it direct communication with the coast. It has a population of about 2,000 people, and has twenty substantial business houses. The annual shipments of Mineola are: about 10,000 bales of cotton, and about 40,000 pounds of hides, besides considerable amounts of wool and country produce.

QUITMAN, the county seat, is located near the centre of the

county and is some fourteen miles north of Mineola. The surrounding country is exceedingly fertile and contributes a large trade.

HAWKINS, on the Texas and Pacific Railway, is a small station, but has a considerable trade.

VAN ZANDT COUNTY.

(*Area*, 950 *square miles*. *Population*, 12,619.)

Van Zandt county is located on the divide between the great timber region of the east and the grand prairies of the west. The western third is prairie and the eastern two-thirds timber. The soil is good, strong and productive throughout the entire county.

There is a good deal of iron in Van Zandt, but its chief mineral wealth is in its salines. At Grand Saline there are several hundred acres of land which furnish a great supply of very strong, briny water, by digging from fifteen to twenty feet. This water is so strong that one gallon will make one pound and a third of excellent salt. The supply of brine appears to be inexhaustible, and it is probable that this is one of the most extensive salines in the world. A large quantity of salt is manufactured now, and there is no reason why all Texas and Arkansas should not be supplied from these and similar works.

WILLS' POINT, in Van Zandt county, is beautifully located on a rolling prairie, just west of the timber line of Eastern Texas. It is a town of recent origin, having sprung up in 1873, when the Texas and Pacific Railway first reached that section. It has a population of 1,500, and being surrounded by a magnificent agricultural country, is rapidly increasing in size and importance. It has now two flouring mills, both doing a fine business along the line of the Texas and Pacific Railway. A large trade is done here in agricultural implements, supplying the surrounding country, which is well settled with an industrious and enterprising class of farmers. Wills' Point ships annually about 10,000 bales of cotton, 20,000 pounds of wool, 115 tons of hay, 248 tons of grain, and a large amount of cured pork.

KAUFMAN COUNTY.

(*Area*, 950 *square miles*. *Population*, 15,448.)

This is a rich and productive prairie county, with fringes of timber along its streams, and produces in great abundance cotton, corn, wheat and other cereals, as well as vegetables and fruits.

The face of the county is a high rolling black prairie. In some places the soil has considerable admixture, so that it becomes deep black sandy loam. The principal streams are the East Fork of the Trinity, Cedar and Rocky Creeks, all of which have numerous tributaries.

During the past three or four years it has made rapid strides in improvement and prosperity. Improved lands are worth from $6 to $25, and unimproved from $4 to $8 per acre.

TERRELL, is the chief city in Kaufman county, thirty-two miles

east of Dallas, on the main line of the Texas and Pacific Railway; was located in 1873, and has rapidly become of more than ordinary commercial importance. It has a population of 3,500 people, about forty business houses, nearly all of brick, showing the energy and confidence of her business men. Terrell has three flouring mills, two planing mills, a steam grain elevator, a tannery, a door, sash and blind manufactory, and two wagon and carriage shops. Terrell is in the midst of one of the finest agricultural sections of Texas, and the energy and enterprise of her people is rapidly placing her in the first rank of Texas towns. With a steady flow of immigration into her tributary country, with good transportation to profitable markets, she will soon be a town of great commercial importance. Terrell ships annually 20,000 bales of cotton, over 8,000 head of cattle, 125,000 pounds of hides, 25,000 pounds of wool, 2,000 pounds of feathers, 8,000 pounds of cotton seed, 50 tons of hay, 20,000 bushels of corn, and 30,000 bushels of wheat.

KAUFMAN, the county seat, is sixteen miles south of the railroad, and has a population of about 900.

FORNEY, is another railway town, which gives promise of attaining like celebrity with its god-father the illustrious Philadelphia journalist who wrote so pleasantly and truthfully of this beautiful section.

DALLAS COUNTY

(*Area*, 900 *square miles*. *Population*, 33,490.)

Is one of the leading counties of Texas. The greater part of the county is a rolling prairie, elevated about six hundred feet above the sea. Three arms of the Trinity pass through this county, and these have heavily timbered valleys; the creek tributaries are also margined with timber. In the northern parts of the county are large bodies of post-oak, which seem to be offshoots from the Cross Timbers. On the prairies there is generally a considerable growth of mesquite. The rock on the prairies is limestone, from a foot or less to several feet under the surface. It is usually too soft to be a good building stone, though it is used to some extent. There is a variety of this limestone extending over large portions of Dallas, Collin, Rockwall, Denton, and other counties of North Texas, which is locally known as the "white rock." It frequently crops out above the surface, and is often seen in the sides of gullies or ravines. This stone is so soft that the point of the plough cuts through and pulverizes it easily, and when it is taken up and exposed on the surface, it disintegrates into a pulverized heap. It is a fine fertilizer, especially for the cereals, clover and other forage grasses. It is composed of carbonate of lime, alumina, iron, some magnesia, sulphur and phosphates. It is often four to six feet in thickness, and though called "white" is generally of a yellowish tinge, resulting from the admixture of ferruginous clay. The rolling prairie lands, and especially those which are underlaid by the "white-rock," have a very black, sticky, strong soil, which seems to improve steadily by cultivation, without manures. This soil when properly managed, has a remarkable resistance to

drouth. If it be ploughed deep, and the surface is frequently worked, so as to prevent the formation of a crust, crops would make a good report of themselves with very little rain. If a crust is not permitted to form, these fat carbonaceous soils will drink in enough moisture from the night air to keep their crops in good condition. If a man fails to make fine crops, whether of cotton, corn or wheat on these fine lands, it will be found his own fault. This remark is not meant to apply strictly to the "white-rock" soil. It is meant to apply to all the black-waxy or sticky soils of the State, which have essentially the same mineral composition as the " white-rock."

In the timbered uplands here as elsewhere in Texas, the soil is sandy loam, and the stone beneath a sandstone, usually infiltrated with iron. The valley lands of the Trinity and its tributaries are the dark alluvials, having much sulphate of lime. Dallas county is almost without untillable lands. Large breaks of red cedar and bois d'arc occur, whose excellent and durable qualities for lumber are well known. Fruits and grapes of all varieties suitable for this region are grown to perfection. Prices of lands have a wide range, from $2.50 to $25 per acre for unimproved, according to situation, etc. The county is well supplied with railroads. The Houston and Texas Central passes through the county from north to south, and the Texas and Pacific from east to west, crossing each other at right angles at Dallas the county seat. An arm of the Texas and Pacific, known as the Dallas and Wichita, runs from Dallas to Denton, thence to Whitesboro, joining the Trans-continental division of the Texas and Pacific, and Dennison and Pacific; and two other lines are building, one to the southeast with Sabine Pass for its objective point, and the other to the southwest to Cleburne, to connect with the Gulf, Colorado and Sante Fe.

DALLAS, the county seat of Dallas county, is situated at the intersection of the main lines of the Texas and Pacific, and Houston and Texas Central railways, 221 miles southwest of Texarkana. These, with the other railroads before described, give it direct communication with every section of the surrounding country. It is in the centre of a large belt of country, where cotton, wheat, corn, oats and other cereals are cultivated as staples side by side. Including her suburban population, Dallas has about 20,000 inhabitants, with a steady but visible increase. Dallas has four solid and substantial banks, four flouring mills, three cotton compresses, two grain elevators, a mammoth cotton-seed oil mill, two large foundries, three planing mills, one grain separator manufactory, cement and artificial stone factories, an ice factory, mammoth steam candy factory, a large soap factory, a number of wagon and carriage factories, extensive gas and water works, and four lines of street railroads, leading from the business centres to the suburbs. Dallas is the great supply depot for northern and western Texas, and its wholesale trade in all branches has assumed immense proportions. Its new and handsome court-house, and many of its business blocks are built of native stone, quarried within sight of the city. The enterprising and solid business character of her citizens, her great railroad advantages, and the

unsurpassed agricultural country of which she is the centre, insure for her a commercial prosperity in the future which will be second to no inland city in the great Southwest. Handsome church edifices of every denomination, and numerous schools, both public and private, give evidences of the morals and refinement of her people. The annual shipments of cotton from Dallas amount to 50,000 bales, and it is the largest grain shipping point in the State of Texas. Large quantities of hides are shipped from here, besides large amounts of general farm produce.

TARRANT COUNTY.

(*Area*, 900 *square miles*. *Population*, 24,678.)

About one-third of this county is timbered, the remainder is excellent prairie.

Its prairies are beautiful, the soil mainly a black sandy loam, producing all kinds of crops in great abundance. Improved lands range in value from $10 to $25, and unimproved from $3 to $10 per acre.

This county is so much like Dallas, that a more lengthy description is unnecessary.

FORT WORTH, "Queen of the Prairies," is the county seat of Tarrant county, and is 32 miles west from Dallas, and 253 miles southwest from Texarkana. The rapid growth of this city is not only a proof of the superior agricultural country by which she is surrounded, but evidences the sterling business qualities and indomitable energy of her citizens. On the advent of the Texas and Pacific Railway, in 1876, the population of Fort Worth was 2,000; and is now in 1880, 10,000, an increase of 8,000 in four years. The city is built in the most substantial manner, with handsome business blocks, being of brick and stone, the stone being quarried within a mile of the court-house, a building which, in architectural beauty and finish, would be a credit to the older and wealthier States. A street railroad is in successful operation, new gas works, three large flouring mills, two cotton compresses, a large ice factory, two grain elevators, two planing mills, a large sash and door factory, and 150 stone and brick business houses (including a handsome opera house), attest the solid growth of Fort Worth. Over thirty artesian wells are sunk in the city, supplying it with pure, soft water. The fine agricultural country around Fort Worth is rapidly filling up with a superior class of farmers, and the trade of the city is gradually but surely extending to the Far West. With her natural advantages, excellent transportation facilities, and the enterprise of her people, Fort Worth is rapidly assuming a formidable commercial importance. All different denominations of religion are represented here, and many handsome church edifices have been erected. Excellent schools have been established, and are largely attended. The annual shipments of Fort Worth amount to: cotton, 50,000 bales; cattle, 50,000 to 75,000 head; hides, 4,500,000 pounds; wool, 300,000 pounds; cotton seed, 10,000 bushels; pecans, 200,000 pounds; bones, 30 car loads; flour and grain, 10,000,000 pounds, besides large quantities of ordinary farm products. The

gross sales of general merchandise, including all lines of business, will aggregate $5,000,000 per annum.

PARKER COUNTY,

(*Area*, 900 *square miles*. *Population*, 15,871.)

West of Tarrant, consists of diversified timber and prairie regions and bold elevations. The timber is mainly post-oak, black jack, burr-oak, pecan, etc. The Brazos River passes through the south-western portion of the county, and an arm of the Trinity entirely through it; besides which there are many creeks. The valleys of the streams and all the low-lying lands are very fertile. The products are cotton, corn, and all the other cereals. Unimproved lands may be quoted at $1 to $10 per acre—the latter price only in the most favored locations. There are 147,200 acres of school lands in the county. Weatherford is the county seat, having a population of about 3,500. The Texas and Pacific railroad passes centrally through the county.

WEATHERFORD, the county seat of Parker county, situated thirty-one miles west of Fort Worth, on the line of the Texas and Pacific Railway, is a beautiful little city of 3,500 inhabitants. It is built almost entirely of brick and stone, the stone being quarried in the immediate vicinity of the city, and of a superior quality for building purposes. One of the handsomest court-houses (built of native stone) in the State, is situated in the centre of the town, and surrounded by a large open square. Being situated on the Clear Fork of the Trinity River, Weatherford has most excellent drainage, and good water is obtained at a depth of forty and fifty feet. There are between seventy-five and one hundred business houses in the place, and it is rapidly increasing in population and business interests. Weatherford ships annually about 20,000 bales of cotton, besides large amounts of hides, grain, and general produce. A large flouring mill has been in successful operation for several years. The following religious denominations have church edifices: Episcopal, Presbyterian, Baptist, Methodist, and Christian. Weatherford has several excellent schools, the principal one being the Masonic Institute. The city has excellent banking facilities, and is rapidly rising in the ranks of commercial prosperity.

DENTON COUNTY.

(*Area*, 900 *square miles*. *Population*, 18,145.)

About two thirds of this county consists of splendid rolling prairie with black soil and rich grasses, the balance of timbered alluvial creek and river valleys, and the Cross Timbers. It is a very fine county, nearly all of which is adapted to tillage. It is lofty and healthful. Two main forks of the Trinity River flow entirely across the county, and each of these is supplied with an unusually large number of tributaries. The stones are limestones on the prairies, and sandstones in the Cross Timbers. No minerals are known to be in

the county. The productions are cotton, corn, and all the cereals and forage grasses. Denton is the county seat, a thriving village of about two thousand people. The Dallas and Wichita railroad penetrates the county centrally, and a branch of the Texas and Pacific now being constructed from Whitesboro to Denton, will be extended from Denton to Fort Worth, and completed by April 1, 1881. Unimproved lands $3 to $10. There are 35,840 acres of school lands in the county. The Texas and Pacific Railway also owns several thousand acres. This county is advancing with rapid strides, and will always be one of the most populous and important in the State.

The only towns of importance in the county are Denton, the county seat, and Pilot Point. Both are places of importance, with considerable trade and rapidly improving.

WISE COUNTY.

(*Area*, 900 *square miles*. *Population*, 16,606.)

The east half of this county is prairie, the west generally timbered. It is well supplied with water, and the soil is productive. It contains a large quantity of good, cheap land, and is attracting a large immigration.

Improved lands are to be had at from $5 to $15, and unimproved at from $1.50 to $6 per acre.

DECATUR, the county seat, a place of some 1,100 people, is the principal trading point, and is well provided with churches and schools.

PALO PINTO

(*Area*, 980 *square miles*. *Population*, 5,885.)

Adjoins Parker on the west. The Brazos River flows through the county from northeast to southwest, and there are a multitude of bold creeks such as Palo Pinto, Barton, etc. A large portion of the county is rough, broken and heavily timbered, but the valleys in these districts are wide and very fertile. The prairies are mostly in the northern parts, having the usual black-waxy and in some places a reddish soil. It is a fine stock county, the timbered districts as well as the prairies being rich in nutritious grasses. Palo Pinto is as yet very thinly settled, but since the Texas and Pacific Railway reached it, it has advanced considerably. The mineral wealth of this county is great. The geological formation is mostly carboniferous, and nearly all the hills and mountains in the southern part of the county contain seams of coal. Some of these are now being worked. We have little doubt that exploration will develop coal in other portions of the county. There are 160,000 acres of school lands in this county, and about 10,000 acres of State lands. Here is a wide field for development, not to speak of the vast bodies of private lands that solicit purchasers who will make homes of them. Lands may be quoted at $1 to $5 an acre. The productions are cotton, corn, all the cereals, vegetables, and fruits.

GORDON, a new station on the Texas and Pacific Railway, is the most important town, and bids fair to become a place of some considerable importance.

STEPHENS COUNTY.

(*Area*, 900 *square miles*. *Population*, 4,726.)

About three-fourths of this county is covered with a growth of the several varieties of oak, pecan, walnut, and mesquite, the remainder is prairie of good quality. It is a newly settled county and its productions as yet are limited, but here can be grown in the greatest abundance cotton, the small grains, vegetables, and fruits. Good building stone and coal abound here.

This county contains vast quantities of good low-priced lands, which can be had at from $1.50 to $5 per acre. The Texas and Pacific Railway owns and is offering for sale a large amount of desirable lands in same. It is receiving a large immigration, and few counties in the State offer greater inducements to settlement. Its only railroad is the Texas and Pacific, which runs through the southeastern portion of the county. Breckenridge, the county seat, located near the centre of the county, is a flourishing town of some 800 people.

EASTLAND COUNTY.

(*Area*, 855 *square miles*. *Population*, 4,855.)

Mostly rolling prairie with a black or reddish sandy soil, but large bodies of post-oak, cedar, etc., exist. The Leon River rises in this county and many of its arms pass through it. An arm of the Clear Fork of the Brazos also rises here and extends its branches over the northern part. The valleys of these streams are all wide and exceedingly fertile, producing fine crops of cotton, corn, wheat, etc., but the industry of the county is more stock-raising, agriculture being a secondary matter, and with many of the stockmen no matter at all. The geological formation is carboniferous and many seams of coal have been reported in the county. The stones are limestones and red sandstones, the latter lying above the former where they are found together. The Texas and Pacific Railway passes through the county, and it will probably be intersected at Eastland, the county seat, by the northwestern branch of the Houston and Texas Central. Eastland city now has a population of about 500. The county is very sparsely settled. School lands, 145,280 acres. School and State lands are sold at $1 to $1.50 per acre, but private lands may be bought a good deal lower.

CALLAHAN COUNTY.

(*Area*, 900 *square miles*. *Population*, 3,453.)

This county contains a large quantity of good land, about one-half of which is timbered and the remainder prairie, the latter, in many instances, having a scattering growth of mesquite upon it.

The surface is somewhat undulating, but a small portion only of the land is rough or broken.

Its soil is of various kinds, generally rich and productive; and here can be grown in great abundance all the various crops that are raised in Northern Texas. Coal and good building stone are found in abundance. Few counties in the State, at this time, offer greater attractions to immigrants. In it are hundreds of thousands of acres of State, school, railroad, and other lands of good quality, which are offered for sale at prices varying from $1.50 to $4 per acre.

The Texas and Pacific Railway Company offers for sale in this county at the present time some 80,000 acres of land, having a larger quantity of desirable land for present occupancy in the market here than in any other county.

It is receiving a large immigration, and must continue to do so, as it offers unusual attractions in the way of good, cheap lands, desirable population, etc.

New towns are being located along the *new line* of the railroad, some of which are destined in the near future to become prosperous places. Belle Plain, the county seat, is a pretty and well built town, six miles south of the railroad, near the centre of the county.

BAIRD, a new station six miles north of Belle Plain, is a rapidly growing railroad town, the end of a division on the Texas and Pacific Railway, having a round-house and repair shops, and must remain the most important town in this (to the immigrant) most attractive county.

TAYLOR COUNTY

(*Area*, 900 *square miles*. *Population*, 1,736.)

Is well watered, comprising, as it does, the country upon the headwaters of the Clear Fork, the sources of Pecan Bayou, Jim Ned, and several other creeks, tributaries of the Colorado. Over one half of the lands in this county are well adapted to agriculture, the balance presenting a superior stock range. Along the numerous streams may be found valleys as rich and fertile as in any portion of the State.

The soil varies from dark red to chocolate and black sandy. Portions of the county are thickly timbered with trees of the best kind and largest size, such as live oak, post-oak, cedar, and mesquite.

Lands are in this county good and as yet cheap, ranging in price generally from $1 to $3 per acre. By the building of the Texas and Pacific Railway through the county, these lands have been suddenly brought near to good market facilities, and as a consequence immigration is fast entering the county.

The Texas and Pacific Railway has for sale in this county some 40,000 acres of desirable lands, and large quantities of these are offered for sale at low prices. Other companies and individuals are offering for sale lands in this county at very reasonable figures. New towns are being located along the line of the railroad. Buffalo Gap, the county seat, is situated on the south bank of Clear Fork and near the centre of the county, and is a prosperous frontier town.

On the 15th January, of the present year (1881), the Texas and Pacific Railway was completed to Abilene in this county, about twelve miles northeast of Buffalo Gap, which is in all probability destined to be an important railroad centre. One branch of the Gulf, Colorado and Santa Fe Railway is projected to this point, and is now being rapidly constructed.

OTHER COUNTIES.

The Texas and Pacific Railway, in its progress westward, is rapidly opening up to settlement a section of Texas which equals any portion of the State, as a desirable farming country, but which has heretofore not received much attention on account of the absence of transportation and market facilities. The counties referred to particularly are Nolan, Mitchell, Howard, and those adjacent.

In them the Texas and Pacific Company has vast quantities of desirable lands, which will doubtless, now that the railroad is being built through them, receive within the next year or two a large settlement. Now, while prices are low, and before the best lands have been occupied, is the time to secure good eligible farms and homes. This section is generally an undulating and prairie country, with a deep rich soil, affording good water, and with fringes of timber along the streams, sufficient for fuel and for improvement for the earlier occupants. As regards healthfulness, or general desirability for farming purposes, or for cattle or sheep raising, this section is confidently believed to possess advantages unsurpassed by any other section of this great State.

The counties of BRISCOE, CHILDRESS, FLOYD, HALL, and MOTLEY, are situated on the head-waters of the South Fork of the Red and Pease rivers, which, with their tributaries, afford an ample supply of good water. The country is generally a rolling prairie, with a fringe of timber along the streams. Its soil possesses every requisite for making this a good agricultural section of country.

The counties of STONEWALL and KENT are on the head-waters of the Brazos River. The surface of the country is rolling, and in places broken. Double Mountain, near the centre of Stonewall county, has an altitude of some 3,000 feet. The soil of the valleys is rich, and timber is found along the streams. These lands are well adapted to, and will soon be sought after for grazing purposes.

The surface of the counties of MITCHEL, SCURRY, TOM GREEN HOWARD, BORDEN, DAWSON, MARTIN, and ANDREWS, is a high rolling table-land, occasionally broken and hilly. With the exception of Andrews and Dawson they are well watered, containing as they do the head-waters of the Upper Brazos, Colorado, and the Conchos.

In them are found many spring-fed ponds of pure water, as well as salt and sulphur springs. The soil is good, and nearly the entire country is covered with a luxuriant growth of mesquite and other grasses.

Timber is found along the streams, and on the highest ridges fine forests of cedar exist. The mesquite tree, which affords an excellent fuel, is fast encroaching upon the prairies. Coal, iron, copper, and other minerals have been discovered, and it is believed exist in large quantities here.

The greater portion of this section of the country is as yet unoccupied, but along the valleys of the Concho, in Tom Green county, numbers of farms and large stock ranches have lately been opened.

All of these counties are as yet unorganized, with the exception of Tom Green. The county seat of the latter is Ben Ficklin, a small but enterprising frontier town near the military post of Fort Concho.

Edwards, Crockett and Demmit are situated in the southwestern portion of the State.

The immense territory included within the three counties of Pecos, Presidio, and El Paso embraces all that portion of the State between the Pecos and Rio Grande rivers. This territory is traversed by several well defined mountain ranges, notably the Guadalupe, Sacramento, Organ, and Chinati. Between these mountains are extended valleys, which with their rich grasses and numerous streams and water-holes afford an immense natural pasturage and grazing country, unsurpassed on the continent. Along the Rio Grande, Pecos, Toyah and other streams in this section are found extensive valleys of rich fertile lands. Portions of the mountains are covered with a growth of large timber, consisting of pine, mountain juniper, and the several species of oak.

It has been well known for a long time that several of the precious metals existed; but to determine whether or not in paying quantity, during the past season an expedition, organized at the expense of several railway companies of Texas, was sent out, and made an extended exploration of that section, and with quite satisfactory results.

In the report of E. S. Nichols, chief of the party, it is stated: "In addition to silver-bearing quartz leads, we found others—argentiferous galena, bismuth and copper—all well defined. Further, that of the specimens examined, the yield of silver per ton of the ore was from 10 to 160 ounces (ton 2,000 pounds). Selected specimens in one or two instances yielded as high as 300 ounces per ton."

Within two years the Texas and Pacific Railway will open to the world this vast territory, rich in mineral wealth, and blessed with a health-giving and invigorating climate. In the northern portion of El Paso county extensive salt lakes and flats, which have long been famed for their inexhaustible quantity and fine quality of salt, are found. They are extensively worked at the present time and have been for a long time past. From here a large part of northern Mexico obtains its supply of this article.

Along the valley of the Rio Grande there are quite a number of towns of considerable importance. El Paso, San Elizario, Ysleta, and others might be mentioned. The other settlements are near the military posts of Bliss, Quitman, Davis, and Stockton.

The attention of capitalists is already looking in this direction, and even in advance of the locomotive, large investments are now being made.

The railroads of Texas are anxious to secure the settlement of their lands, and are offering inducements to immigrants in the way of cheap prices and long terms. Much of their lands are of the finest kind, both for agricultural and pastoral purposes. The low prices of these lands afford splendid opportunities for large investments of speculative capital.

THE GULF, COLORADO AND SANTA FE RAILWAY.

In 1873 the enterprising citizens of Glaveston felt that it comported with neither the dignity nor with the interest of the chief seaport of the Gulf, to depend for all connection with the railway system of the country on a single line of road. The Gulf, Colorado and Santa Fe was projected, with the Galveston on the Gulf for its initial point, and Santa Fe, New Mexico, for its destination. Realizing the truth of the maxim that "the gods help those who first help themselves," the projectors of this enterprise built, equipped, and operated the first sixty-four miles before going into the money markets of the world for that aid which most roads ask before the first spadeful of dirt is thrown. The Gulf, Colorado and Santa Fe crosses from Galveston city, on Galveston Island, to the mainland, on a bridge two miles in length; passing through the rich bottom lands, it crosses and makes connection with the International and Great Northern at Arcola. Maintaining the general direction to the west of north, it intersects the Galveston, Harrisburg and San Antonio at Richmond, in Fort Bend county. Next it makes connection with the Austin branch of the Houston and Texas Central at Brenham, in Washington county. Then it again crosses the International and Great Northern at Malino junction, in Milam county, and thence to Belton, in Bell county, where a connection will be established with the Mexican extension of the Missouri Pacific.

At Belton, or rather at a station called Temple, six miles south of that point, the road forks, one branch going northeast through McClellan, Bosque, and Johnson, to Fort Worth, in Tarrant county, where it will intersect the Texas and Pacific, and establish a through connection to the north by that route and the Missouri Pacific road.

The other fork will go to the northwest through Coryell, Lampasas, and other counties in the direction of Santa Fe. This will be the main or trunk line of the road. It may be added in this connection that the Gulf, Colorado and Santa Fe has constructed and is operating 225 miles of road, and has all the financial arrangements made for the building of 180 additional miles, which will include the whole of the Belton and Fort Worth branch and —— miles on the main line.

GALVESTON COUNTY.

(*Area*, 673 *square miles*. *Population*, 24,126.)

The initial point of the Gulf, Colorado and Santa Fe is Galveston, in Galveston county.

The city so much overshadows the county, that the latter has been neglected, and its value under-estimated. Like all the coast counties of Texas, Galveston is low, but it is composed of rich alluvial lands, which not even the Delta of Egypt can exceed in fertility. They are excellently adapted to the cultivation of all market vegetables and produce, which command ready sale and high prices, not only in the city markets, but also for the supply of the fleet of steam and sail vessels which are daily arriving and departing from the port in annually increasing numbers and tonnage. The lands along Oyster Creek, Chocolate Bayou, and other waters are also adapted to the culture of sugar and cotton. There are none better. One who has any respect for his reputation, had best not tell the whole truth with regard to vegetable growth on these alluvial bottoms.

They are well adapted to the culture of that valuable and peculiar quality of cotton known as "Sea-Island." It has been grown for many years by Judge Jones, of Virginia Point.

Tucker and "Twenty-mile Tank" stations within the geographical boundaries of Galveston county, are already becoming important points for the shipment of produce and cattle northward. What is true of these few lands in Galveston county, is true of large quantities in other counties. New potatoes can be dug from the open ground, or "free lands" as the German gardeners call it, for nine months of the year. Peaches can be plucked from off the trees from May till October. Ashbel Smith, formerly minister from the Republic of Texas to France, gathers luscious strawberries from his grounds at Evergreen, in February. Captain Kipp, at Clear Creek, has his boat loaded with peas, beans, and such like toothsome reminders of early spring, while New Yorkers are listening to the exhilarating music of sleigh bells. This is done within forty-six hours schedule time of St. Louis. What an opportunity for profitable truck farming! We shall be asked if these lands are healthful. We answer, by the standard of Texas health "they are not." So far as we are advised, it has never pleased an allwise Providence to make a piece of rich alluvial bottom land, which will not, when stirred by the plough, give forth its malaria. There is in this section just as much malaria and it gives rise to as many fevers and as much ague as do the lands of New Jersey, Maryland, and Virginia, and no more. If a man from a pure and healthful section going into these bottom lands, intends to live on pork and black coffee, and sleep within three feet of the soil, it will be best that he should carry with him a quinine bottle. But if he will build his house on a hill, sleep upstairs, and live upon such food as civilized men enjoy, he will be as healthy there as anywhere else. Texans call these sections "unhealthy," because in them a man may by neglect and imprudence become sick, while in by far

the larger portion of the State he cannot secure an attack of fever and ague even by vigorous and persistent effort.

GALVESTON CITY is situated upon a narrow island of sand, which affords a site for one of the most delightful cities and convenient seaports in the world. Galveston Bay, which is at some points not more than two miles wide, separates it from the main-land. Upon this lovely island, surrounded by the pure waters of the Gulf, which are filled with fish and oysters, Galveston City is located. Its streets are straight and square, as surveyor's compass and carpenter's rule could make them. It is called by the pet name of the "Oleander City," for its streets are lined with this gorgeous plant in almost the perpetual bloom of summer, not a thing of beauty alone but of utility, doing duty as a shade tree.

With nothing are strangers more surprised than the salubrity of the atmosphere; surrounded as it is by water and fanned every night by the cool breezes of the Gulf, the heat is only on rare occasions at all oppressive. Those who, even at Saratoga and the springs where weary people resort, have sweltered the live-long night in restless despair and risen in the morning "miserably refreshed," can appreciate the happiness of Galvestonians who have a home where the heats cease from troubling and the weary are at rest. It is a clean, nice city, and is well kept. In 1867, fourteen years ago, when Galveston had not been fully washed from the filth of war's accumulation, the yellow fever came and carried away many people. It was brought there, for the fever never originates where there is frost—and there is frost every winter in Galveston. The lesson then taught has not been neglected—an efficient quarantine guards the city, while health officers within enforce a rigid cleanliness that would carry comfort to the untainted senses of a Quaker matron. Nor is it merely the outside of the platter which is cleansed, even the unthrifty are compelled to use soap, water, and lime, in abundant profusion. The yellow fever has been brought there since, just as it has been brought to New York and every other commercial port; but it does not stay, for there is nothing on which it can feed.

As a winter resort it would be difficult to find the equal of Galveston. Her beautiful beach offers one of the finest drives in the world, while her winter climate is about as near perfect as any man has found since the gates of Eden closed behind the ejected Adam. Besides these natural benefits, the winter visitor has all the advantages of a city residence, with all the modern conveniences of street cars, telegraph lines, gaslight, a fine opera house, excellent newspapers, and all the facilities and comforts which go to make up modern city life.

But it is with Galveston as a commercial point that we are at present interested. A few figures extracted from the last commercial statement of the *Galveston News* will give some idea of the commercial magnitude of Galveston. The figures are for the year ending July 31, 1880:

Foreign merchandise received	$ 1,271,084
Merchandise exported to foreign countries	16,481,505
Duties collected on foreign merchandise	424,802
No. of coastwise vessels entered, 306; tonnage	286,801
" " " cleared, 355 "	294,523
" foreign trade vessels entered, 195 "	117,972
" " " cleared, 173 "	99,006
Cotton bales received	580,352
Coffee bags handled	85,000
The population of Galveston the last census	22,253

It may be remarked in this connection, that large as these figures are they afford but a slight indication of the magnitude to which her trade will attain when an increased depth of water shall afford ships of larger draught to approach her wharves. Congress has already made appropriations, and it is believed that an ample fund will be set apart for that purpose. When this shall have been done and a proper depth of water secured, the business of Galveston will increase a hundred-fold. This is demanded not only by the people of Texas, but by the entire new west, which insists upon having a convenient port on the Gulf, for the export of their grain and other products.

Colonel Mansfield, the eminent engineer in charge of the government works at Galveston, is confident of his ability to secure a permanent depth of twenty-six feet of water on the bar, within two years' time. This will place the products of the new west a thousand miles nearer a practical seaport than they are now.

The steady increase in the character and importance of Galveston's export and import trade will undoubtedly assert itself before long in forcing proper recognition at the hands of the general government. It may safely be stated that there is not another port in the country laboring under equal or similar disadvantages, that returns to the federal treasury as handsome a revenue as does the port of Galveston. If such conditions exist under present drawbacks, what proportions would not the port assume with the necessary harbor facilities which the outlay of a certain sum of money would be certain to secure? The *News* has been furnished with statistical data from the custom-house records of the port, prepared by the acting collector, Mr. Wm. D. Shepherd, which will be found quite interesting. The amount of duties collected on imports at the port of Galveston, during the year ended December 31, 1880, were:

Duties on railroad iron	$572,262.08
Duties on all other articles	218,610.28
Total	$790,872.36
Amount collected from July 1 to December 31, 1880	$585,225.29
Amount collected from January 1 to January 15, 1881	100,227.27
	$685,452.56
Probable collections from date to June 30, 1881	315,000.00
Probable duties for fiscal year ending June 30, 1881	$1,000,452.56

The tonnage tax collected at the port of Galveston during the year which ended December 30, 1880, amounted to:

January	$1,072.50
February	1,102.80
March	109.20
April	796.80
May	302.70
June	769.20
July	1,197.30
August	847.80
September	4,161.30
October	1,723.20
November	6,470.70
December	4,348.50
Total	$22,902.00

The following is a statement of entrances and clearances of vessels in the foreign trade during the year which ended December 31, 1880.

ENTERED.

	No.	Tons.
Ocean steamers	49	81,345
Sail vessels	149	66,321
Total	198	147,666

CLEARED.

Ocean steamers	42	71,117
Sail vessels	120	42,088
Total	162	113,205

A general statement of articles exported to foreign countries—the growth, produce, and manufacture of the United States—from the port of Galveston, during the year ended December 31, 1880, shows that of cotton there were 317,292 bales, the money value of which is placed at $18,474,415; oil cake, 13,609,888 pounds; cotton seed, 399,841 pounds; flour, 950 barrels, and some miscellaneous articles, the whole representing a total value of $18,613,950. The countries to which the exports were made were England, Germany, France, Italy, Ireland, Russia, Netherlands, Sweden, Scotland and Mexico. The principal imports at the port of Galveston for the year ended December 31, 1880, consisted of 2,467,256 pounds coffee; 50,288,689 pounds railroad iron; 19,443,866 pounds steel rails; 50,740,455 pounds salt; 17,154 gallons wine, and other miscellaneous articles, the whole representing a money value of $1,855,421. The imported articles came from Belgium, Brazil, England, France, Germany, Mexico, Scotland, Holland, Italy, Portugal and Spain. It will be seen that imports are not proportioned to exports, the former in value being little more than one-tenth of the latter. The exhibit, which represents essentially the foreign trade of the port, is fairly satisfactory to Galveston. A port that returns annually over $1,000,000 to the federal treasury for customs duties alone, is seemingly

entitled to adequate harbor facilities. Given these, and Galveston would immediately become one of the most important maritime stations on the American seaboard.

Adjoining Galveston county is Brazoria, which has already been described among the counties on the line of the International and Great Northern railroad.

The first station in Brazoria of the Gulf, Colorado and Sante Fe is MUSTANG, at which point are received the products of that rich country bordering Halls Bayou and Mustang Slough.

The next station is CHOCOLATE BAYOU, which is located in a rich country.

At ARCOLA, which is the first station of the road in Fort Bend county, a junction is made with the International road. The business of the road at this point must of necessity be large. The depth of the alluvial soil at this place is from twenty-five to fifty feet. It is estimated that the average sugar crop of the county is two hogsheads of sugar and four barrels of molasses to the acre, while the cotton production is one bale, and the corn crop fifty bushels to the acre.

The villages and towns of Arcola, Brazoria, Columbia, Sandy Point, China Grove, Chenango and Oyster Creek, will all depot at Arcola Junction.

FORT BEND COUNTY.

(*Area*, 889 *square miles. Population*, 9,380.)

The Brazos River flows through this county. Its course is so tortuous that it is nearly double the length of a direct line. The famous Brazos River bottoms are about six miles in breadth, and the soil, which is entirely alluvial, is from twelve to fifteen feet in depth. It is of red and of chocolate color; the former is stiff, the latter loamy and easily tilled. The bottom is heavily timbered with a variety of oaks, pecan, elm, ash, cottonwood, mulberry and numerous kinds of timber of smaller growth. Vines of various kinds attain a large size, frequently forming a complete network among the branches of the trees. Canebrakes formerly existed, but they have been nearly all destroyed by the cattle. Running nearly parallel with the Brazos is Oyster Creek, a sluggish stream, containing in dry weather but little water above the influence of the tides. The lands upon this creek are unsurpassed in fertility, and finely adapted to the culture of sugar and cotton. Away from the timbered bottoms, prairie alone is found, with now and then motts of post-oak scattered over its surface, the soil being of a light, sandy character, producing good crops when cultivated.

Mr. W. P. Quigg has been for some years one of the largest sugar planters in this section. He cultivates several hundred acres of the sweet staple. He states:

"I consider the Brazos and Oyster Creek lands to be the best in the State. They produce abundantly, and are very easy to cultivate.

"The land is a rich reddish alluvial soil, mixed with small shell. The soil is so deep that I have seen wells dug thirty feet, that at the bottom being as that on the top. The chief products are corn, cotton, sugar-cane, sweet and Irish potatoes.

"The average yield of corn is from fifty to seventy-five bushels; of cotton, from one to one and a half bales; of sugar, fifteen hundred pounds and ninety gallons of molasses; of sweet potatoes, from two hundred to three hundred bushels; peaches are a safe and abundant crop; plums and grapes flourish luxuriantly. There is an abundance of timber for all purposes—ash, oak, elm, box-elder, hackberry and wild peach. The depth of timber from the river to the prairie will vary from three to five miles. The prairie furnishes plenty of fine grasses for summer pasturage, while the timber bottom lands afford protection from the northers and bad weather, with plenty of grass all winter. I have been planting for six years, and I make this statement from actual experience. I have never found any difficulty in procuring all the labor I wanted, and I have taken off four hundred bales of cotton, two hundred hogshead of sugar, and corn without limit. Corn has a ready sale at fifty cents."

In this connection, it may not be improper to give the testimony of one whose national reputation and extensive travel gives great weight to his words. In July, 1872, the Hon. John W. Forney made a journey through Texas, and in his letter to the Philadelphia *Press*, published on the 15th of that month, he thus describes a Texas prairie: "After pulling through some twenty miles of sand and morass, we gradually ascended the plateau, and for the first time met the Texas prairie. I wish I could fitly describe the scene and its effect upon my companions. As I have since noted by the Philadelphia and New York papers, you were then smitten down on the streets, or driven into your homes, by the dreadful heat, yet here, twenty-five hundred miles from Philadelphia, in the extreme southwest, we rested our horses and mules upon an elevation which commanded an aspect unspeakably glorious. Far as the eye could reach there was nothing but living grass, interspersed with groves. Herds of cattle, oxen, and horses were browsing on the rich pasturage, their flowing manes and tails waving in the free air. I felt as I have often felt after leaving Philadelphia on a Saturday afternoon for the healthy breath of old ocean at Cape May, Atlantic City, or Long Branch. We literally bathed in the wholesome atmosphere. A striking contrast was presented between our trying rides over rough roads and the heavenly zephyrs that coursed around us on this peerless prairie. Not the level and carefully macadamized paths of Fairmount Park at Philadelphia, the Druid Hill Park at Baltimore, nor the Central Park, New York, surpass these natural boulevards. Differing from the western prairies in the fact that they are still undisturbed by population, save where, here and there, some enterprising settler has already built his home, as if to wait for incoming population, you ride on and encounter an occasional grove of well-watered timber."

This testimony, from one who is not given to romancing, will meet the hearty assent of every tourist.

RICHMOND, the seat of Fort Bend, is handsomely situated on the west bank of the Brazos. It has two railroads, the Galveston, Harrisburg and San Antonio, and the Gulf, Colorado and Santa Fe. Its population is about 2,500. Richmond is liberally supplied with churches, the Catholics, Methodists and Baptists all have excellent and sightly buildings. There is also a Presbyterian church. There are several excellent schools.

The health of this section is excellent. Dr. Joel W. Pierson, of Richmond, says: "I have practised medicine on the Saluria, in South Carolina, and on the Brazos in Texas. The ratio of sickness is as one to five in favor of this region. We have no typhoid fever and very little pneumonia. Dysentery and chills and fever are the chief ailments, and they are easily treated.

A visitor to the Pomological Fair held at Houston in 1878, writes: "I have a strong notion of going over to Fort Bend county to reside. She laid everything in the shade. Her exhibit of products was imposing: sugar-cane, corn, cotton, fruits and melons of all kinds; thirty-six different varieties of native nutritious grasses; fifty-four varieties of timber cut from her forests; a world of the most beautiful honey ever seen; specimens of her rocks and specimens of her soils. It was the finest exhibit by a single county I ever saw. It reminded me of Kansas at the Centennial. Mr. J. W. Eckman, of Richmond, had charge of her department. He told me that from seventy-one swarms of bees he has sold, so far this year, three tons of honey, and will sell another ton yet."

The society though scattered is very good, refined and cultivated. The men may often appear in somewhat rough exterior, particularly with regard to garments, etc., but the ladies are, in almost every instance, very gentle and well-bred. The planters are nearly all rich.

On the prairies there are very few settlements, these being the ranches of the stockmen.

Leaving Richmond, the road passes through the rich Brazos valley, a distance of nineteen miles to the county line, between Fort Bend and Austin counties.

AUSTIN COUNTY,

(*Area*, 711 *square miles*. *Population*, 14,429.)

Which adjoins Fort Bend, is geographically and physically one of the most important in the State. Its situation is at the verge of the great timber belt that covers the eastern portion of the State, and at the intersection of the high table-lands of the north and west, and the lower coast country. About one-fourth of its area is timber land, chiefly post-oak, ash, and elm. It affords a variety of products and industries that attract to it a large immigration. Its gradual rise of about three hundred feet from the level prairie of its southeast portion, to the grand rolling hills that cover its northwestern section, indicates the watercourses that flow through its entire length, and that are supplied by numerous affluents. The Brazos River is the principal stream, whose rich lands have already been described.

Mill Creek is a large tributary. This county has water in unusual abundance. Its railroad facilities are excellent.

The Houston and Texas Central runs near its eastern boundary, the Galveston, Harrisburg and San Antonio near its southern, while the Texas Western Narrow Gauge, and the Gulf, Colorado and Santa Fe cross it in different directions.

All the native grasses are abundant and nutritious. Several of the streams afford water-power. The towns of the county are Bellville, with its population of 1,000, Industry 500, Semferonius 200, Cat Springs 200, Milheim 250, San Filipe 100, and Seely 100.

A large portion of the population of Austin county are Germans, who by their industry, thrift, and energy have added largely to its development and increased its wealth.

WASHINGTON COUNTY.

(*Area*, 650 *square miles*. *Population*, 27,584.)

Washington is bounded on the east by the Brazos, and on the north by Yegua, an affluent of that river. The whole county is splendidly watered and timbered. The climate is salubrious and healthy. The summer heat is tempered with the delightful breezes of the Gulf, and the winters are mild and genial. The average of the soil is excellent, while by far the larger portion is very rich and productive. About one-third is timber and two-thirds are prairie.

The products are chiefly corn, cotton, sugar-cane. Sorghum, wheat, barley, oats, Irish and sweet potatoes, and all kinds of vegetables. Fruits in great variety and of superior quality are produced in abundance. There are three large nurseries in the county, doing an excellent business. The average yield of corn is said to be thirty bushels, and the cotton production one-half a bale to a bale.

Along the river valleys the timber is in great variety and very heavy; between the skirts of timber are the grand prairies, covered with rich and nutritious grasses, upon which stock feed the whole year.

BRENHAM is the chief city and county seat. It has a population of about 5,000. It is here that the Gulf, Colorado and Santa Fe intersects the western branch of the Houston and Texas Central. Churches and schools abound, and are well supported throughout the entire county. It would be difficult to name a more pleasant and thriving inland town than Brenham.

The public free school privileges of Brenham are equal to those afforded by any city in the Union. The State funds being largely augmented by local taxation voluntarily assumed. A large portion of the population of Washington county is German—frugal, thrifty and prosperous.

WASHINGTON is situated about twenty miles northeast of Brenham. It has a population of 300. It was for a short time the capital of the Texas Republic.

INDEPENDENCE is a scholastic town about twelve miles from Brenham, and has a population of 400. Baylor University is located at Independence.

GAY HILL is a small but thriving village about nine miles from Brenham. Long Point, Burton, and Berlin are also promising towns.

At CHAPPELL HILL, which has a population of 800, Soule University and a female college of marked excellence are located.

BURLESON COUNTY.

(*Area*, 651 *square miles*. *Population*, 9,242.)

Lies north of Washington, and differs materially from that county in that it has more timbered lands. The timbered lands embrace nearly three-fourths of the county, the rest being level and gently undulating prairies. The Brazos River is its eastern boundary, and the Yegua its western—both with many tributaries flowing through the county. The bottoms of the Yegua and Brazos are very wide and as "rich as Egypt;" the prairie is black sandy loam, and in a large portion of the upland woodlands it is the same. Cotton is the great crop, but corn, oats, barley, and wheat are extensively grown. Like all other counties of this part of Texas it is a fine one for fruit, especially for peaches and grapes. This is a fine county as respects its soil, products, and people, who are nearly altogether Americans. Until latterly the county has not been much progressive, on account of its comparative isolation from railroads; but the Gulf, Colorado and Santa Fe now crosses it centrally from south to north, and a large upward movement has been given to it. Lands are advancing, but unimproved may still be purchased at cheap figures. The bottom lands, improved and unimproved, range from $10 to $25. Caldwell is the county seat, and principal shipping point. A very attractive rural town of about 1,000 people. Burleson is a great mast county, and fine for hogs.

The next county north of Burleson is Milam, in which the Gulf, Colorado and Santa Fe railroad intersects the International and Great Northern railroad. Milam is described along the line of that railway. That section of the county traversed by the Gulf, Colorado and Santa Fe Railway is one of the finest and richest portions of Texas, and is in the exact latitude for the perfect maturity of cotton. Cotton is a certain crop, year after year, upon these lands. Grain, fruit, and all vegetable crops grow well. The lands are easily cultivated. They are of the dark brown and gray loam, and adapted most admirably to varied agriculture.

BELL COUNTY.

(*Area*, 1,025 *square miles*. *Population*, 20,520.)

It has an elevation of 700 feet above the level of the sea. The Gulf, Colorado and Santa Fe Railway traverses it from north to south, and the Mexican extension of the Missouri Pacific, from the northeast to the southwest crossing in the town of Belton, which is

the county seat. Here the Gulf, Colorado and Santa Fe branches, the main line running a northwesterly direction, and the branch turning northeast to Fort Worth. The facilities for transportation in all directions in this county will be easy and convenient. Bell county is one of the best agricultural counties of the State, and is settled by intelligent, industrious, thrifty, and independent farmers. The farms are generally small. The lands are of a black-waxy and brownish loamy character, rich in vegetable matter, lime, and magnesia, highly adapted to a great variety of productions, and are easy to cultivate. Nearly every variety of production of the farm and orchard is cultivated and grown in some part of this county. The great staple crops, cotton, corn, wheat, rye, barley, oats, and grasses of various kinds mature well. Fruits, such as peaches, pears, plums, and berries do well. Tobacco, though not cultivated for market, is often grown for home consumption and always does well. The lands of this county are excellent for wheat and oats.

The southern and eastern portions of the county are gently undulating prairies and exceedingly rich. Along the eastern line, adjoining Falls county, the soil is very black and deep. The northern section is broken into high rocky hills, with beautiful valleys. Noland's Creek valley, in the northern part of the county, is indeed a picturesque scene. It is walled in upon all sides, except the narrow pass on the south, through which flows a rushing mountain stream of pellucid water, bounding from crag and rock on its way to the Gulf. The valley is about six miles square. The hills upon its edges rise from one to two hundred feet high, sometimes in perpendicular form, the white cliffs glinting back with peculiar radiance the glorious sunshine that flames in the track of the sunset. This valley is dotted with the neat cottages of thrifty husbandmen. Here, too, are the churches and school-houses, lodges and granges for religious worship, mental and social improvement. This valley at the head of this beautiful stream, with its rich agricultural soils and its surrounding mountains for pastoral ranges, is one of the most charming fertile spots in Texas.

The principal watercourses of Bell county are the Salado, the Lampasas and the Leon, which uniting just below the town of Belton form Little River. The Lampasas and Leon rivers are real mountain streams with high rocky banks. There are upon these rivers splendid water-powers, that will ere long whirl the wheels of numerous manufactories. This is a well-watered county. Timber is also sufficient in most parts of the county. Unimproved lands sell from $2 to $7 per acre, improved lands from $10 to $20 per acre.

BELTON, the county seat, is a thriving town of about 2,500 population, and is the junction of the Gulf, Colorado and Santa Fe and the Mexican branch of the Missouri Pacific railways.

CORYELL COUNTY.

(*Area*, 960 *square miles. Population*, 10,924.)

About two-thirds of the area is tillable, and the balance adapted to stock ranges. The county is finely watered; the Leon and Cow

House rivers, with numerous branches running through it from northwest to southeast, with a great number of springs, and opportunities to obtain good well-water at from ten to forty feet in depth in any part of the county.

The surface of the county is undulating, two ranges of hills extending through it, which in many places are from one hundred to two hundred feet in height, affording ample drainage. A portion of the county is lightly timbered, but sufficiently so for the purposes of fencing and domestic uses.

The soils range from a rich black prairie to productive bottom lands; and yield large crops of cotton, corn, oats, wheat, potatoes and all kinds of vegetables, and considerable fruit and grapes in abundance. The grasses are plentiful and nutritious, affording support for stock at all seasons of the year. Along the streams there are advantageous opportunities for small farmers to cultivate from twenty to one hundred acres of land, and in addition have a stock range that will yield substantial profits.

The climate is desirable, being uniform in temperature, healthy and invigorating from the Gulf breeze. It has an elevation of about nine hundred feet and the rainfall has a good average.

GATESVILLE is the county seat, and is beautifully situated on the Leon River, near the centre of the county, and has an enterprising population of about 800. It is forty miles west from Waco, and has excellent schools, several churches, and other advantages usual to towns of that magnitude.

CORYELL CITY, JONESBORO and EAGLE SPRINGS, are smaller towns in other sections of the county, all of which have good educational facilities, and are rapidly growing. There is an excellent court-house at Gatesville, which cost $25,000, and is all paid for.

Before this meets the eye of the reader, the Gulf, Colorado and Sante Fe will have entered the county, which will put on renewed activities.

LAMPASAS COUNTY.

(*Area*, 858 *square miles. Population*, 5,421.)

Upon the high rolling prairie which constitutes the divide between the Colorado and Brazos rivers, is situated the County of Lampasas. The Colorado River traverses its western boundary. It is nearly evenly divided between timber, prairie and valley lands, while some portions of the county are hilly and mountainous. There is considerable timber along the streams and valleys, chiefly scrub oaks, which yield an abundant supply of mast. The other varieties of timber are in quantities for domestic and fencing purposes.

The water supply is ample and excellent, the western section being traversed by the many tributaries of the Colorado River, while the Lampasas River flows through its eastern portion, having numerous creek affluents.

Springs and wells abound throughout the county. The more notable among the springs is the White Sulphur, which are located

in and around the town of Lampasas, and are celebrated for their healing properties. These springs are perhaps the largest of the kind in the United States, and offer a most desirable summer and winter resort. These springs are situated upon high table-lands and merit a more extended notice than the dimensions of this article will admit. The waters are health-giving and the scenery beautiful. When railroads shall have brought them within easy access, they will become fashionable resorts for people of wealth and invalids. This will soon occur, for before January, 1882, the Gulf, Colorado and Santa Fe, will have been constructed through Lampasas county.

The soils range from a very productive alluvial to a light sandy, while in sections there is more or less of the black waxy and chocolate soils. The products are chiefly cotton, corn, and every variety of the smaller grains. Grapes and fruits do fairly well when cultivated, and vegetables are in abundant supply. The prairie lands produce an excellent quality of grass, which are very nutritious and offer great inducements to stock raising, which is the principal industry, and is being greatly enhanced by the improvement in the breed of stock. The advantages for sheep husbandry are all that could be desired. The county has an elevation of 1,600 feet above the sea level; the temperature is uniform and has a yearly average of about 66 degrees, and the rainfall is a good average.

LAMPASAS is a growing and prosperous town, having a population of some one thousand ; it is well supplied with schools and churches, which are liberally supported. It is upon the Sulphur Fork of the Lampasas River, and, as has been stated, is surrounded by the famous Sulphur Springs. The society in this county is excellent, the people industrious and intelligent, and the immigrant is offered a hospitable welcome. Unimproved prairie lands are valued at from fifty to seventy-five cents per acre, and farming lands range from one to five dollars per acre, which can be bought upon easy terms, usually one-third cash and the balance in one and two years.

HAMILTON COUNTY.

(*Area*, 977 *square miles*. *Population*, 6,365.)

This county is situated a little north of the geographical centre of the State. Its northeastern section is watered by the Leon River and its numerous upper branches. The southwestern portion of the county is supplied by the Cow House, Lampasas, Bosque, Ben, and other creeks. About one half the land is pastoral and nearly one half arable; this latter is the stiff black or alluvial valley. There is some timber, probably one-fifteenth of the county area, being chiefly varieties of oaks, pecan, and elm. The productions are corn, wheat, rye, oats, cotton, and all kinds of vegetables. Fruits and grapes do well. On the prairies the grass is nutritious and abundant.

This county from its surface configuration makes it admirably adapted for small independent farmers. The chief agricultural lands are the beautiful valleys from one half to a mile wide, which are found everywhere upon its numerous watercourses, while the broken

hills and mountain ranges afford excellent pastoral advantages for their flocks and herds. This county is settled by a hardy, healthy and sturdy yeomanry, and the peculiar advantages of country have lead them to practice to a high degree mixed husbandry. Lands are cheap, and the water supply abnndant.

The stock range is so large and excellent, that stock raising is the chief pursuit. The elevation of the county is 1,650 feet above the sea level, and the average temperature sixty-five degrees. The average rainfall is about thirty-four inches. The Gulf, Colorado and Santa Fe road touches the southwestern corner, and the extension of the Central cuts the extreme northeastern corner.

BROWN COUNTY.

(*Area*, 1,207 *square miles*. *Population*, 8,415.)

Brown is abundantly supplied with post-oak timber for fencing and other necessary purposes, and so situated as to be accessible to almost every tract of land in the entire county, and in addition there are found in the valleys in great abundance, the elm, hackberry, pecan, cottonwood, dogwood and mesquite.

For rock suited to every purpose almost imaginable Brown county cannot be surpassed. There are immense quantities of lime and sandstone, of various descriptions, cropping out of the hills, of the rough lands, which are already being used in the building of houses, barns, fences, etc., to great advantage. There is already a grindstone manufactory in successful operation at the county seat, as also, a tombstone establishment where monuments, etc., are made in a surprisingly close imitation of marble. The stone used in the latter is magnesia limestone, which when first quarried is soft, devoid of grit and susceptible of being as readily cut, sawed and planed as any white pine ; yet when exposed for a time to the atmosphere, becomes very hard and difficult to break. Bituminous coal is said by the State geologist to exist all over the county and is frequently found in the beds of the streams, yet only one mine has been opened so far. Brown county, without exaggeration, can be said to be extraordinarily well supplied with water, both for man and beast. Pecan Bayou, estimating its meanderings, runs in a general direction from northeast to southeast about 100 miles through the county ; the Jim Ned is nearly equal in size to the Bayou, also the Delaware, Clear, Salt, Hog and Blanket creeks, none of which have been entirely dry, in the knowledge of the oldest settler. After these come David's, Mullen's, Brown's, Buffalo, Pompey, Turkey, and Indian creeks, and various other streams, which contain water usually the entire year, and lastly the Colorado River, for a distance of thirty-five miles, skirts the southern border. There are various springs in different portions of the county, and a living well can be found almost anywhere for the digging ; in proof of which statement there are four inexhaustible wells, the water ranging in them from twenty-four to thirty-six feet in depth, on and very near the public square in the county town, and the water of the very best quality. The soils are a sandy

loam, dark, red, and chocolate, and ploughs used in turning them scour very readily. The valley of Pecan Bayou averages from three to five miles in width, and for inexhaustible fertility is not surpassed by any other lands in the broad State of Texas. The primary soil is from eighteen to thirty-six inches deep, rests on a clay foundation, and will readily produce, in ordinary seasons and with proper care, from 25 to 50 bushels of corn, from 15 to 25 bushels of wheat, from 40 to 60 bushels of oats; from 60 to 100 bushels sweet potatoes; from 75 to 125 bushels onions; and from ½ of a bale to 1 bale of cotton to the acre. The valleys of the Colorado and other streams, are very wide, and produce crops of the same kind and about the same quality as the Bayou valley. The post-oak uplands have the same clay foundation, but not more than half the depth of soil, and will yield under the same circumstances, ¾ as much as the valleys. Vegetables of several descriptions do very well, and it is believed that when farmers from the older States get sufficiently used to the soil and learn how to plant and cultivate it, that almost any kind of vegetables and fruits common to Missouri or Illinois will be grown successfully and profitably.

The range is unsurpassed; horses, mules, cattle, sheep, goats, and hogs, not only live, but remain in good condition the entire winter. The butchers, never think of killing a beef fattened on grain; even in December and January, the meat fattened exclusively on the mesquite grass compares favorably with that of any other country in the world. As proof of which we cite the successful and profitable shipping and sale of Texas beef, in the Liverpool and London markets. Hogs are very healthy and prolific, and usually fatten on the mast.

The weevil, so destructive to corn and other grains in some of the Southern States, does no damage in this section, and corn can be kept from year to year without difficulty. In the western part of the county, there are plenty of antelopes, and all over the county an abundance of deer, wild turkey, two kinds of rabbits, quails, prairie chickens, etc., and at intervals, the common black bear, is killed or captured. The seasons are as good as in Missouri or Illinois, and those who do their duty towards the soil, usually reap suitable and abundant rewards. The winters, on an average, last about three months, and the storms denominated northers, are simply severe and very cold winds from the north, rarely lasting three days, and not worse than wind storms that are experienced by the writer in Missouri and other States.

The price of good tillable lands, as they are situated on upland or in valley, range from $1 to $3 per acre unimproved.

In 1870, the United States census made the population of Browne county, including Brownwood the county-seat, about 550 persons. Immigrants are still pouring in at a rate impossible to realize by persons outside of Texas. They constitute a truly cosmopolitan population, coming as they do from every part of the habitable globe; Germans, Swedes, Norwegians, Danes, English, Irish, Scotch, French, etc., and representatives from every State in the American Union.

They are usually persons who come here to procure cheap homes and develop with the country, or men who desire to purchase large tracts of land upon which they can comfortably locate their entire families, being unable to do so in the older States, on account of the high price of lands. As a general rule, the people here are intelligent, industrious, economical, and morally and religiously inclined.

BROWNWOOD, the county seat, is situated very nearly the centre of the county, and about one half mile distant from Pecan Bayou. Its population, that two years since was hardly 400, is now as hereinbefore stated, fully 1,300 people and rapidly increasing. It contains 8 dry-goods and grocery establishments, 5 grocery and provision stores, 2 drug stores, 1 stove and tin shop, 2 livery stables, 3 hotels, 2 restaurants, 1 bakery, 1 gunsmith and 3 black smith shops, 1 wagon shop, 2 lumber yards, 14 lawyers, 9 physicians, 3 real estate agencies, 2 saddler and harness makers, 2 saloons, 2 furniture stores, 10 butcher shops, 1 marble shop, 1 art gallery, 1 paint shop, 1 dental office, 1 jewelry store, 2 boot and shoe shops, 1 printing-office, 5 church organizations, to-wit: Baptist, M. E. South, Christian, Episcopal, Cumberland and O. S. Presbyterian, 1 high school, with an average attendance of 125 pupils, 1 select school for girls, 1 brass band, hard to excel anywhere, and various orders such as I. O. O. F.; A. F. A. M.; U. F. T.; M. A. T. and P. of H.

The Gulf, Colorado and Santa Fe railroad will traverse the entire county, and speedily develop it into one of the most populous counties of the State.

COLEMAN COUNTY.

(*Area*, 1,243 *square miles*. *Population*, 3,603.)

This county is situated west of Brown county, which it greatly resembles, the Colorado river forming its southern boundary. Urania, Dodds, Home and Clear creeks are tributaries of the Colorado River, and water the southern portion of the county, which is a high rolling prairie, while the northern section is broken and mountainous, and abounds in creeks and springs. The soils are black and sandy loams and very productive, the crops being corn, wheat, rye, oats, cotton, and all of the vegetables. There is plenty of timber for fencing and building purposes. The grasses are excellent, and the county is finely adapted to stock raising. It is specially adapted to sheep raising, and this industry is rapidly expanding and becoming one of great profit. The elevation of the county above the Gulf is about 2,200 feet, and the climate is salubrious and healthful. The rainfall has a good average, and the temperature ranges from thirty to ninety degrees. Coleman, a thriving town, is the county seat.

Coleman is still a frontier county, but with the entrance of the Gulf, Colorado and Santa Fe within its borders, the county will assume new activities and advance at the same rapid pace which counties farther south are now travelling.

TAYLOR COUNTY.

(*Area*, 900 *square miles*. *Population*, 1,736.)

The county next above Coleman is Taylor, which was fully described among the counties bordering the Texas and Pacific railroad. The Gulf, Colorado and Santa Fe railroad will pass entirely across it.

THE PANHANDLE.

This section is fully described in a separate article under that caption. The Gulf, Colorado and Santa Fe railroad traverses its entire length, and will speedily develop in it rich and thriving communities.

McLENNAN COUNTY.

(*Area*, 900 *square miles*. *Population*, 26,933.)

McLennan county, which is next north of Bell, in which the Gulf, Colorado and Santa Fe forks, contains an area of 680,000 acres, about one-third of which is timber. The timber is of good growth and in quantity sufficient for fencing and other domestic requirements. It consists of pecan, ash, cedar, cottonwood, elm, hackberry, black walnut, and several varieties of oak. There is an abundance of mast which is consumed by hogs ranging in the woods. The county is splendidly watered, the Brazos River coursing its entire centre. Besides the Brazos, there are the North, South, and Middle Bosques, Hog, Harris, Aquilla, White Rock, and a number of other creeks.

Good well-water can be obtained at a depth of from fifteen to fifty feet in any part of the county. The soils are in great variety, ranging from the black alluvium of the bottom lands, to the black and light sandy, all of which is fertile and productive. Much of it will bear cultivation for half a century without the need of fertilizing. Wheat and cotton grow side by side; oats, corn, rye, barley, vegetables of all kinds, fruits, grapes, etc., are all good crops. The yield of cotton per acre varies from one-half to one bale, while corn and other cereals have a high average of production. About one-fourth of the county is under cultivation, and there is yet remaining over 400,000 acres of fertile land awaiting the hand and energy of industry to make it yield its unmeasured bounty in fruits and grains, and all else that supplies the demands of a market. Improved lands are valued at from $7 to $20 per acre, and the unimproved lands from $1 to $5 per acre, according to location and quality. These lands can be purchased upon easy and most favorable terms. The stock range is excellent, and the grasses abundant and nutritious. The grade of stock is being gradually improved. These advantages are being realized by the large numbers that are seeking homes in Texas. The elevation of the county above the sea level is nearly seven hundred feet, and because of its excellent drainage, the tempering breezes from the Gulf, and an invigorating atmosphere, it is comparatively free from miasma, excepting along the bottom lands of the Brazos. The temperature is uniform, having a mean average of about sixty-eight degrees, and the annual rainfall is about thirty-four inches. The population is probably over 20,000 and rapidly augmenting, and the assessed valuation over $5,000,000.

The Gulf, Colorado and Sante Fe crosses the northwest corner of the county.

WACO.—The city of Waco has a population of about 9,000, and is receiving accessions from a portion of the enterprising immigration that is now flowing to Texas. Its shipment of cotton alone was over 50,000 bales during the past year, and will increase as the country increases in the production of that staple. The transportation facilities of this city are excellent. The northwestern branch of the Houston and Texas Central, Missouri Pacific, and the St. Louis and Texas Narrow Gauge all form a junction within the city limits. The industries of this city are 1 cotton compress company, 1 cotton mill, 2 large flouring mills, 2 foundries and iron works, 3 planing mills, 2 lumber yards, 1 distillery, 2 wagon manufactories, 1 cooperage, 7 hotels, 3 banks, 30 dry-goods and 50 grocery houses, 4 wholesale liquor dealers, 50 lawyers, 25 physicians, and many other industries, such as harness and blacksmith shops, markets, bakeries, boot and shoe shops, etc., etc. In the matter of educational opportunities, Waco is well and favorably supplied, having 5 free and 7 private schools, with an enrolment of 1,561 scholars between 8 and 14 years; among them the Waco University, and a flourishing Female College, and a Catholic Convent School. There are also eleven church organizations and nine church buildings, all of which find a liberal attendance and support. There are also extensive brick-yards in the city, and the material for their manufacture is of the best quality and inexhaustible. "That of the two thousand buildings, of all kinds standing within the city limits, at least one thousand are built of brick." The streets are broad, regular, and elevated so as to secure a good drainage. With so large a combination of industries, a location central and accessible, in the midst of a surrounding country which for fertility and productiveness is unsurpassed, and having the advantages of an energetic and intelligent population, the city of Waco may well be regarded as among the most prosperous in the Southwest.

BOSQUE COUNTY.

(*Area*, 1,041 *square miles*. *Population*, 11,217.)

The area of Bosque is divided between timber and prairies, in the proportion of one-third of the former to two-thirds of the latter. The timber is generally short and consists of post-oak, black-jack, burr-oak, elm, cottonwood, ash, cedar, and pecan. The principal watercourses are the Bosque and Brazos rivers. Neills, Hog Spring, Meridian, Boggy, Childress, Corn, Mustang Falls, Duffan, Rough, and Hill creeks. It is one of the best watered counties in the State. Not more than one-tenth of the land of the county is under cultivation. The native grasses are nutritious and abundant.

The county seat is Meridian, and has a population of about 400. The other towns are Morgan 500, Kimball 200, Powell Dale 100, Brazos Point 100, Valley Mills 300, Clifton 250, Norway Mills 200. There are about fifty schools located in various parts of the county. The health of the county is good, and like most Texas counties Bosque has no debt. The Gulf, Colorado and Santa Fe passes through it, and will afford excellent railroad facilities.

HILL COUNTY.

(*Area*, 900 *square miles. Population*, 16,559.)

One of the best and most productive sections of Texas is embraced in Hill county. It is north of McLennan county and west of Navarro county. The surface is a splendid rolling prairie, only about one-eighth of which is timbered. The timber is of the varieties usual in this part of the State, and conveniently distributed along the margin of the streams, affording a supply for all domestic purposes. There are numerous creeks, streams and springs in every section of the county, and the water supply is abundant. The soil is black-waxy and sandy loam, very fertile and productive. The crops consist of cotton, corn, all of the cereals, vegetables in great variety and abundance, fruits, grapes, tobacco, and, indeed, every product that is adapted to the State of Texas. The grasses are nutritious and plentiful, and the range for stock is hardly equalled in any other section of the State. The inhabitants are industrious and hospitable, and support schools and churches in every section of the county. The projected northwest branch of the Houston and Texas Central Railway extends from Waco northwest through the county, and the Brazos River forms its southwestern boundary. The Gulf, Colorado and Santa Fe will soon enter the county and cross its northwest corner. The Missouri Pacific passes through the central portion of the county from north to south, making connection with the Texas Central at Waco. The lands of Hill county are held at moderate prices, and can be bought upon easy terms. The climate is healthful and charming, the elevation above the sea is considerable, the rainfall abundant, and the mean temperature about sixty-six degrees. Hillsborough is a thriving town, situated nearly in the centre of the county, and is the county seat.

JOHNSON COUNTY.

(*Area*, 697 *square miles. Population*, 17,912.)

Johnson, one of the most important counties in the State, is located directly north of Bosque and Hill, and south of Tarrant. The soil is mostly rich black-waxy and black sandy prairie. The chief products are, corn, cotton, wheat, oats, millet, rye, barley, sorghum, broom-corn, potatoes, and vegetables. The fruits are, peaches, plums, and grapes. For a further description of Johnson, reference is made to Tarrant county, which is described among the counties on the line of the Texas and Pacific railroad.

The Cross Timbers, so well known from its peculiarity, runs through this county from north to south. It is from two to twelve miles wide. It rises almost suddenly in places from fifty to one hundred feet above the general height of the surrounding country, and is covered with a growth of timber of ample supply for fencing and other purposes. The soil is a soft gray sandy loam, easily tilled and very productive. The Gulf, Colorado and Santa Fe railroad passes on the west side of the Cross Timbers, over a beautiful rolling prairie of fine chocolate soil, very deep and apparently inexhaustible. The Missouri Pacific Railway, in its course to the City of Mexico, skirts the eastern border of the Cross Timbers, passing through the most charming valley of lands in the State. Fancy can picture no more lovely country than the rich and fertile lands on the east of the Cross Timbers in Johnson and Hill counties. Every foot, every inch of this great plateau of land, is loaded with the elements of inexhaustible fatness. It is well settled with a great number of small farmers, whose industry and frugality have made them independent. When properly developed it will yield annually as large crops and as great a variety as the same area elsewhere in this broad land.

The objective point of the eastern branch of the Gulf, Colorado and Santa Fe railroad is Fort Worth in Tarrant county, where a connection will be made with the Texas and Pacific, and the Missouri Pacific, thus securing two full through connections with the North East and West.

INTERNATIONAL AND GREAT NORTHERN RAILWAY.

THE general course of this railway and branches is through the eastern and middle portions of the State. On this line are many of the leading towns of the State. The road was commenced at Houston early in 1871, and was known as the Houston and Great Northern. The line from Longview to Austin was called the International. Up to December, 1873, the roads were owned by separate and distinct corporations. On the date named, a consolidation was effected under the name of the International and Great Northern Railway. The following will show the present and prospective length of the road :

Miles in operation. Longview, in Gregg county to Palestine, Anderson county, 83. Palestine to San Antonio, 261. Palestine to Houston, 152. Houston to Columbia, 51. Troupe to Mineola, 45. Phelps to Huntsville, 8; Georgetown railroad, 10. Henderson and Overton, 15.

Total, 625 miles.

Miles in course of construction, San Antonio to Laredo on the Rio Grande, about 160 miles.

The connections of the completed road are: Texas and Pacific railway, at Longview and Mineola; Henderson and Overton railway, at Overton; Houston, East and West Texas Narrow Gauge railway, Texas and New Orleans railway, Galveston, Houston and Henderson railway, Galveston, Harrisburg and San Antonio railway, Texas Western Narrow Gauge railway, Houston and Texas Central railway, Texas Transportation railway, at Houston; Houston and Texas Central railway, at Hearne and Austin; Gulf, Colorado and Sante Fe railway, at Arcola and near Milano, and with the Galveston, Harrisburg and San Antonio railway again at San Antonio.

At Laredo, on the Rio Grande, it is designed to connect with a projection of the line running thence to the City of Mexico.

The extension to San Antonio was completed about the 15th of January, 1881.

The present termini of the road are Longview on the north and Houston and San Antonio on the south and southwest. The various counties through which this road runs afford all the varieties of Texas soil and climate.

Through the timber belt the advantages of loamy creek bottoms for cereals and cotton, and sandy hill soils adapted to fruit, are to be added to the facilities for building, fencing, and fuel. Water in this region is generally more easily procured than on the prairies. The latter supply the most productive soils, however, as the counties along the line of this road from Hearne west give evidence. From this place to Austin is to be seen a farming country scarcely excelled in any part of the State for fertility, topography and beauty of agricultural as well as plain natural scenery.

The region traversed by the eighty mile extension from Austin to San Antonio is regarded by many as the garden spot of the State.

In soil and scenery it is of rare excellence. The never-failing Blanco, Comal and San Marcos rivers flow through this part of the State, and furnish reliable water-power, now being utilized for flour milling and other manufacturing purposes. Through well-directed efforts this road has added largely to the population of the State, and now reaps the benefit of its policy in a fine class of farmers along its line, and several large towns doing a heavy business, and among these may be named Palestine, the headquarters of the road.

As to the extension: Leaving Austin, the line extends in a southerly direction, sixteen miles in Travis county, passing over an undulating surface, with a black, calcareous soil, well-timbered almost all the way immediately upon the line of the road with live-oak, pin-oak, cedar and pecan, while broad rolling prairies spread out on either side of the timber; the valleys being rich and productive, and the broken and hilly portion affording excellent grass for pasture. Limestone rock of excellent quality for building purposes exists in large quantities, and not only many durable fences, but sightly and comfortable dwellings are also constructed of this valuable material. Persons seeking a healthy country, where stock-raising and farming may be carried on successfully, either separately or in conjunction,

and at the same time having the facilities and advantages of a railroad and organized society, should not neglect to see this section.

After leaving Travis county, the road traverses the counties of Hays, Comal and Bexar, which will be described in detail hereafter.

The initial point of the International and Great Northern railroad is Longview, in Gregg county, which has already been fully described as one of the counties through which the Texas and Pacific passes. Adjoining Gregg is

RUSK COUNTY,

(*Area*, 917 *square miles*. *Population*, 18,987.)

One of the oldest settled and best counties in the State. The soil may be described in general terms as red and gray, to each of which is assigned distinctive properties and merits, all fertile and adapted to cotton, corn, rye, oats, barley, tobacco, and all kinds of grain grown in the temperate zone, and while the grasses have not been cultivated, it is believed that they can all be successfully grown in a large proportion of the soil. The average yield may be safely placed at twenty bushels of corn, forty bushels of rye, oats and barley, and one thousand pounds of seed-cotton per acre, and all other growths in proportion.

The Chinese and African sugar-canes grow well, and most farmers make their own syrup. Buckwheat grows fine and yields well, and rice is raised by a few farmers. The usual yield of cotton to the acre is about 1,000 pounds in the seed, and of corn from twenty to thirty bushels.

The whole of Rusk lies within the great fruit-growing region of Texas. Specimens of fruits and other productions will be exhibited at the New York office of the Southwestern Immigration Company.

Hogs are easily raised, and bacon can be saved without trouble. Within the county there are several flouring mills and quite a number of saw-mills. This county abounds in fine springs and many streams. The different religious denominations are well represented by churches, and there are many good schools in the county. Iron ore is abundant. It is estimated that only a small portion of the good lands are under cultivation. An abundance of good unimproved land can be bought at from $2 to $5 per acre, and plenty of improved land can be purchased or rented on favorable terms.

The county is well supplied with railroad facilities—the International and Great Northern railroad, extending through the northwest portion of the county, and the Henderson and Overton railroad, extending from Overton, fifteen miles southeast, to Henderson, the county seat.

OVERTON is situated at the junction of the International and Great Northern and Henderson and Overton railroads, was laid off by the railroad company early in 1873, has a population of about 800, and is an important and flourishing town. It has 7 stores of general merchandise, 3 grocery stores, 2 drug stores, 2 saw and shingle mills, Methodist and Presbyterian churches, a Baptist church organized,

2 Sunday-schools, a flourishing school graded in two departments, lodges of Masons and Odd-fellows, who own a large building jointly.

The town is well located in a healthy, rolling country, with good freestone water, and surrounded by excellent farming lands. Overton has a bright future before it.

HENDERSON, the county seat, situated at the southern terminus of the Henderson and Overton railroad, fifteen miles southeast of Overton, and near the centre of the county, is an old town of about 800 inhabitants. Henderson is justly noted for its schools and churches, the excellence of its society, and the intelligence and enterprise of its people. By their own efforts the people of Henderson have built and put in operation the Henderson and Overton railroad of the same gauge as the International and Great Northern railroad. Henderson College is in successful operation in this place, and is reputed to be one of the best educational institutions in the South.

SMITH COUNTY

(*Area*, 957 *square miles*. *Population*, 21,858.)

Is bounded on the north for a distance of forty-five miles by the Sabine River, on the west by the Neches River, on the south by Cherokee county, and on the east by Rusk and Gregg counties. The county occupies nearly a central position of what is known as Eastern Texas. It is a timbered county, abounding in immense forests of pine, oak, walnut, hickory, and all kinds of forest trees found west of the Mississippi.

The soil of the county may be described in general terms as red and gray, to each of which is assigned distinctive properties and merits, all fertile and adapted to cotton, corn, wheat, rye, oats, barley, tobacco, and all kinds of fruits grown in the temperate zone; and while the grasses have not been cultivated, it is believed they can all be successfully grown on a large proportion of the soil. The average yield may be safely placed at 20 bushels corn, 15 bushels wheat, 40 bushels rye, oats, and barley, and 1,000 pounds seed-cotton per acre, and all other growths in proportion. There are various and numerous creeks that traverse the county, with bottom lands that are unexcelled for richness and productiveness.

Springs of pure freestone water abound in almost every portion of the county, and usually the purest and best freestone water can be had by digging from ten to thirty feet. There are, in different portions of the county, springs and wells adapted for medicinal purposes, consisting of copperas, alum, and chalybeate. Recent explorations of the State geologist prove the existence of extensive beds of lignite in this county, and iron ore, consisting of the brown, red, and gray hematite, and in some places other varieties, such as the magnetic, etc., etc., exist.

There are several salines in the valleys of the Sabine and Neches rivers, from which thousands of sacks of salt were manufactured during the late war.

Since the war—and especially since the county has had railroad

connections—it has been fully demonstrated by actual experiment, and evidenced by the large amount of fruit shipped, that this is essentially a fruit-growing county. Apples, peaches, early and late varieties, and plums, pears, figs, and all orchard fruits, flourish and succeed without difficulty. Near almost every farm-house may be seen orchards, that for size, amount and quality of fruit, would be creditable to countries that make great pretensions to fruit-raising.

A better grape region cannot be found. The post-oak and other varieties grow wild over the whole face of the county. There has up to this time been but little attention given to the culture of grapes. There are some fine young vineyards in the county—one in the city of Tyler, the county seat, viz., the far-famed Woldcot Vineyard, from which Mr. Woldcot manufactures his celebrated domestic wines, not excelled by the best French wines for medicinal purposes, and which, while of excellent flavor, are, in point of purity, preferable to most foreign wines as a beverage.

Vegetables of all kinds are produced here in the greatest abundance. Hogs fatten in the woods upon the mast, which is usually abundant. There are quite a number of saw, flour, and grist mills in the county. Lumber can be had at from $9 to $10 per thousand feet. The health of the county is good. An abundance of good unimproved land can be bought at from $2 to $5 per acre, and plenty of improved land can be bought or rented on excellent terms. The International and Great Northern railroad runs nearly through the county from north to south, thus affording excellent facilities for transportation.

TYLER, the county seat, situated on the International and Great Northern railroad, near the centre of the county, in a pleasantly rolling and well watered country, was settled in 1846, and now has a population of about 3,000. It has 14 stores of dry goods and general merchandise, 8 family groceries, 3 drug stores, 1 book store, 3 hotels, 3 restaurants and bakeries, 1 brewery, 1 confectionary and fruit store, 2 saddlery shops, 3 blacksmith shops, 3 shops of carpenters and contractors, 2 livery stables, 2 shoe shops, 2 tin shops, 1 large furniture and upholstering establishment, 1 broom factory, 2 grist-mills, 1 foundry, 1 machine shop, 1 wagon factory, 2 planing mills, 1 bank, 1 fire insurance company. Of churches, 2 Baptist, 2 Methodist, 1 Episcopal, 1 Presbyterian, and one Christian, for the whites, and two for the colored people. At the last session of the public schools five schools for the whites and one for the colored people were in successful operation.

A chartered association is now engaged in the erection of a large and commodious brick building for the East Texas University. Charnwood Institute receives pupils of both sexes, and is a first-class private school. In the matter of educational facilities Tyler is unsurpassed by any town in Texas.

It has a lodge and chapter of the A. F. & A. M., and a lodge and encampment of Odd-fellows. Here is a good site for a cotton-seed oil mill and cotton factory. The Tyler cotton factory was destroyed by fire a few years since and has not been rebuilt. This is

a very important business and shipping point. More fruit is shipped from Tyler than from any other point in Texas, except Palestine.

Tyler is the seat of the Federal, Circuit and District Courts, and of the State, Supreme and Appellate Courts of the Eastern Division of the State. Tyler is justly noted for fine water, healthfulness, and the cultivation, refinement, and hospitality of its citizens.

TROUPE is quite an important town, situated in the southern part of the county, at the junction of the railroad to Tyler and Mineola with the main line; was laid off by the railroad company in the fall of 1872, and now has a population of about 500.

It has 3 stores of general merchandise, 4 grocery stores, 2 drug stores, 1 cabinet shop, 1 saddle and harness shop, 2 shoe shops, 1 blacksmith shop, 1 steam grist-mill and cotton-gin, Baptist, Methodist, and Presbyterian churches, 1 good high school, and lodges of Masons and Odd-fellows. The town is well located in a good country and enjoys a fair trade.

LINDALE, a town of about 100 inhabitants, situated in the northern part of the county, fifteen miles from Tyler, was laid off by the railroad company in the summer of 1873. It has 2 stores of general merchandise, 1 grocery store, 1 drug store, 1 blacksmith shop, 1 church building used in common by the different societies, and also for school purposes, 1 school, and lodges of Masons and Odd-fellows. There are saw and grist mills and cotton-gins near the town.

There is a fine farming country about Lindale. There are a number of small towns off from the line of the railroad in different portions of the county, where there are churches, schools, etc.

CHEROKEE COUNTY

(*Area*, 1,008 *square miles*. *Population*, 16,724.)

Is bounded on the north by Smith county, on the east by Rusk and Nacogdoches counties and the Angelina River, on the south by Angelina and Houston counties, and on the west by Houston and Anderson counties and the Neches River.

The greater portion of the county is hilly, the hills in some places rising almost to the proportions of mountains. The most broken portions are in the northern end of the county, about the town of Larissa, and in the centre, around the town of Rusk.

The county is finely watered. Several large creeks flow through it at different points, affording ample water-power for mills and other machinery. Springs of pure, cold, freestone water are to be found in all parts of the county, and the well-water is not inferior to that of any other county.

There are several sulphur and chalybeate springs within three miles of Rusk. These springs have been analyzed, and have been shown to possess valuable medicinal properties.

There are several varieties of soil in the county, but the predominating one is chocolate or mulatto, which is found in several portions of the county, and is generally considered the best. The gray sandy soil, the black sandy bottom, the black stiff bottom, and the red soil

are all to be found in the county, and each of these soils is rich and productive, and when properly cultivated will generally produce thirty-five bushels of corn to the acre, and other crops in proportion.

Corn, wheat, rye, barley, oats, potatoes, peas, sorghum, sugar-cane, tobacco and cotton, are successfully cultivated and yield generously.

Of tobacco, two crops can be raised in a season; one stalk to each square yard, yielding a half pound to the stalk, would give 2,400 pounds of tobacco to the acre in one-half season, or 4,800 pounds per year. The leaf is long and broad, of excellent flavor, and adapted either to cigars, chewing or smoking tobacco.

The county is well adapted to the growth of ribbon-cane.

There is not a finer fruit-growing county in the world than Cherokee county.

The cultivated fruits, such as peaches, pears, apples, plums, apricots, almonds, and all kinds of small fruits, and many varieties of grapes, grow to perfection and bear abundantly. The fruit business is beginning to attract the attention of the people, and orchards are multiplied rapidly all over the county.

The blackberry, dewberry, whortleberry, gooseberry, mulberry, wild cherry, wild plum, black haw, red haw, all grow here in profusion. In many portions of the county the forests are covered with the native grape and muscadine vines, which grow to perfection and bear immense crops. The "post-oak" grape, as called here, is very plentiful upon the hills, and even in the pine woods, and many manufacture from it a very superior wine.

This is a timbered county, and abounds in white oak, red oak, post-oak, black-jack, blue-jack, hickory, walnut, chinquapin, cherry, pine, cypress, sycamore, mulberry, elm, holly, and several other varieties.

There are many saw-mills in the county, where lumber can be had at from $8 to $10 per thousand feet. Here are vast deposits of iron ore of a superior quality. During the war, and since to some extent, foundries were in operation which produced an excellent quality of iron. The Eastern Penitentiary is now being built by the State near Rusk, in this county, with a view to utilize the labor of convicts in the development of the iron interest. The county is entirely out of debt, its scrip at par, and not an acre of land was sold this year for back taxes. Plenty of good unimproved land can be bought at from $2 to $5 per acre on easy terms. Much improved land can be bought or rented here on good terms.

A good county, a good people, and the lawyers and doctors mostly starved out for want of business.

JACKSONVILLE, the principal shipping point for the county, was laid off by the railroad company in September, 1872, and upon a spot of high rolling prairie in the northern part of the county, and now has a population of about 350. It has 7 dry-goods stores, 5 grocery stores, 1 hardware store, 1 drug store, 1 tin shop, 2 shoe shops, 1 wagon manufactory, a church building, used by the various denominations in common, two good schools, one of which is an academy, and bodies of Masons, Odd-fellows, and Grangers, who have build-

ings of their own. *By a vote of the people of the precinct in which Jacksonville is located, no liquor can be sold there except upon the prescription of a physician.* This is a beautiful and healthful location and a flourishing town, which enjoys the trade of a large extent of country.

Fifteen miles south of Jacksonville, and connected by a tram-road, is the town of

RUSK, the county seat of Cherokee county. This is an old town, pleasantly situated in a healthful region, well watered, well supplied with churches and schools, and possessed of excellent society.

It is a town of about 1,000 inhabitants, has a newspaper, and the usual supply of stores, etc., for the population.

REYNOLDS, a railroad station six miles northeast of Jacksonville, has one store, and is the shipping point for portions of Cherokee and Smith counties.

LARISSA, KNOXVILLE and ALTO are pleasant little towns in different parts of the county.

ANDERSON COUNTY.

(*Area*, 1,088 *square miles. Population*, 17,395.)

Situated between the Neches and Trinity Rivers, and well watered by these rivers and many smaller streams, and supplied with numerous springs of freestone water. Excellent water is also obtained in wells at from fifteen to fifty feet. There are several sulphur and chalybeate springs in the county. In the western part of the county are salt springs or lagoons, which have been profitably worked. About four-fifths of the county is timbered, and one-fifth prairie.

The soil of the county is of four kinds: the first, a light, sandy soil, very easy of cultivation; the second, a red, sandy land, very rich, strong and enduring; the third is a dark gray land, covered with hickory, oak, dogwood and sumach, very productive, and will last for years; and the fourth is creek and river bottom land—the former a chocolate soil, and the latter a black stiff soil, not surpassed for fertility in any country. This latter land will generally yield 500 pounds of lint-cotton per acre, of from 30 to 40 bushels of corn. The uplands yield about half a bale of cotton, and from 20 to 30 bushels of corn to the acre. But little clover has hitherto been grown in this county, the general impression having been that it would not do well. Experiments made upon a small scale this season, however, have resulted most satisfactorily, and in the light of these experiments it is now believed that both red-top clover and timothy will yield heavy crops of excellent quality.

The soil of this county produces abundantly Irish potatoes, sweet potatoes, peas, oats, rye, wheat, barley, millet, tobacco, melons, apples, pears, peaches, plums, apricots, raspberries, strawberries and gooseberries, all of which pay a good profit on the labor devoted to their culture. Grapes grow in abundance in the forest, and are converted into wine of a superior quality.

Fair sorghum is raised successfully, and the castor-bean grows

spontaneously as a weed. No doubt it might be cultivated so as to be a source of great profit.

The county is well supplied with timber of the following varieties: red-oak, post-oak, white-oak, pecan, walnut, hickory, elm, ash, and large bodies of pine. The oaks, hickory and pecan, supply in abundance an excellent mast, which by many is solely depended on for the fattening of their hogs. The pine forest is large, occupying much of the eastern half of the county, and some fifteen or twenty saw-mills are busily engaged cutting an excellent class of lumber for a large and rapidly extending market.

Not less than twenty-five mills and gins are run in this county by water-power, and there are sites for the erection of many more.

There is an unlimited amount of iron ore in the county, particularly in the northern section. This ore is of a good quality, and only lies idle awaiting capital. It was worked during the war, and since, to some extent. In time to come it will prove to be a source of great wealth. In 1862, 1863 and 1864, three blast furnaces were successfully operated, and the iron turned out by these furnaces was pronounced by experts to be equal to the best Swede iron.

The health of the county is good, except on the river bottoms, which, although the lands are wonderfully productive, are not recommended to immigrants from the north, until they shall have become thoroughly acclimated.

There was a large immigration to this county the last two seasons, the greater portion of the people coming from the Northern States. They have made good crops and are succeeding well. An abundance of good unimproved land can still be bought at from $1 to $5 per acre. There is also considerable improved land for sale and rent on easy terms.

PALESTINE, the county seat, is an old town situated near the centre of the county, in a high rolling country, on the divide between the waters of the Neches and Trinity rivers, and has a population of about 4,000. The general offices and machine and repair shops of the International and Great Northern Railroad Company were located here in 1875, since which time the town has more than doubled in population. It is the junction of the Northern, Southern and Western divisions of the International and Great Northern railroad, so that it is an important railroad centre.

It has 12 stores of general merchandise, 12 grocery and provision stores, 4 drug stores, 2 hardware stores, 2 book stores, 4 commission houses, 3 jewelry establishments, 1 banking house, 1 hide house, 3 furniture stores, 5 fruit stores, 2 saddlery and harness stores, 4 millinery establishments, 2 dealers in agricultural implements, 3 lumber yards, 4 brick-yards, 4 restaurants, 3 livery stables, 3 newspaper and job offices (Palestine *Advocate*, *New Era* and *Weekly News*), a real estate and building association, a foundry and machine shop, a grist-mill, 1 steam cotton-gin, 1 wood-turning shop, 1 mattress manufactory, 2 bakeries, 2 dairies, 1 tin shop, 2 paint shops, 2 gun shops, 4 blacksmith shops, 2 tailor shops, 4 shoe shops, 4 barber shops, 2 insurance agencies, 1 photographer, 3 dealers in sash, doors and blinds, 1 large

market-house, and an abundance of lawyers, doctors, dentists and mechanics of all kinds. Palestine contains Methodist, Baptist, Presbyterian, Episcopal, Christian and Catholic churches for the whites, and two churches for the colored people.

It has a female college, a select school for boys, and several other good schools, a Masonic lodge, chapter and encampment, and bodies of Odd-fellows, Knights of Honor, and Knights of Pythias.

The machine and repair shops of the railroad company give employment to many men.

The Masonic fraternity have completed a commodious temple, at a cost of about $20,000, which is the chief architectural beauty of Palestine. The site is upon the principal avenue of the city; is a brick structure three stories high. The first floor is rented for business purposes; the second contains a beautiful public hall, with ample stage room and a seating capacity of about 600; the third is used for Masonic purposes. The surplus rental of this new building will be set aside as a perpetual fund for the maintenance of a Masonic school, to be established in the building and grounds formerly occupied by this body, at which school free tuition will be given the children of Freemasons resident in this jurisdiction.

The building lately completed by the International and Great Northern Railroad Company, and in use for general office purposes, also adds much to the beauty of the city. It is a large, three-story brick structure, surrounded by a park of about five acres, which is being beautifully laid off in walks, and planted with ornamental shrubbery and shade trees.

The International Hotel, just completed, is a large three-stery building with a mansard roof, and contains about sixty rooms. It is now open to the public, and is kept in first-class style.

Within the past year not less than twenty brick stores have been erected, most of which are two-story buildings; and many residences, which do credit to the city, have been erected also.

There are several extensive fruit farms in the immediate vicinity of the town. The growing of fruits and early vegetables is now one of the leading industries of the country, and these products find a ready market at remunerative prices. Very low rates have been made by the company, and every facility is being offered for the development of the early fruit and vegetable interest. The advantages enjoyed by the fruit growers and gardeners on this line will be more fully understood when it is remembered that while our season is from six to eight weeks earlier than that of the Northern States, the soil of Eastern, Southeastern and Middle Texas is peculiarly adapted to the growing of fruits and "garden truck." This is especially the case in Anderson county. The profits on the "first fruits" have been, under proper management, large.

ELKHART, a small town of about 125 inhabitants, is situated in the midst of a good farming country upon the line of the railroad, in the southern part of the county, and was laid off by the railroad company in the fall of 1873. It has 2 stores of general merchandise, 1 drug store, 1 shoe shop, 1 grist-mill, 1 public school-house, and a

church a mile distant, in which various denominations worship. Good blacksmith wanted.

DOUGLAS is a railroad station in the western part of the county; has one store, and is the shipping point for the rich country along the Trinity River.

NECHES is a small town of 100 inhabitants, situated upon the railroad, in the eastern part of the county, and was laid off by the railroad company in the summer of 1873. It is located in a healthy, rolling and well watered region. It has 3 stores of general merchandise, 1 drug store, 1 hotel, the manufactory of the celebrated "John Billup's Cotton Gin," where from two to three hundred gins are manufactured annually, a church, used by the various denominations in common, and also a school-house, lodges of Masons and Odd-fellows, and many saw-mills in the immediate neighborhood of the town. *No liquor can be sold in Neches except on the prescription of a physician.* Three miles from Neches is the Murchison cotton factory, built in 1866, and furnished with excellent machinery imported from England at an expense of $45,000. It is not now in operation, and can doubtless be had for much less than its real value. The first peaches, black raspberries and tomatoes received in St. Louis, in 1877, were raised in Anderson county and shipped from Palestine. The peaches sold in St. Louis for $7.50 per bushel, and tomatoes for $6.75 per bushel.

A Chicago paper, *Prairie Farmer*, of August 4, 1877, says:

"MAGNIFICENT PEACHES.—On July 21st a box of peaches reached the *Prairie Farmer* all the way from Palestine, Texas. They were in most excellent condition and uniform in size, the best specimen measuring 10¾ by 11 inches in circumference and weighing 11 ounces. They were of the Chinese cling variety, and of really fine flavor."

FREESTONE COUNTY.

(*Area*, 883 *square miles. Population*, 14,922.)

Across which the International and Great Northern railroad runs a distance of about three miles. This county adjoins Leon on the north, its eastern boundary being the Trinity River, and its southern line being only a few miles from the International and Great Northern railroad.

In all natural and agricultural features, Freestone closely resembles Leon, which is next described. The principal business and shipping points of the middle and southern portions of the county are Buffalo and Oakwoods, on the International and Great Northern railroad.

LEON COUNTY

(*Area*, 1,049 *square miles. Population*, 12,818.)

Is situated in that portion of the State known as Middle Texas, is bounded on the east by Trinity River, on the north by Freestone county, on the west by the Navasota River and Robertson county,

and on the south by Madison county. The face of the country is moderately broken and undulating. The county is principally timbered, with some small upland and bottom prairies, among which are the Rogers, Leon, Clapp's, Tom's, Hog-Pen, and Mesquite prairies. The principal upland timber consists of post oak, red oak, and turkey oak, hickory and black-jack. The bottoms are timbered with post-oak, pin-oak, burr or overcup oak, ash, linn, gum, pecan, walnut, hackberry, elm, cottonwood, mulberry, maple, locust, etc.

The bottoms are alluvial, consisting of black sandy loam or black stiff soil.

The uplands are generally sandy, with occasionally what is denominated red land, a ferruginous soil, and in nearly every instance highly productive. The sandy lands are divided into what is termed the gray and chocolate, or mulatto soils. Much of the bottom land is what is termed the hog-wallow or stiff black soil.

The gray sandy soils yield, with favorable seasons, from twenty to thirty bushels of corn, and from 800 to 1,500 pounds of seed-cotton per acre. The red chocolate and black lands yield more freely, and with favorable seasons and fair cultivation produce from thirty to fifty bushels of corn, and from 1,500 to 2,000 pounds of seed-cotton to the acre.

Potatoes, both Irish and sweet, melons of every description, and every variety of garden vegetables, grow luxuriantly and yield abundantly.

The principal crops are corn, cotton, potatoes, and peas. Oats, rye, barley, and millet do well and yield abundantly. Of the cultivated grasses, Hungarian grass, lucerne, and red clover, when tried, have flourished and yielded well. Wheat has not been thoroughly tested, but when tried has been grown successfully. The bottom lands are well adapted to the cultivation of cane. The Louisiana or ribbon cane, as well as the Chinese and African canes, has been thoroughly tested, and with perfect success. During the past few years quite an industry has sprung up in this county in the way of manufacture of sugar and syrups from these canes. As high as 250 gallons of syrup have been made to the acre, 200 gallons being the ordinary yield. This syrup readily commands fifty to seventy-five cents per gallon in the market. Upon 180 acres of land so cultivated in the county in 1875, about 4,000 gallons of syrup was manufactured, besides a considerable amount of marketable sugar, and this with very few of the conveniences for manufacture.

Of fruits, the peach, plum, apricot, pear, quince, fig, and pomegranate flourish and yield abundantly, and great improvements are yearly being made in the methods of propagation and culture. Early varieties of the apple bid fair to be a success. The blackberry, strawberry, and other varieties of small fruits, are abundant and prolific.

Timber for fencing purposes is good and abundant. The county is well supplied with mills of every description, used for sawing, ginning, and grinding purposes, run by steam, water and horse power. Leon is one of the best watered counties in the State. In every portion of the county there are springs and permanent streams of water.

There being no pine timber west of the Trinity River, pine lumber is imported and sold at from $17 to $18 per thousand.

The International and Great Northern railroad runs through the county a distance of fifty-five miles. Situated on this railroad are five towns, Marquez, Jewett, Buffalo, Keechie and Oakwoods. Besides these towns in the county, are Centreville, the county seat, Leona, Middleton, Guy's Store, Navarro, Rogers' Prairie, Bowling, and Lookout.

An abundance of good unimproved land can be bought at from $1 to $2.50 per acre, and plenty of improved land can be bought or rented on the most favorable terms.

It is confidently believed, considering the cheapness of the land, its productiveness, easy terms on which it can be purchased, the facilities for market, water, timber and general healthfulness, that there are few, if any, counties in the State offering superior inducements to the immigrant.

OAKWOODS, a town of about 100 inhabitants, was laid off by the railroad company in February, 1872, and is located on the line of Leon and Freestone counties, four miles west of Trinity River, and seventeen miles southwest from Palestine. Oakwoods is an important shipping point for the eastern portion of Leon county, and also for a large portion of the adjoining county of Freestone. Good blacksmith and wagon-maker wanted.

KEECHIE, ten miles west of Oakwoods, is a railroad station of local importance only.

BUFFALO, situated on the railroad, eight miles west of Keechie, was laid off by the railroad company in April, 1876, and now has a population of about 200. It has 8 stores of general merchandise, 1 drug store, 1 newspaper (*Buffalo Advance*), 1 hotel, 1 livery stable, 1 shoe shop, 1 tin shop, 1 blacksmith shop, 1 wagon shop, organized societies of Methodists, Baptists and Cumberland Presbyterians, who worship in one common church, a successful school, known as the Buffalo Academy, a lodge of Masons, a temperance society, and a good population. Buffalo enjoys a fine trade, and is growing rapidly. It needs a steam grist-mill, cotton-gin and flouring-mill.

JEWETT, situated nine miles west of Buffalo, on the railroad, is an important town of about 400 inhabitants, and was laid off by the railroad company in February, 1872. It has 7 stores of general merchandise, 2 grocery stores, 2 drug stores, 2 shoe shops, 2 saddlery shops, 2 blacksmith shops, 1 tin shop, 1 wagon shop, 1 tannery, 1 church building, used in common by the Methodist, Baptist, Presbyterian and Christian societies, 1 high school in successful operation, and 1 large building owned by the Odd-fellows and Masons. Jewett commands quite an extensive trade, and is a good town.

Eleven miles west of Jewett is the town of

MARQUEZ, situated in the western part of the county. It was laid off by the railroad company early in 1872, and now has a population of about 125. It has 3 stores of general merchandise, 3 grocery stores, 1 drug store, 1 hotel, 1 wagon shop, 1 blacksmith shop, 1 shoe shop, 1 church, occupied in common by various societies, and

also used as a school-house, a good school, a lodge and chapter of Freemasons, who own a large building, and a lodge of Odd-fellows. The town is well located, and a few energetic business men would do well there.

CENTREVILLE, the county seat, is an old town near the centre of the county, and about fifteen miles distant from both Buffalo and Jewett.

ROBERTSON COUNTY

(*Area*, 869 *square miles. Population*, 22,385.)

Is situated between the Navasota River on the east and the Brazos River on the west. The International and Great Northern railroad runs through the centre of the county, from northeast to southwest, and forms a junction with the Houston and Texas Central railroad at Hearne.

About one-tenth of the county is prairie, the remainder timbered. The timber consists of post-oak, black-jack, hickory, elm, walnut, cedar, pecan and other growths. The soil on the bottoms is a deep alluvium, varying from a stiff red or black to a loose sandy soil. That of the uplands is generally a black or gray soil, underlaid with clay at a depth of from ten to twenty inches. These lands are very rich and productive, and after thirty years of cultivation, without manure, produce nearly as well as at first.

The productions are cotton, corn, oats, rye, barley, Hungarian and other grasses, Irish and sweet potatoes, peas and all other vegetables common in the United States: peaches, plums, apricots, nectarines, pomegranates, figs, quinces, pears, pecans, walnuts, strawberries, dewberries, raspberries and grapes. Peaches, plums and grapes have been fully tested, and the fact is well established that in no country are the trees and vines more healthy and vigorous, nor the fruit larger and more delicious. Pecans, walnuts, blackberries and dewberries grow spontaneously. Within the past few years attention has been turned to the cultivation of apples, pears and other fruits with the best results.

The average yield of corn for the last ten years is estimated at fifty bushels per acre on the bottoms, and twenty-five bushels on the uplands. Of cotton, for the same time, 1,800 pounds seed-cotton on the bottoms, and 1,100 on the uplands, per acre.

Within a mile of Hearne begin the rich alluvial lands so widely known as the "Brazos Bottom," stretching west and south for miles, with thousands of acres white with the fleecy staple, and dotted here and there with many a model Southern farm. Thousands of acres of this rich land still await the woodman's axe.

This county is in the heart of the best cotton-growing region in the world, the plant being more vigorous and healthy and prolific, and subject to fewer disasters here than elsewhere. The lint is of superior length, fineness, and strength.

In addition to other products, the uplands are remarkably well-adapted to the growing of fruits and vegetables of all kinds. On the

uplands good well-water can be had at the depth of from twenty-five to fifty feet, and generally plenty of good unimproved upland can be bought at from $3 to $5 per acre. Bottom land is somewhat higher. Much improved land can be bought or rented on good terms.

ENGLEWOOD has a healthful location near the centre of the county, was laid off by the railroad company in 1871, and now has a population of about 300. It has 3 stores of general merchandise, 3 grocery stores, 1 drug store, 1 church building used in common by the Baptist and Methodist societies, a good school in successful operation, a lodge of Masons and Odd-fellows, and a steam cotton-gin and grist-mill.

It is a prosperous little town, settled by good people, and has a larger extent of territory naturally tributary to it than any other town in this county, and is bound to grow. From 200 to 300 renters can be accommodated about Englewood this fall and winter.

FRANKLIN, the new county seat, was established in March, 1880, and is located on the International and Great Northern railroad, one and a half miles west of Englewood, and is within two miles of the centre of the county. Already about twenty houses have been erected, and firm predictions are made that in two years the population will be not less than 2,000. A handsome jail and jailor's house have been contracted to be built, and a fine limestone court-house is to be erected. An enterprising man with a little money could do well there.

HEARNE, an important town at the junction of the International and Great Northern and Houston and Texas Central railroads, was settled in 1870, and now has a population of about 2,000. It has 3 stores of general merchandise, 6 dry-goods stores, 6 grocery stores, 3 drug stores, 1 hardware store, 1 furniture store, 1 jewelry store, 1 saddlery and harness store, 1 bakery, 1 commission house and warehouse, 1 bank, 1 hide house, 2 hotels, 4 boarding houses, 3 livery stables, 2 meat markets, 3 barber shops, 3 shoe shops, 1 tin shop, 2 blacksmith shops, 2 lumber yards, 1 brick-yard, 1 planing mill, 1 manufactory of mineral water, a cotton compress (Taylor steam hydraulic, valued at $40,000), 1 Union church, and Baptist, Episcopal and Catholic churches for the whites, 3 churches for the colored people, 2 schools, lodges of Masons and Odd-fellows, who own their own halls, and a brick round-house of each railroad company. It is believed that a cotton-seed oil mill, a tannery, foundry and machine shop would all do well here. A contract has been let to build a bridge over the main Brazos River near Hearne, and it is believed that the construction of this bridge will largely increase the trade of Hearne.

LAKE is a station on the International and Great Northern railroad, ten miles east of Englewood, and furnishes shipping facilities to a considerable extent of country about it.

MILAM COUNTY

(*Area*, 991 *square miles. Population*, 18,659.)

Is situated in the heart of one of the richest agricultural sections of the State. It is bounded by the Brazos River on the east and northeast, by Falls and a part of Bell on the north, by Bell and Williamson on the west, and Burleson and Lee on the south.

Milam is on the dividing line between the post-oak and prairie country, and is a mixture of the two, thus furnishing the richest land, with plenty of timber for firewood and other purposes convenient.

Its soil varies accordingly from the rich and famous thirty-foot soil of the Brazos bottom, through the gray sandy cotton lands of the post-oak uplands to the black-waxy of the rich prairies. The bottom lands of Little River and several other streams are very rich, and yield most abundant crops. The black-waxy lands are principally to be found north and west of Little River. The black sandy soil is principally south of Little River. There is an abundance of timber in the county, which includes the different kinds of oaks, elm, ash, hackberry, and pecan. The prairie portion of the county lies principally north and west of Little River, and the principal portion of the timbered country lies south of the same stream. The products of the county are cotton, corn, wheat, rye, oats, barley, Hungarian grass, millet, tobacco, and all kinds of vegetables. The average yield per acre of the principal crops is, of cotton from 1,000 to 1,600 pounds of seed-cotton, of corn from twenty-five to fifty bushels, and from fifteen to twenty bushels of wheat. In the prairie portion of the county the range for stock is very good, it being principally mesquite grass; stock of all kinds do well. Pork is readily cured, and bacon can be kept sweet and good with proper care. Hogs can be raised with scarcely any cost, as there is generally an abundance of mast. Fruits of various kinds do well with but little care. Good wine is made with but little expense from the wild grapes which grow in profusion along the various streams. There are many saw and grist mills in the county. There are a number of chalybeate and sulphur springs in the southern portion of the county.

There is water in abundance. Wells from thirty to sixty feet never fail through the driest of summers. The beautiful Gabriel, after meandering some twenty miles through the county, finds an outlet into Little River, a bold stream which empties into the Brazos at Port Sullivan. Bushy Creek, Big Elm, the Yegua, and their numerous tributaries, form a network which overspreads the county and furnishes abundant water for stock, mills, and other purposes.

The county has received a heavy immigration during the last two years, and is in a highly prosperous condition. Splendid crops of grain have been harvested, and the prospects for future crops have never been surpassed. Good unimproved land can still be bought at from $2 to $5 per acre. There is still room for many renters.

GAUSE is a small town upon the railroad in the eastern part of the county, four and a half miles west of the Brazos River; was laid off by the railroad company in March, 1874, and now has a population of about fifty. It has 3 stores of general merchandise, a manufactory of cotton-gins and feeders, a steam grist-mill, and a blacksmith shop. The town is surrounded by a good farming region.

MILANO, situated about twelve miles west of Gause, on the railroad, was laid off by the railroad company in 1874, and has about the same population and stores as Gause.

ROCKDALE, situated upon the railroad, in the western part of the county, and eight miles west of Milano, is much the largest and most important town in the county.

The town was laid off by the railroad company late in 1873, and was reached by the first train in February, 1874. Its population is now estimated at about 2,000. It has 6 dry-goods stores, 8 grocery stores, 2 hardware stores, 2 drug stores, 1 store for the sale of agricultural implements, 1 jewelry store, 3 hotels, a steam cotton-gin, grist-mill and planing-mill, 1 bank, 1 newspaper and job office (*Rockdale Messenger*), Methodist, Baptist, Episcopal, and Presbyterian church societies, 3 schools, lodges of Odd-fellows and Masons, tin shops, shoe shops, blacksmith shops, and a number of lumber yards. Rockdale enjoys an extensive trade with the counties of Milam, Bell, Lee, and Burleson, and from its central location and commanding situation is destined to increase rapidly in population and commercial importance. This is the principal shipping point for the rich and populous county of Bell.

This is a good point for a cotton-seed oil mill, a flouring-mill, etc.

CAMERON, the county seat, is an old town of about 500 inhabitants, and is about sixteen miles distant from Rockdale, which is its shipping point.

The Gulf, Colorado and Santa Fe railroad, from Galveston north, is now being constructed through this county, crossing the International and Great Northern railroad one and a half miles east of Milano, and passing through Cameron, the county seat, going to Belton.

WILLIAMSON COUNTY,

(*Area*, 1,197 *square miles. Population*, 15,156.)

Which is claimed by its citizens, with a good show of reason, to be *the best prairie county in Texas*. Next in order undoubtedly Williamson and Bell are the two best prairie counties in the State.

Williamson county is fifty miles in length from east to west, and has a main breadth of about fifty miles, and contains 1,100 square miles, or 704,000 square acres of land. The several streams run eastwardly or lengthwise of the county. Three-fifths of this area is prairie, lying mainly in the centre and in the eastern portion of the county, the other two-fifths being timbered or partly timbered; a large district, however, in the extreme western and northwestern portion of the county—in the vicinity of Bagdad, of Liberty Hill, and of Florence—is about half timber and half prairie. Next, in going east, is a belt of eight miles in width, and nearly across the county, entirely

timbered or mostly so. This belt is less attractive than any other portion of the county, though perhaps of equal average value, not only on account of the timber, but there are many small and fertile valleys on all the creeks, and many large springs of pure water. Here are inexhaustible quarries of the finest limestone rock, from which the material has been procured to build up the surrounding villages, as well as many country residences, barns, and other buildings.

Still farther east is the broad prairie, which has the appearance of a veritable fairyland in its virgin state.

This undulating prairie section of more than twenty miles square is watered by Brushy and San Gabriel as principal streams, and many tributaries, as Battle, Mustang, Turkey, Opossum, Williamson, and Donahoe creeks.

The timber on the principal streams will average half a mile in width, and less on the smaller streams. The principal varieties of timber are ash, elm, pecan, hackberry, oaks of various kinds, including the live oak, and extensive cedar brakes in the western part of the county.

There are three characteristic soils, viz.: alluvial along the large streams, loam in the southeastern portion, and black sticky soil, sometimes found ten feet deep, inclining to a chocolate color, in some portions of the county. There is a good water-power on the San Gabriel River. The prairies are covered with a luxuriant growth of excellent grass for stock.

The principal crops are corn, wheat, oats, rye, barley, cotton, sorghum and millet. Vegetables of all kinds do well, and also many kinds of fruit; 35 bushels of corn, 20 bushels of wheat, 25 bushels of rye, 40 bushels of barley, three-fourths of a bale of cotton, and 80 bushels of oats, are about an average yield to the acre, although crops of 50 bushels of corn, 25 to 30 bushels of wheat, and other small grains in proportion, a bale of cotton, and 100 bushels of oats to the acre are not uncommon occurrences with many farmers. Splendid grain crops have been harvested for 1880, and considerable quantities of wheat, oats and barley are exported. The corn and cotton crops for 1880 are also excellent. The International and Great Northern railroad was built through this county in 1876, since which time a large number of the best class of people have settled within its limits. A plenty of unimproved lands can still be bought at from $4 to $10 per acre. Many renters of the best class can also be accommodated here.

This county has a central location, an elevation above tide-water of about 800 feet, an undulating surface which affords delightful natural scenery, a soil of great depth and remarkable fertility, countless springs, beautiful rivers and creeks of swiftly flowing pure water, a soil in which cotton, corn, sorghum, wheat, oats, rye, and barley, all kinds of vegetables, and many varieties of fruits, are grown to perfection; excellent grazing lands, many churches, good schools, good society, a county entirely out of debt, and with taxes at the minimum rate.

TAYLOR, situated upon the railroad, about fifteen miles from the eastern border of the county, is located near Mustang Creek, about midway between the Brushy and San Gabriel rivers, upon the southern slope of a beautiful spot of rolling prairie. The town was laid off by the railroad company in the summer of 1876 in an uninhabited prairie; now it has a population of about 500, and houses, fences, and cultivated fields meet the eye in every direction. A very superior class of farmers from Kentucky, Pennsylvania, Illinois, Virginia, and various other States have settled about Taylor, many of them men of ample means, and already the original Texas stock is being fast replaced by short-horned cattle, horses and mules from Kentucky, and the finest grades of Southdown and Merino sheep imported from abroad. Taylor will soon be to Texas what Lexington is to Kentucky in respect to fine stock.

Taylor has 8 dry-goods and grocery stores, 1 drug store, 3 hotels and restaurants, a livery stable, 1 sash, door and blind store, 3 lumber yards, tin, saddler, shoe and blacksmith shops, meat market, 1 school-house, an Odd-fellows' hall, built and owned by that order, and a lodge of Masons; also, 1 Methodist, 1 Catholic, and 1 Christian church. A grain elevator is now being built, and it is expected that a steam flouring mill will soon be in operation.

The cattle interest is very extensive here, and shipments of stock are large. A *Stock Exchange* is in successful operation, and prices and sales at the St. Louis and Chicago markets are bulletined daily.

Prominent Chicago men have recently made large purchases of land in this vicinity, upon which they are establishing "ranches" for the breeding of fine stock. These new influences are materially strengthening the town, already noted for the energy and thrift of its people. With abundant capital at hand to improve her many natural advantages, the future of Taylor is certainly bright and promising.

ROUND ROCK, seventeen miles west of Taylor, and near the old town of the same name, is pleasantly situated on high rolling ground, amid live oaks, and between Brushy Creek and Lake Fork. It was laid off by the railroad company in the summer of 1876, and now has a population of about 1,500. It has 14 stores of general merchandise, 2 hardware stores, 2 stove and tinware stores, 4 drug stores, 6 hotels, 2 restaurants, 1 bakery, 4 lumber yards, 3 livery stables, 2 banking-houses, 1 meat market, 1 jewelry store, 2 flouring mills, 2 planing mills, 2 wagon shops, 4 blacksmith shops, 2 saddlery and harness shops, 2 photograph galleries, 1 broom factory, 1 Methodist church, and societies of Presbyterians, Episcopalians and Baptists, 2 good schools, 1 high school situated in the old town and known as Masonic Institute, with a good two-story rock school building, and lodges of Masons and Odd-fellows. The town is built upon and surrounded by quarries of the finest building stone. Several fine buildings have already been constructed of this stone.

The trade of Round Rock is very extensive, and includes a large portion of Williamson county, the counties of Burnet, Lampasas, San Saba, Mason, Llano, McCulloch, Concho, Coleman and Brown, and portions of Comanche and Hamilton counties. The lumber busi-

ness alone of Round Rock with these counties is simply immense. This is an excellent point, and there is still plenty of room for business men of energy and capital. The business that *can be done at Round Rock in all branches of trade is only limited by the ability and capital of the men who seek to control it. Round Rock is the actual gateway* to ten of the finest and most rapidly growing frontier counties of Texas. A railroad, managed and used as a branch of the International and Great Northern, connects Round Rock with

GEORGETOWN, the county seat, which is ten miles distant. This is a beautiful town containing 1,500 inhabitants, and is situated upon the San Gabriel River. Here a splendid stone court-house has just been completed.

TRAVIS COUNTY,

(*Area*, 1,019 *square miles. Population*, 26,974.)

And skirting the edge of the rocky and mountainous region which extends westward to the Colorado River, has upon the east a beautiful prairie country, covered with highly cultivated farms. This portion of Travis county is much like Williamson county in respect to soil and productions. Seven and a half miles south of Round Rock and eleven and a half miles north of Austin is

DUVAL STATION, where there is one store, a post-office, and extensive and valuable rock quarries, which have not been developed to any considerable extent.

Nineteen miles south of Round Rock is the western terminus of the International and Great Northern railroad, at Austin, the county seat of Travis county and the capital city of Texas.

AUSTIN has 4 commission houses, 145 retail merchants, 19 wholesale merchants, 4 lumber yards, 2 breweries, 4 wood yards, 6 bakeries, 26 butchers, 31 doctors, 79 lawyers, 6 restaurants, 11 boarding houses, 6 livery stables, 5 hotels, 1 national bank, 3 bankers, 9 wagon yards and feed stables, 2 ice factories, 3 sash factories and planing mills, 2 foundries, 1 flouring and grist mill, 1 gas factory, waterworks, 2 lime depots, 26 bar rooms, 7 beer saloons. There are 17 churches, some among buildings famed for their architectural beauty and costliness. The free-school building of white stone will cost about $30,000. The German-American Institute and two other female colleges, and many schools and academies, also prosper at the capital.

Austin has a population of about 16,000, and is justly noted for the culture and refinement of its society, the enterprise of its people, the beauty of its situation, the charm of its climate, and the delightful natural scenery by which it is surrounded. The majestic Colorado sweeps past the foot of its main avenue, while the hill at the other end is crowned by the capitol building of Texas. Across the river the heights rise very abruptly, and are clothed with perpetual verdure, and adorned with groves of the evergreen live-oaks. A short distance above the city, Mount Bonnell rises up in bold relief against the sky, its rocky summit towering far above the beautiful river at its base, and splendid views of the surrounding country

can be had from this point. Austin is a delightful place for winter residence for people from the North who suffer from pulmonary diseases and bronchial and catarrhal affections.

HAYS COUNTY.

This county lies south of Travis county, and contains about 800 square miles.

About one-fourth of the county is fine rich black prairie soil, and is almost all under fence, either in cultivation or for pasture; the other three-fourths is high, rocky and rolling, timbered with some fine cedar, live and post oak and pecan. The principal river is the San Marcos, which runs, a large river, out at the foot of the range of hills upon which the town of San Marcos is built, affording one of the finest water-powers in the State.

This county is settled up with an energetic and industrious class of people, and is a model for good society and morals.

In the timbered part of the county many sheep and goat ranches are located, and are doing well.

The Blanco River runs through the county—only running during wet weather, but there is always water in holes in the bed of the river. Fine building stone is abundant upon this river.

The town of SAN MARCOS is situated upon the range of hills, from under which the San Marcos River gushes forth. Its population is about 1,200, and its business is fast increasing, and with the advent of the International and Great Northern railroad, projected through, it will very greatly increase. It has a fine court-house, a large school building, which is largely attended; has many good churches and two mills, one of which makes excellent flour.

Land for cultivation is high, varying from $5 to $10 for unimproved prairie, and from $25 to $100 per acre for cultivated. The timber lands range from $1 to $20 per acre.

The general elevation of the county is about six hundred and fifty feet above the Gulf, making the climate very healthy and salubrious. Once settled here, the immigrant does not desire to move again

No description of Western Texas could be complete that failed to speak of the valley of the San Marcos River, but more especially of that marvellous spring which constitutes its source. The River San Marcos bursts from the base of a wooded hill some two hundred feet high, like the waters of Horeb from the solid rock, gushing with life and vitality. Here is a great basin of crystal water, bubbling in places where the fluid rushes from its hidden channels beneath the rocks, or lying in deep and placid pools where the lazy fish may be seen swimming twenty feet below. A short distance from the source begins a rapid fall, and here the little river rushes madly away among mosses and cress and water-lilies, sweeping along by bending willows, old live-oaks hoary with moss, turning a mill-wheel here and there, with power to turn a hundred others, and beautifying the landscape wherever it flows.

It is of this charming stream and its surroundings that Miss Mollie Moore, a gifted daughter of Texas, sings:

"Far o'er the hills and toward the dying day,
Set like a heart, a living heart, deep, deep
Within the bosom of its wide prairies,
Lies the valley of San Marcos. And there,
A princess roused from slumber by the kiss
Of balmy, southern skies, the river springs
From out her rocky bed and hastens on
Far down the vale, to give her royal hand
In marriage to the waiting Guadalupe."

But inspiring as may be the scene to the "poet's eye in a fine phrenzy rolling," it has no less attractions for the man who has "an eye to the main chance." For yonder, half a mile away, stands a little city that before long will need a water supply, and this is the source from which it can easily be procured. And even here lie some hundreds of fat acres, the alluvial of centuries, rich in lime and phosphates, and acids, and all vegetable food—and yonder, just above the spring, is a cedar crowned hill, a lovely spot for a suburban residence, and back of that same hill for miles and miles stretch many broad acres of fertile uplands. And the power of this young giant! He who shall tame him to the prosaic work of turning wheels, spinning the cotton of the valleys and the wool of the hills, grinding the corn and the wheat that grow in the region round about, shall he not grow rich and prosper exceedingly?

COMAL COUNTY.

(*Area*, 673 *square miles*. *Population*, 5,546.)

This county is situated south of Hays and north of Bexar counties, upon the 30th degree of latitude. It is upon an elevated plain, with an average altitude of 750 feet above the Gulf; the southern portion is undulating, with occasional hills, while the northern portion is more level, somewhat higher, and with some good valleys. The climate is delightful and healthy. In area it is about 673 square miles, one-third of which is timbered and the balance prairie. The soils range from a sandy loam to stiff black-waxy, are rich and productive, while some of the valleys cannot be surpassed. The products include in variety about everything that is grown in Texas. The yield is abundant, and there is no section of the State where the lands are more thoroughly cultivated than in Comal county. Stock-raising also receives much attention, and is an important industry in this county, which is by the natural advantages of excellent mesquite grass, perpetually clear-running water, and a mild climate, so well adapted for that purpose.

There is an abundant supply of clear-running water for all purposes, and some of the finest water-powers in the State. The beautiful Comal River has its source in this county and at its confluence with the Guadalupe River is situated the progressive little CITY OF NEW BRAUNFELS, with a population of about 2,500. Here the New

Braunfels Manufacturing Company is located, and produces as fine woollen goods of all kinds as are manufactured in the United States. The demand for these goods is so great that orders are frequently delayed. Here also is located a large flouring and grist mill, which makes excellent flour and meal. The machinery of both of these mills is run by the magnificent water-power of the Comal River, which is not interfered with from any cause the entire year.

The Comal and Waco springs in this county are not surpassed in the South. No doubt the good health of the people here is due, to a great extent, to the excellent waters of the county. The Cibolo and Blanco rivers also flow through the county.

This county is almost entirely settled with Germans, whose industry and thrift are so well known, making it one of the most prosperous and orderly counties in the State. There are 6 churches and 19 public schools.

This is one of the finest counties in Southwestern Texas, and is rapidly increasing in importance.

BEXAR COUNTY.

(*Area*, 1,175 *square miles*. *Population*, 30,481.)

This is probably the best known county in Texas. The far-famed city of San Antonio is the county seat, and there is no city in the Southwest about which so much has been written and said.

The county is situated in the southwestern portion of the State, between the 29th and 30th degrees of latitude north, and between the 21st and 22d degrees of longitude west from Washington. The altitude is high, and its topography is a grand undulating prairie, with here and there skirts and motts of timber of the varieties usually found in this vicinity. The county is watered by the Cibolo, which bounds it on the north and east, the San Antonio, San Pedro and Medina rivers, and Cottonwood, Medio, Leon, Calabras, Geromino, Salado, and Balcones Creeks.

The soils are sandy loam and black-waxy, with a depth that is rarely less than three feet, and often eighteen or twenty. Some of this soil has been in cultivation annually for more than half a century, and there is, without any fertilizing, no perceptible reduction in the products.

Experience has demonstrated that under favorable circumstances this county will produce abundantly, cotton, corn, wheat, and the other small grains; sugar-cane, sorghum, Hungarian grass, millet, Lucerne and California clover, broom-corn, tobacco, rice, and the castor-bean; and fruits—peaches, pears, apples, plums, and other fruits—are successfully grown, while figs and grapes are produced in great perfection; so also are melons, and other products of the vine. Vegetables grow luxuriantly, and may be had almost the entire year.

The general healthiness of this county is nowhere surpassed on earth. Statistics prove this. The average temperature is about 68°. The nights are cool and pleasant during the summer, and snow and

ice are seldom seen, and are of short duration when they do occur. It is stated as a fact that pulmonary complaints never originate here, and it is a fact well-established that it is one of the finest regions in America for consumptives; that is, more recuperate here than in any other section. The perpetual pastures of the finest and most nutritious grasses, with the abundant supply of clear and running water, renders this a magnificent grazing country, and stock thrive and fatten the year through. This is one of the most important sources of revenue derived from the industries of the county. A want of space forbids a more extended description of the county, but it would not do to close this chapter without a few words about the CITY OF ANTONIO.

Pages could be written in following this, the oldest city in the State, through its entire history, and in touching upon the many points of interest, but we are confined to a few brief facts.

Nearly two centuries ago, in 1691, a Spanish colony established itself where the city now stands, and there yet remains churches and mission buildings, magnificent in architectural design, venerable and romantic in appearance, the work of these piously-inclined Spaniards. There were learning and genius that conceived, and courage and purpose that executed, the transformation of savage life, and wrapped it with a mantle of civilization.

Other Spanish colonies arrived from time to time, and continued the erection of these historic buildings; and, in 1745, the "Church of the Alamo" was begun. The subsequent history of this building is too well-known to all who have read the history of Texas to require any mention here. "The Alamo" and Texas are inseparably connected.

The city is upon both banks of the San Antonio River, which rises a short distance above the city, and is caused by numerous springs of pure water, which gush forth from the base of a limestone formation—an extending spur of high cretaceous strata of table-lands. From the head of the river the early settlers opened ditches, to irrigate the valley of the San Antonio River, upon which the city is now built; and to this day the water flows through these well constructed ditches through the entire city and suburbs. The city contains a population of about 25,000 people, and the trade of the city is something wonderful. To this place come the caravans, composed of from three or four to twenty and thirty wagons, from all points in Northern Mexico, hundreds of miles distant, bringing minerals, hides, wool, and other products of that region, and, loading with all kinds of American produce, return heavily laden upon their journey of months' duration.

Here is established the depot for the supplies for all the United States troops on the frontier of Texas, and its headquarters are here. No other city in the State is so favorably located for the development of its many facilities of trade as this one, and yet it seems but in its infancy.

As a place to spend a few months in the summer or winter it is delightful, and the quaint streets and houses—and still quainter people—add to its other attractions a zest which cannot be equalled in any other city in the State.

It can only be appreciated by making a visit to it.

ATASCOSA COUNTY.

(*Area*, 1,224 *square miles*. *Population*, 4,223.)

This county is situated in a large expanse of inexhaustible range, near the centre of what is termed Southwestern Texas, and is on the 29th parallel of latitude north, and is near the centre of the great stock-raising regions of Southwestern Texas. It has an area of about 1,224 square miles; its altitude is about 450 feet; the climate is dry and very healthy; the rainfall is light; the mean temperature is about 70 degrees. The county is about equally divided between prairie and timber; the soil varying from a sandy loam to poor light sand in the black-jack country. The products are vegetables of all kinds that are grown in the south, the cereals, some fruit, and some cotton. Stock-raising is the chief occupation of the inhabitants; horses, cattle, hogs and sheep all do well. The popular system of raising stock in enclosed pastures is rapidly gaining ground, not only in this county but in those adjoining. The grasses upon these prairies are nutritious, and the stock does well without other food through the entire winter. The timber consists of post-oak, black-jack, hickory, hackberry, mesquite, and, along the streams, cottonwood, mulberry, willow and pecan.

The principle stream in the county is Atascosa Creek, which only runs during the wet season, but in the dry season holds a supply of water in deep hollows. There are very few springs, but water can be obtained by sinking wells.

PLEASANTON is the county seat; has a population of about 400; is situated on Atascosa Creek, about thirty-five miles south of San Antonio.

There are several churches and schools in the county, which are well supported. The people extend a cordial welcome to those who come to settle among them. Lands are held at 50 cents to $2.50 per acre.

MEDINA COUNTY.

(*Area*, 1,304 *square miles*. *Population*, 4,492.)

This county is situated west of Bexar county, between the 29th and 30th parallels of latitude. The surface of the county is an elevated and undulating prairie, yielding the best of grasses, is splendidly watered by the Medina River, a branch of the San Antonio River, and a number of creeks, and is one of the best stock-raising counties in the State, which is the principal industry. Sheep husbandry is especially profitable in this county, and is rapidly increasing in importance. Agricultural pursuits are not neglected. The soils are diversified, and range from the rich bottom lands along the margin of the streams to the lighter soils of the uplands, and the productions are such as are usual in this section of the State, and the crops are good. Grapes flourish and pro-

duce well. There is timber enough for fuel and an abundance of excellent stone for building purposes, which can be quarried at small cost.

CASTROVILLE, situated twenty-five miles west from San Antonio, is the county seat, and is upon the stage road to Eagle Pass. Most of the public buildings and residences are constructed of stone. It has one saw-mill, two grist-mills, Protestant and Catholic churches and free schools. There are several other thriving towns in the county, and they are all well supplied with churches and educational facilities. The elevation of the county is an average of about 600 feet above the level. The climate is charming, the atmosphere being tempered by the cooling breezes of the Gulf. The health of the county is unexcelled. Medina is chiefly settled by a happy, thrifty and contented German population, who are developing its resources in a marvellous way.

FRIO COUNTY.

(*Area*, 1,080 *square miles*. *Population*, 2,138.)

This county is southeast from San Antonio. It is largely composed of undulating prairie lands. The soil is black sandy loam. Naturally the whole county is pastoral, but about 75 per cent. of the land is arable. There are several clear mountain streams known as the Rio Hondo—Rio Frio and Rio Leona, flowing through the county. About 65 per cent. of the land is covered with timber, of the mesquite, hackberry, live-oak, pecan, cypress, elm, and other varieties. All the native grasses are abundant. The climate is very salubrious. The International and Great Northern road passes directly through this county. About five per cent. of the population are negroes. There are about 225 children in attendance at free schools. The Methodists and Baptists have religious services. Splendid land can be had at from $1 to $2 per acre.

FRIOTOWN, on the river of that name, contains about 300 inhabitants.

DIMMIT COUNTY.

(*Area*, 900 *square miles*. *Population*, 665.)

The southwest corner of this county approaches within a few miles of the Rio Grande. It is almost entirely prairie, covered with fine mesquite grass, which forms a perpetual pasture upon which stock of all kinds do well the entire year. This is one of the best watered counties in Southwestern Texas, is traversed by the Nueces River and its tributaries, and has two large inexhaustible lakes of pure fresh water, upon which the dry seasons have no effect. Much of this county is susceptible of easy irrigation, with which it would become a fine agricultural county. The chief industry now is stock-raising, from which large profits are realized. The climate is warm, but not unhealthy, the temperature being made pleasant by a prevailing sea-breeze.

This remark is true of all counties in Southwestern Texas. No matter what may be the temperature marked by the thermometer, the heat is less oppressive than is that of the Middle States. It is seldom during the summer months that the "Gulf breeze" does not blow the night through. Even should the day be hot, the night is cool, comfortable, and admirably adapted for sleeping.

WEBB COUNTY.

(*Area*, 1,552 *square miles*. *Population*, 5,273.)

This is one of the extreme southwestern counties, and lies upon the Rio Grande, and in this county at or near Laredo will be the terminal point, *in Texas*, of the International and Great Northern railroad. The county has a very large area and is almost entirely prairie. Stock-raising is now the principal industry. In Webb county will be the crossing of the Rio Grande by the International and Great Northern line into Mexico to connect with the Mexican Central railroad, now being constructed from the city of Mexico northwestward, making a direct route connecting the Republic of Mexico with the great railway system of the southwest.

HOUSTON COUNTY.

(*Area*, 1,176 *square miles*. *Population*, 16,709.)

From Palestine in Anderson county, which has already been described, the Great Northern division of the International and Great Northern railroad runs south, and enters Houston county, which lies immediately south of Anderson and north of Trinity county. The county is well watered by large streams or creeks traversing it in different directions, with the Trinity and Neches rivers on its western and eastern borders, the Big Elkhart, Little Elkhart, Hurricane Bayous, Caney, Negro Creek, White Rock, Tantabogue and their tributaries, which have their source along the centre of the county and flow west into the Trinity River. The Cochino Bayou, Hickory Creek, Camp Piney, and San Pedro flow east into the Neches River, besides numerous lakes in different sections of the county, which are filled with choice fish.

These streams never run dry, and many of them afford fine water-power for propelling machinery for manufacturing purposes, numerous mills and gins being now operated by them.

Springs of freestone water abound in nearly every part of the county, and an abundance of water of the same kind can be had in wells by digging from twelve to forty feet. In respect to the number of its springs, the number and the size of its streams, and the quality of its water, it may be safely asserted that Houston is the best watered county in Texas.

As to the soil there is a great variety, and the immigrant can suit himself as to uplands or bottom lands, prairie or timbered lands. He can have the black stiff soil timbered or in prairie. He can have the black sandy loam timbered, prairie, bottom or uplands; also the red chocolate or red sandy lands. He can also find the gray sandy lands, with timber or prairie. The soil of the gray sandy and the black

loam, and the black stiff or waxy lands, is generally from two to eight feet in depth. The whole is underlaid with a clay subsoil.

The county is well timbered, and has pine lands in bodies, separated in different sections of the county, while the red-oak, post-oak, black-oak, walnut, ash, hickory, pecan, and cedar are the chief varieties. The post-oak is very valuable for fencing purposes, as rails or posts, and will last for twenty years or more.

Pine timber can be had at any of the many saw-mills in the county at $9 per 1,000 feet.

Stock of all kinds does well, it requiring little and frequently no forage to keep dry cattle in winter, owing to the mildness of our winters. Hogs do well, as there is mast nearly all the year—sufficient to make them fat—in the range, while horses and mules can be raised here as cheap as in any section of the country.

The chief productions of this county are cotton, corn, potatoes, cane, oats, etc. Many farmers are now turning their attention to raising wheat, rye, and other small grain, while tobacco grows large and luxuriant; the leaf produced is long and broad, of excellent flavor, and well adapted to making cigars and smoking tobacco. Cotton grows to its greatest perfection in this county—on the uplands an average crop will grow from 1,000 to 1,200 pounds. The bottom lands will grow 1,500 to 2,000 pounds seed-cotton per acre, and from 20 to 50 bushels corn per acre. The ribbon and sorghum cane both flourish, and are becoming important items of the productions of this county. Wheat and other small grains do well. During the last three years the farmers have turned their attention more to raising small grain than formerly. Small grain is harvested about the first of June. Grapes grow in the greatest abundance, both in the wild and domestic state, large quantities of wine being made each year from the native wild grape, which grows luxuriantly in the woods all over the county, and as large as ordinary marbles.

Fruits and vegetables of nearly every kind do remarkably well. In the county there are 70 school-houses, which are mostly public property. The free schools have been better organized in this county than in most counties in Texas.

Several hundred immigrants, with their families, settled in this county during the winter of 1876–7, including many people from Pennsylvania and Ohio. All express themselves well pleased with the county and its people.

Unimproved lands can be bought here at from $1 to $3 per acre, owing to the locality and quality. First-class land can be bought, three to four miles from the railroad, at from $2 to $3 per acre, with one, two, and three years to make payments, and longer when desired. Improved lands sell for $3 to $5 per acre, according to the extent and value of the improvements. Much good land can be rented on favorable terms.

For a timbered county Houston is exceptional, in that about one-fifth of its surface is prairie. Indeed, the county is so highly blessed in the variety and abundance of its timber, in the soft healthful freestone water, which bubbles up from the countless springs which dot its surface and constitute the sources of its many pure streams of water, in the undulating character of the country, and the variety of scenery which arises from this blending of prairie and forest, in the variety of its soils and their adaptation to the successful growth of all kinds of grains, fruits and vegetables, as well as of the products more peculiar to a Southern clime, that he would be a hard man indeed to please, who would not be suited in some portion of this most excellent county. The International and Great Northern railroad runs through the centre of the county from north to south, thus affording excellent facilities for transportation.

LOVELADY, a town of about two hundred inhabitants, situated upon the railroad in the southern part of the county, was laid off by the railroad company in September, 1872. It has 4 stores of general merchandise, 1 grocery, 1 hotel, 1 church building, occupied in common by the different church societies, a good school building, and an active immigration association. This is the shipping point for large portions of Houston, Trinity, and Angelina counties.

CROCKETT, the county seat, situated on the railroad, and near the centre of the county, has been settled forty years, and has a population of about 1,500. The town has 13 stores of general merchandise, 1 drug store, 1 bakery, 1 tin shop, 2 hotels, 1 bank, 1 newspaper, Methodist, Baptist and Presbyterian churches, a society of Episcopalians, who have not yet built a church, 2 good academies for white children in successful operation, 2 schools for colored children, bodies of Freemasons, Odd-fellows and Knights of Honor. Much improvement is manifested in the town, and several brick buildings are being built. New roads are being opened, bridges are being built, and the merchants are bound to seize and hold the trade of several counties east of Crockett. Crockett needs a blacksmith shop, with facilities for the manufacture of wagons, the stocking of ploughs, and the doing of various kinds of iron work.

GRAPELAND is a small town of about 100 inhabitants, situated upon the railroad in the northern portion of the county, and was laid off by the railroad company in January, 1873. It has 3 stores of general merchandise, 2 grocery stores, 1 drug store, 1 hotel, a cabinet-maker shop, a blacksmith shop, 1 church, used by various denominations, and also for school purposes, and a Masonic hall, owned by that order. There are several saw-mills, cotton-gins and grist-mills near the town.

There are several small towns in different portions of the county that cannot be mentioned for want of space.

TRINITY COUNTY.

(*Area*, 708 *square miles. Population*, 4,915.)

This excellent county is bounded on the west and southwest by Trinity River, and on the east by the Neches River. By their courses these streams border the county an aggregate distance of about one hundred miles, and a wide belt of rich bottom lands extends along each stream. The soil of these bottom lands is black-waxy and a black sandy

loam, easily worked and very productive. The land is covered with a heavy growth of valuable timber, among the varieties of which are white-oak, red-oak, pin-oak, ash, walnut, pine, cypress, hickory and pecan. The timber is worth more than the price of the land. In many places are cane-brakes, where the cattle range and keep fat through the winter. The county abounds in springs of pure freestone water, which are the sources of the numerous streams by which the county is well watered.

While this is a timbered county, yet scattered through it are many prairies, ranging in area from 20 to 1,000 acres. These prairie lands are not only good for grazing, but also produce excellent crops when cultivated. The larger streams are bordered with rich bottom lands, and farther back have what is called the second bottom or hammock land, which is very fertile. The soil of the upland is a black and gray sandy loam, which is easily cultivated, and produces very well without fertilizers for a number of years. Unlike the pine lands of Georgia, Florida and some other States, it is a notable fact that the pine lands are good farming lands, and are as valuable for farming purposes as for their timber. Of course the thriftless style of farming which exhausts the soil year after year, without returning anything to it, will tell upon this kind of land quicker than upon the heavier soils.

The uplands produce from 200 to 350 pounds of lint cotton of an excellent quality, and from 20 to 30 bushels of corn to the acre. The bottom lands yield a bale of cotton and from 40 to 50 bushels of corn to the acre. Oats, rye and barley have been thoroughly tested, and yield good crops. Wheat has succeeded well when tried. This is an excellent county for fruits and vegetables of all kinds. Millet does well, and has yielded as much as three tons to the acre. This is a good stock county. Hogs fatten upon the mast. There are many mineral springs in the county, among the most noted of which are the Chalybeate Springs at Alford's Bluff, and the Sulphur Springs near Trinity Station. The general health of the county is good. The county has a great source of wealth in its vast pineries, which have scarcely yet been touched by the mill-men.

In the central and eastern portions of the county are large bodies of long-leaf pine, situated from fifteen to twenty-five miles from the railroad, which have not been touched for the want of good wagon or tram-roads to connect them with the railroad. Large fortunes are in store for the men who have the sagacity and capital to buy up these lands at their present low prices, build a tram-road to them, and cut up this valuable timber to supply the ever-increasing demand of Central and Western Texas for lumber.

This is about the best county in Texas for a poor man. More and better land can be bought here for the same money than in any other county in Texas on the line of a railroad. Unimproved lands range in price from $1 to $4 per acre.

TRINITY, situated upon the railroad, and seven miles north of the river, was laid off by the railroad company in the spring of 1872, and has a population of about 300. It has 3 stores of general merchandise, 1 grocery store, 1 drug store, 2 hotels, 1 blacksmith shop, 1 carpenter shop, 2 saw-mills, 1 school-house with an excellent school in operation, 1 Baptist and 1 Methodist church for the whites, and 1 church for the colored people.

A cotton-gin and grist-mill will soon be completed. There is a sulphur spring near town, whose waters possess valuable medicinal qualities. The hotel accommodations are good. Trinity enjoys an extensive trade from Trinity, Polk, and portions of Angelina, Tyler and Jasper counties.

WALKER COUNTY

(*Area*, 768 *square miles*. *Population*, 12,840.)

Is next in order. About four-fifths of the county is timbered, including large tracts of bottom land. The prairies, of which there are many scattered throughout different parts of the country, are generally good rich black soil, producing finely, corn, cotton, oats, potatoes, peas, etc. Almost every character of soil can be found in the county—rich black land, and gray prairie land, loamy soil, creek, hammock, and sandy land—affording thus to the purchasers an opportunity to procure any kind they wish. In many instances nearly all these qualities can be combined in one farm, and always in the same neighborhood.

The cotton crop averages about 1,000 pounds of seed-cotton per acre. In bottom land and black prairie the yield is often a bale. The uplands, which are more easily cultivated and are of lighter quality, yield 700 to 800 pounds of seed-cotton per acre. No fertilizers are used.

Corn averages twenty bushels per acre. Chinese and sorghum cane do well here, and have been cultivated very profitably. Sugar-cane does well on the bottom lands. Wheat was raised successfully in the county before and during the war, but the high price of cotton after the war caused people generally to abandon grain for cotton.

Mast is abundant in most parts of the county, and many thousand pounds of pork are slaughtered annually, which have not eaten more than corn enough to keep them gentle.

One of the great features of the county is timber—white, red, post and pin oak, hickory, pecan, ash, walnut, gum, cedar, cypress, etc., and all in abundance, and which should be in demand for stave and shingle-mills, and manufactories of agricultural implements, furniture, etc.

Large quantities of lumber are consumed at the penitentiary in manufacturing furniture, wagons, etc.

There are several fine cedar brakes in the county.

There are now in the county about one dozen saw-mills actively at work. Pine lumber is worth $9 per thousand feet, and is being shipped in large quantities by rail to the northern and northwestern counties.

The county is well watered by the Trinity River on the north and east, and by the San Jacinto and many other streams in different portions of the county. It abounds in springs and wells of pure freestone water, and has many springs of white, red, and black sulphur, alum, chalybeate, bituminous, etc., etc.

The climate is healthful, the society is good, and good food is cheap and abundant.

Good unimproved land can be bought on favorable terms at from $2 to $5 per acre, and timber on it is worth more than the price paid for it if near the railroad.

The International and Great Northern railroad runs through the county from north to south, with a branch from Phelps Junction to Huntsville, which is near the centre of the county, thus affording excellent transportation facilities. A plenty of good improved land in the county for rent another year.

HUNTSVILLE, the county seat, was settled in 1834, and has a population of about 2,000. It is pleasantly located among hills, and has long been justly noted for its good schools and good society. It has 10 stores of general merchandise, 2 grocery stores, 1 saddlery shop, 1 bakery; Presbyterian, Methodist, Baptist, Episcopal, and Christian churches; a college for males and another for females; other public and private schools, and lodges of Masons and Odd-fellows, who own buildings of their own. The State Normal School is located in this city.

The State Penitentiary is located here, which affords a good market for cotton, wool, corn, butter, eggs, chickens, etc., etc., and farm products generally, and supplies cotton and wool fabrics, furniture, wagons, ploughs, etc.

Considerable traffic comes to this point from the adjacent county of Grimes.

WAVERLY is a small town of about 150 inhabitants, and was laid off by the railroad company in November, 1872. It is situated in the midst of a splendid farming country. It has 5 stores of general merchandise, 1 drug store, 1 shoe shop, a Catholic church for the large and flourishing Polish settlement near-by; another church used in common by the Protestant denominations, 2 schools, a large building owned and used by the Freemasons, an active society of the Friends of Temperance, and the Grangers are proposing to erect a building for free use by immigrants. Considerable trade from San Jacinto county comes to this point and also to Willis.

PHELPS JUNCTION.—A town has been laid off here. It is surrounded by a good country. One small store at this point.

DODGE.—The town was laid out by the railroad company in March, 1872, and now has a population of about 100. It has 5 stores of general merchandise, 1 drug store, 2 saw-mills near-by, 1 church building for common use, 1 school, and a building owned and occupied by the Freemasons. The town is growing.

RIVERSIDE.—A station on the south bank of Trinity River, with about twenty-five inhabitants. It has one store, and a large building will soon be completed and furnished with machinery for the manufacture of oil from cotton-seed, and will have a cotton-gin and saw-mill attached. Two miles distant, on the Trinity River, is the old town of Newport, where there is a church, school, Masonic building, store and mills. Riverside has a good location, in a good country, and is bound to grow.

MONTGOMERY COUNTY

(*Area*, 1,054 *square miles*. *Population*, 10,154.)

This county is noted for its good farming lands and immense forests of pine and oak.

The principal varieties of soil are the black sandy loam, the rich peach lands, and the gray sandy upland, which is very good farming land, but is even more valuable for its heavy growth of timber. About nine-tenths of the county is well timbered with pine, white-oak, red-oak, hickory, walnut, pecan, etc.

This county is well watered by small streams, and has many springs of pure freestone water in the eastern portion.

The principal crops are cotton and corn, but barley, oats, rye, potatoes, broom-corn, and all kinds of vegetables are raised successfully, as is also sugar-cane, which succeeds well and grows to the height of six or seven feet. The health of the county is generally good. Such fruit as peaches, plums, and figs are produced in abundance; apples and pears have been grown successfully of late. The wild grape abounds here, and many people make from it an excellent quality of wine for their own use. Of cotton, the average product per acre is about 1,200 pounds in the seed, and from 20 to 40 bushels of corn to the acre. Hogs are raised with but little trouble, as the mast is abundant; bacon is easily saved, and is usually plentiful.

The range for cattle is good, as the grass is excellent in the summer, and the cane in the bottoms affords a fine range as well as shelter during the winter.

There are many saw-mills in the county constantly engaged in cutting up the pine lumber. Rough lumber can be had at the mills for $9 per thousand.

The International and Great Northern railroad runs through the centre of the county from north to south, thus furnishing cheap and speedy transportation for all its products to good markets. There is a large amount of valuable white oak timber in the county, which would afford abundant material for several stave-mills and manufactories of wagons and agricultural implements. The line of the railroad in this county is dotted with saw-mills, each one of which is the nucleus of a small settlement.

The largest and most important town in the county is—

WILLIS, situated upon the railroad, and forty-seven miles north of Houston. The town was laid off by the railroad company in the fall of 1871, and now has a population of about 1,000 inhabitants. It has 9 first-class dry-goods and grocery stores, all occupying substantial two-story buildings, 2 drug stores, a manufactory of wagons and agricultural implements, a broom factory, an establishment where saddles and harness are made, a manufactory of staves, dressed lumber, shingles and mouldings, 2 saw-mills, 2 steam cotton-gins and grist-mills, a brick-yard, bakery, livery stable, and 2 hotels, blacksmiths, tinsmiths, and shoemakers, 4 church organizations, viz.: Methodist, Baptist, Presbyterian, and Campbellite, 1 church used by all in common, but 2 more

about to be constructed, 2 public school buildings, and 1 private school, a temperance society and a lodge of Freemasons, who have a good two-story building for their exclusive use.

This is an excellent county in every respect, and plenty of good land can still be bought at from $1.50 to $10 per acre. A stave mill has recently been put in successful operation at Willis, and is the only mill of the kind in the State, and is wholly unable to supply the demand upon it for barrels. There should be many more mills of the same kind in these counties, also works for the manufacture of agricultural implements, saw-mills, wagons, etc. Here is timber of the best quality, and the land on which it stands can be bought for a trifle. Here, also, is an abundant home market. Only 1 stave mill, and 1 small manufactory of agricultural implements in Texas, and not a single manufactory of mill saws in the State! and yet the best of markets and the best of timber here! Here is a golden opportunity for manufacturers and capitalists.

HARRIS COUNTY.

(*Area*, 1,800 *square miles. Population*, 27,985.)

About one-sixth of the area of this county is timbered, and the remainder is prairie. The timber is confined principally to the eastern portion of the county and the margins of the streams. Nine different lines of railroad cross the soil of this county, and besides there is a line of communication by water from Houston to Galveston, so that the citizens of the county enjoy the best of facilities for transportation. In the county the settlements are confined principally to the borders of the streams, the prairies being for the most part devoted to stock-raising. These prairies afford an excellent range for stock, and convenience to market gives stock-raisers a great advantage, in being able at any time to dispose of their beef cattle. There is a variety of soil in the county which is well adapted to the growing of cotton, corn, cane, oats, vegetables of all kinds and quite a variety of fruits.

The extraordinary convenience to market of these lands give them great additional value, and renders farming and gardening very profitable employments. The county is well watered by a number of streams.

HOUSTON, the county seat, is a city of 18,646 inhabitants, is the third city in the State in population and wealth, but it is second to none in the enterprise of its citizens, and is the great railroad centre of Texas. Eight different lines of railroads radiate from this city, while the ninth line is practically created by the running of the trains of the San Antonio railroad over another road from Pierce Junction to Houston. Houston has a grain elevator, a flouring mill, 2 cotton compresses, several foundries and machine shops, a number of banks, many churches and institutions of learning, the Masonic temple for the State, a new and splendid market house, breweries, soap factories, and other industries, of which want of space will not permit mention.

PIERCE JUNCTION, six miles southwest of Houston, at the crossing of the International and Great Northern and San Antonio railroads, is an important point for the shipping of live stock.

WESTFIELD, is a small town nineteen miles north of Houston.

SPRING is a small town about twenty-three miles north of Houston, is near the thriving German settlement on Spring Creek, is at the northern edge of the great prairie extending north from Houston, and is an important lumber station, as at this point we strike the south line of the great timber region of Texas. At Spring are two stores, a Baptist church and two schools. Unimproved prairie land can be bought at from $1 to $2 per acre. Timber land, and that which is part timber and part prairie, from $2 to $5 per acre.

BRAZORIA COUNTY.

(*Area*, 1,479 *square miles. Population*, 9,780.)

Brazoria county is situated in the central part of the Gulf coast of Texas, on both sides of the Brazos River. It is situated between the 29th and 30th degrees of north latitude, where a semi-tropical sun, tempered by the constant invigorating Gulf breeze, gives it an equable and delightul climate. The northern, western, and southern portions of the county, which constitute nearly two-thirds of its area, are mostly prairie. The timber lies along the river courses and covers extremely rich and fertile land lined with alluvial bottoms. There is abundance of excellent timber for fuel, fencing, and other purposes, consisting of live-oak, cedar, ash, pin-oak, Spanish oak, pecan, hackberry, holly, cottonwood, box, elder, mulberry, sycamore, elm, and other varieties. Brazoria county is noted for its magnificent live-oaks, which attain an immense size, often measuring from six to fifteen feet in circumference, and towering skyward fifty feet or more; their generous shade is grateful alike to man and beast, and their bountiful supply of acorns fatten the hogs, who devour them with avidity. Live-oak timber is valuable for railroad ties, bridge timbers, fence posts, and for building purposes, lasting as it does for nearly a century without decay. It is highly prized by shipbuilders, who can afford to pay a large price for it on account of its exceeding durability. In 1875, 4,800 live-oak logs were taken by government contractors from Brazoria county at highly remunerative prices.

The International and Great Northern railroad affords facilities for transportation at Columbia, the southern terminus of that road, and with its connections branching off in every direction, forms the main artery to the north, northeast and northwest.

The Gulf, Colorado and Santa Fe also passes entirely through the county, thus giving it a second line of railway connections both north and south.

The navigable waters are the Brazos and San Bernard rivers, Oyster Creek and Chocolate Bayou. Along the margins of the streams we have the alluvial sandy soil, of inexhaustible fertility, generally 20 to 40 feet in depth. The peach brakes and the stiff red lands away from the streams are, when well broken up, probably the most reliable in dry seasons; but this county generally is very little dependent on seasons for making a crop, as it rarely suffers from drought. One bale of cotton, 40 to 50 bushels of corn, or 12 to 14 hundred

pounds of sugar, with the usual quantity of molasses or syrup, may be called an average yield per acre, though in good seasons and with skilful cultivation fully double that estimate can be realized. Fertilizers are never used, yet crops of corn of 100 bushels to the acre have been made.

Prices of land vary according to location and improvements. Unimproved prairie can be bought at from 50 cents to $2.50 per acre; improved prairie from $2.50 to $10; bottom improved, from $5 to $25 and upward.

Well-water is found 25 to 35 feet below the surface. Cisterns, however, are generally used, which, with simple filtering attachments, furnish an ample supply of pure water all the year round.

The rivers and bayous are abundantly stocked with fish, and a visit to the Gulf is rewarded by the largest and most delicious oysters and fine sea-fish. The timber lands abound with deer and small game of every kind.

The average temperature of the whole year is 65 to 75 degrees, and the warmth of summer is tempered by constant sea breezes. The rivers are purified by the tide-waters of the sea, which flows inland some sixty miles. There is a remarkable evenness of temperature, generally only moderate winds and rain, rendering this at once one of the most delightful climates ever known. The nights are always cool.

It is asserted that not a case of yellow-fever or other fatal epidemic disease has ever been known there.

Corn, sugar-cane, cotton, tobacco, rye, barley, oats, millet, Irish and sweet potatoes, peas, sorghum, and vegetables of every kind are successfully raised. The staples at present are sugar-cane, corn, cotton and tobacco. More sugar is made in this county than in all the other counties of Texas combined. It is the most profitable crop made, and the area devoted to its cultivation is being rapidly increased. Within the last three years a number of persons have been engaged exclusively in market gardening, with very gratifying results. Potatoes and cabbages are the staples, which find a ready sale in Galveston and Houston, and with the fast trains over the International and Great Northern railroad and its connections, the products of Brazoria county can reach the great markets of the North several weeks in advance of any competition. From 150 to 200 bushels of Irish potatoes, and from 200 to 500 bushels of sweet potatoes per acre are grown. They bring in market from $1 to $2 per bushel for Irish, and from 50 cents to $1.50 for sweet. The average product of cabbage per acre is 3,000 to 5,000, which sell at $6\frac{1}{4}$ to 25 cents per head, according to the size, season, and state of the market.

Two or three crops can be raised successively each year, there being little cold weather to hinder production, and the gardener can plant and gather nearly every month.

The blackberry, dewberry, mulberry, wild plum, grape, black and red haw, grow wild in profusion, indicating what can be accomplished by care and cultivation. The native grapes—mustang, summer and winter grapes—bear abundantly, and are excellent for table use and for wines. The cultivated varieties, wherever introduced, have made

remarkably thrifty vines and large-sized fruit. Wine is made from the native grape, and is worth in market from $2 to $3 per gallon. The cultivated fruits, such as peaches, pears, plums, apricots, nectarines, quinces, figs and grapes thrive well, and are of fine flavor. Bananas are cultivated to some extent, and can be made exceedingly profitable. Strawberries are very prolific, and with proper cultivation will ripen during several months. Figs are almost indigenous to the soil, and flourish in the greatest luxuriance, and will no doubt become a valuable article of export.

Horses, cattle, hogs, and poultry are raised and kept with little trouble. Cattle have fine pasturage on the native grasses and cultivated clovers the year round.

COLUMBIA, the southern terminus of the International and Great Northern railroad, is the most important town in the county. It is pleasantly situated on the western bank of the Brazos River; has a population of about 1,000 inhabitants; is justly noted for the intelligence and excellent character of its people.

BRAZORIA is the county seat, and is located on the west bank of the Brazos River, eight miles below Columbia. Population about 800.

OYSTER CREEK, CHENANGO, CHINA GROVE, and SANDY POINT are railroad stations in this county, and afford convenient facilities for shipment for the eastern portion of the county.

In addition to the lands formerly acquired by the International and Great Northern Railroad Company along its line of roadway, the Texas and New York Land Company, which now holds titles and possessions of these lands, has 3,527,000 acres of grazing lands for lease in the best stock regions of the State, and is offering them for sale or lease at remarkably low rates. The lands held by the Texas and New York Land Company embrace every variety of soil and climate in the State, and the inducements afforded to intending immigrants are very liberal. This statement is made for the information of all seeking homes in this State. This company has no interest or connection with the lands of that company or any other. Our purpose is to furnish information.

MISSOURI, KANSAS AND TEXAS RAILWAY.

SINCE the combination which is commonly designated as the Southwestern system, and since the consolidation of the Missouri Pacific and Missouri Kansas and Texas railways, the extension of the Missouri, Kansas and Texas from Denison, Texas, to Whitesboro and to Greenville, further extensions have been projected. The Southwestern branch running to Whitesboro, is to be extended to Georgetown, in Williamson county, where it merges into the International and Great Northern. This is to be the main line of the Mexican railroad from St. Louis and the East to the city of Mexico. It is already completed from Denison in Grayson county, to Denton in Denton county, and the whole of the way from Denton to Georgetown is under contract,

and grading and bridging rapidly progressing. From Georgetown to San Antonio the International and Great Northern is now making daily trips. From San Antonio to Laredo on the Rio Grande River, a distance of 160 miles, the road is under contract to be finished by the 1st day of October, 1881. This will give a direct line and immediate connection between the Red River and the Rio Grande. When this road is completed to the city of Mexico, which will be in the near future, this will be the principal avenue for the rich products of Mexico, and will promote a commerce with the neighbor republic of great value. It will be of immense importance to the stock-raisers of the great pastoral regions of Southwestern Texas, furnishing them with a direct through route to the markets of the East. It will bring to notice and development a vast section of the State which has heretofore been devoted to stock-raising, on account of its isolation and want of transportation.

The southeastern branch from Denison to Greenville is to be extended to Mineola in Wood county, on the Texas and Pacific Railway, where it will form a junction with the International and Great Northern railroad, thus bringing North Texas into commercial relations with Southeast Texas, by a direct route. By this line the great sugar belt of Texas has an outlet to the markets of the East. The lumber region of Eastern Texas, the sugar regions lying southwest from Houston, and the teeming fields of Northern Texas are brought into juxtaposition. The constant exchange of products arising from the tillage of the country tributary to this line of railroad, a country capable of sustaining an immense population, and admitting an almost endless variety of productions, will yield a tonnage wonderful in its immensity. Along this line every variety of staple crop, from the cereals of the temperate, to the sugar and fruits of the tropical zone, will find a congenial home in the soil and a climate exactly suited to its maturity.

The counties through which the Missouri, Kansas and Texas passes have been fully described. Among them are those through which the foregoing roads pass.

WHEAT-GROWING IN TEXAS.

THE intelligent observer in North Texas and other portions of this State, cannot help being struck with astonishment when told that the wheat-yield for some years past has been only from twelve to fifteen bushels to the acre. He sees a soil unsurpassed in the world for the production of wheat; it is as rich as it can be in all the natural elements which wheat requires, and he perceives a climatic condition exactly of the sort which is most favorable to the best development of wheat. This conclusion cannot be resisted, and the more he observes the more he is convinced that it is so. He sees that nature has done the very grandest that she could do to make this a great wheat-growing country; and he is utterly struck with amazement when told that the yield from

year to year has only been from twelve to fifteen bushels per acre, for an average.

Now this shows that somebody is at fault; and since it is not the fault of the lands or of nature, whose fault is it? It must be the fault of the cultivator, and in him, if we will put ourselves to the slightest trouble to inquire, we shall very easily find it. Of course many of them, to protect themselves from ridicule and save their pride, will say that this is not so, and that the fault is entirely in nature; but those who say this, are only making their fault the more apparent.

Let us see, now. During the past fall, 1880, we observed that it is the habit to cultivate wheat in the loosest sort of manner. We saw numerous farmers sowing their wheat in corn-fields, broadcast, from which they had not even taken the trouble to clear off the cornstalks. The cornstalks were still standing where they had grown. In addition to this the fields were full of dead crab-grass and weeds that had grown up after the corn had been "laid by." Having sown the wheat broadcast on the unploughed ground, it was then ploughed in with a heavy plough, drawn generally by a yoke of oxen. We saw the same done in cotton-fields in which the cottonstalks were still standing, partly covered with crab-grass. We do not state that this is the case generally. We do not know it to be a fact that it is; but we do know it to be the fact that it is very often so. Who, then, can wonder at the small average product? It is more wonderful that the rich soil produced even so much as twelve to fifteen bushels per acre. If they ploughed the land well, first having burnt the cotton and corn stalks, then put their wheat in with a drilling machine, then rolled the land with a roller, might not the production be reasonably expected to be at least twice as great?

We were lately travelling with a very intelligent English gentleman through North Texas, and he stopped to consider some men who were sowing wheat. They were sowing it as we have observed above. He asked us if it was possible that such farmers could get as much as the seed back for the trouble? He said if a man should sow his wheat that way in England, he would get absolutely nothing in return for his pains. He asked one of the men why he sowed his wheat in so poor a way? The man replied that he did not have labor enough to take off the stalks and weeds and plough the land before sowing; that the season was already far advanced, and that he had to do the best he could and trust to luck. When asked if his neighbors were all doing the same way, he said he believed they were.

Is not this sort of doing a perfect burlesque on good farming? If these people are pushed for the want of labor, how much better it would be to their interests to cultivate ten acres well, than fifty as they do cultivate them?

And yet, in spite of such treatment, the generous soil of Texas has often yielded an average of twenty to twenty-five bushels to the acre. We have seen large fields that turned out over thirty bushels to the acre, which is not at all uncommon, and in one instance we have known the yield to be forty-four bushels to the acre in a large field.

Another fault, apart from the poor culture, which is too common, is

doubtless in the seed that is sown. The wheat-fields are sometimes nearly ruined with rust. This seems to be proof positive that the seed is not the best for the country. If it were so, the growing wheat would not be attacked by the rust. Texas is so young a State that wheat-growing in it may be considered as yet experimental, and that the experiments have not so far determined what is the best variety to grow. In Southern Texas no man for a long time thought of sowing oats, because the crop was considered certain to be destroyed by rust. Yet at last a variety was found which entirely resists the rust, and now oats are extensively grown in Southern Texas, yielding very large crops. So, a short time ago, no man in Central Texas much below the latitude of Austin, thought of sowing wheat on account of the rust; but at last the Nicaragua variety turned up, which proved admirably suited to the lower portion of the State, resisting rust and yielding from twenty to forty-five bushels to the acre. It is now considerably grown in those parts, and would be very extensively grown if the Texas millers would procure the right sort of machinery for grinding it. Instead of doing so, they have discouraged its production. So in North Texas and other portions of the State, the variety best adapted remains yet to be discovered, and no doubt will be discovered soon.

We will take the liberty of making a suggestion on this point, and hope it will be well borne in mind. It is a suggestion on a point of great value. The wheat sown in Texas, except the Nicaragua, has all come from the North, from regions whose soil and climatic conditions differ widely from our own. Would it not be better to get it from southern countries whose soil and climatic conditions are very similar to our own? Does it not look reasonable and natural? It undoubtedly seems so. In Mexico and California they have a climate and soil remarkably akin to ours, and it is a well-known fact that these two countries are renowned for the production of wheat—not only for the quantity to the acre, but for the surpassing excellence of the article. Does not common-sense suggest that we should go to those regions to get our seed-wheat, rather than to Illinois and Ohio? Let some of our enterprising agriculturists try it, and we do not question that they will find themselves largely benefited.

The wheat of Spain would also be worth attention in this direction. That region has a climate very much like our own, and its wheat stands at the very head of the wheats of the world. The wheat of Mexico was derived from Spain, and the most of that grown in California was derived from Mexico. The wheat so largely imported from Trieste, on the Mediterranean, also deserves attention.

It is worthy of mention that the wheat of Texas ripens from six weeks to two months in advance of that of the Northwestern States, and that in general it weighs much more to the bushel, and has a much smaller per cent. of moisture. What it lacks in moisture as compared with the Northern wheat, it makes up in solid nutritious elements. It is therefore a richer wheat than the Northern wheat, and a pound of its flour will make more bread than a pound of Northern flour. It would also bear transportation over the seas, especially through tropical latitudes, much better. No man ever knew a barrel of Texas flour to *sour* in Texas, though it has been kept in warehouses in Galveston, more than a year, to try it; while the flour from the North soon sours in the South. Texas should become a very large exporter of flour, particularly to South America and the West Indies. She will become this soon if her wheat industry is only properly fostered and encouraged intelligently, as it should be.

OUR LANDS AND THEIR ADAPTABILITY.

SINCE 1870 the stock business of Texas has undergone vital changes. The area devoted exclusively to stock has not been considerably changed, but the herds of cattle and horses have changed their grazing grounds from time to time, as the agricultural interests have advanced and extended into the grazing districts, until they seem generally to have finally settled into permanent ranchos. The great herds have, upon the Rio Grande and in the western belt, yielded less than those of the middle districts and northwest. The greatest permanent move has been from the latter districts into and adjoining the Panhandle country, into which country also large herds have been driven from other States and the Territories adjoining. The Southwestern rancheros have preserved their ranges by purchasing and renting large bodies of lands, which they have enclosed, and by this means secured exclusive and permanent use of the largest pastures in the country. It is estimated that the number of cattle and sheep in the Panhandle country, and in the unorganized counties, not assessed for taxation, exceed the whole number on the tax rolls. As the herds of horses and cattle have yielded place to the plough in the districts now become predominantly agricultural, the stockmen who remain have begun the improvement of their stock, and this has greatly encouraged and increased the production of grain and hay. From the frontier farms of the northwest, out to and including the Panhandle, large ranchos are being also established upon the same permanent plan adopted, as stated, in the Southwest. The State now sells and rents the public and school lands to these rancheros, but they are generally purchasing and enclosing large bodies. Should the process now going on continue a few years longer, the stock or pastoral region will be clearly separated from the farming region, and will be a distinct, a well defined, and in every respect a different country and population from the rest of the State. Entire counties are already enclosed by these enterprising stock-raisers, and unless a change is made in the policy of selling and renting the public and school lands in large bodies, a belt of counties two to six deep, and extending from the mouth of the Rio Grande to the Canadian River, will be hermetically closed against any other industry. Northern capitalists are beginning to see the promise of immense profits by such investments, and are projecting gigantic schemes by which they will found princely estates on such permanent bases, that ultimately their interests will, it is believed, limit

the more desirable development of our agricultural resources to an area of little more than half that of the whole State. For many years this line of ranchos will probably be beneficial in establishing an effectual barrier against the incursions of hostile Indians; and many observing persons who have given the subject reflection think that the line is itself the natural boundary between the country susceptible of agriculture and the country which, from climatic conditions, can never be cultivated. This notion that a considerable portion of the State clothed with wild grasses capable of sustaining large herds of cattle and sheep, and supplied with water in sufficient abundance for such purposes is unfitted for cultivation by reason of drouthy seasons, has long prevailed and obtains with respect to large areas of fertile tracts of country.

We should, in sending these papers out to the world, be remiss in our duty if we passed over this subject in silence. But every citizen of Texas who has lived here twenty-five years will testify that until enterprising settlers attempted it, and demonstrated the success of planting in those counties, there were none who believed the portion of Northwestern Texas now teeming with farmers and yielding immense supplies of cotton and grain could be cultivated. Almost the entire up-country of rich prairie west of the Brazos, and much of it between the Brazos and Trinity above Brazos county was considered so much subject to drouth that farming was thought to be extremely hazardous and pursued generally as incidental only to stock-raising. First attempts at cultivating these high and dry lands often resulted in failures, but by experiments changes were adopted from old systems of planting which have demonstrated their capacity to produce abundant crops of cotton, corn, wheat, oats, millet, barley, sorghum, and other products, with annual regularity. If the vast wilderness of rich and arable country in West and Northwest Texas, including the Panhandle now used only for pasturage, should upon actual trial be found unsuitable for farming, a result we consider extremely improbable, there is yet within the prairie districts and in the valleys of the rivers and streams that are demonstrated to be within planting area, twenty-five acres lying idle and fallow to every one acre that is utilized. It is, then, to settle upon and develop this immense tract of fertile country, admitted to be within the best farming districts, and under the most salubrious climate, that we may safely invite the industrious and enterprising farmers of other States and countries, and it is to the best grazing lands in the world we invite the stock-growers to come, when we point to Western and Northwestern Texas beyond the arbitrary line between the farming districts and the districts which are by some accepted, without trial or reason, as unsuited for general cultivation. In past times immigrants from the thin and shallow lands of the Eastern and Southern States have come hither upon our virgin prairies, and, scratching barely below the surface, left the seedling plants and roots to bake and burn up in the hot days, that if planted deep and early would have germinated into luxuriant crops. Turning back to their worn-out lands in the East, they have reported the country sun-scorched, drouthy, and sterile, which to-day yields its crops and

harvests in unparalleled abundance and with the punctuality of the summer solstice. The State is divisible in its soil and to a certain extent in climate into three parts. The first is the low alluvial country extending from the Sabine to the Guadalupe, and from the Gulf inland, on an average about seventy miles. Secondly, the beautiful and undulating country extending from the Red River and Sabine to the Rio Grande, and from seventy miles interior to the higher plateau, which is the table-land district and the third division. In the first division it is believed we have the largest extent of rich alluvial soil that can be found on the American continent. The products are cotton, sugar, tobacco, corn, rice, clover, potatoes, melons, figs, peaches, oranges, lemons and other fruits and all the vegetables, and the production, when closely attended to, is almost marvellous. The second division contains lands of all descriptions, and in addition to the foregoing, except rice, oranges, etc., produces wheat and all the cereals. Both these divisions afford fine indigenous grasses, which support large numbers of horses, cattle, and sheep, and mast which fattens hogs. The third division consists, much of it, of level plains of an arid nature, and the balance of it is broken into coves and valleys and patches of rich prairie. The cove land of this division is very productive. In all three divisions there is a sufficiency of timber and water, and everywhere the heat of the summer, which in this latitude would otherwise be very enervating, is tempered by the surface configuration and the constant sea breezes which appears to sweep over the whole open country of Texas. It may be remarked of the lands that they possess a fecundity which is not altogether due to their richness, but partly to the climate peculiar to the State. The cool nights of summer reviving the plants from the sultry heat of the latitude, doubtless add to the fruit-bearing qualities of the lands.

WHAT CAN AN IMMIGRANT DO IN TEXAS?

THIS is the first question that he will ask when contemplating removal from one country to another. Texas, and especially West Texas, is as yet in its infancy, as far as developing its natural resources are concerned. Although many sections of it have been inhabited by the Spaniards and their descendants for nearly two hundred years, and the Americans for some forty or more years, there has been but little done to develop its natural resources.

It is estimated that Texas as a whole is capable of supporting a population equally dense to that of the German empire, which, according to our area, would be over 35,000,000 people. We have not yet 2,000,000, and Western Texas, in area greater than that of England, Scotland, Ireland, and several little kingdoms of Europe thrown in for good measure, has yet less than 250,000 people, cities and all.

If an immigrant can make a bare living in the North where it is

winter from four to seven months, and where the cost of fuel would feed him in this section, can he not make a little better than a living here, where there is no winter, and it takes much less clothing and food, and allows a man more working days than in the North? The advice of one who has been in almost every county and town of West Texas is—If you want to work this is the place for you to come; but if you wish to make your living by your wits, you had better stay where they can better appreciate wits than here. The kind of wits that men have who use them as banking capital are not the kind that we need, and usually carry a man to the penitentiary before he is in the country long. Many a man has come among us with a superabundance of that kind of capital, and having sense enough left to discover its worthlessness, went to work, and is now a rich man, honored and respected by all.

There never was a country where labor is better remunerated, taking in the cost of living, than in West Texas. For illustration, we take a carpenter who is master of his trade; he gets from $2.50 to $3.50 per day. There are very few days in a year that he cannot work in and out of doors without fire or shelter; his house-rent costs him from $8 to $12 per month, and his fuel not more than $20 per year; his clothing and that of his family fifty per cent. less than it does North; and if he is sober he can not only make a good living, but lay something aside for the hour of sickness and old age.

At the present time there is great need for farm labor, and a large amount of cotton will go to waste if labor cannot be had from abroad. Farm labor is always in demand, and land can always be had for rent, either on shares or money rent at very reasonable rates. As yet there is more land than labor in this country. You will be told, and by men here, that this is no place for a poor man, and the very men who tell you so, and who are now the possessors of thousands of dollars in lands and stock, came to this country so poor that they were glad to accept a dry crust from the table of a poor Mexican peon (slave). They were men of stern stuff, and stayed. Are you not equally brave in facing fickle fortune and winning from her a fortune and a position in society? Gold lies not loose upon the ground, but we have a rich soil that will produce abundant crops with less labor than any other portion of the Union: we have fine natural grapes; we have a climate the equal if not the superior to any in the world; we have a market for all the produce that can be raised, and we have a hearty welcome for all who wish to make this their home and become one of us; then, why ask what will an immigrant find to do in this country? If he wishes to work he need not be idle a day. If he is a lawyer he had better stay away, we have too many already; if a doctor, he had better go to a country where people get sick, this is too healthy, and we have to import invalids to keep alive the milk of human kindness; but if he is a mechanic, a farmer, or any other man with manual labor as his stock-in-trade, this is the place for him—his commodity is in demand and will bring a fair price.

WHAT CONDITIONS IMMIGRANT FARMERS FROM GREAT BRITAIN MAY FIND IN TEXAS.

THE old-country farmer or farm laborer, brought up and trained under certain local conditions as to methods of farming, various crops and social customs, must necessarily become a learner in some respects and for a time, and be obliged to relinquish some old-established habits of life and of management, when he emigrates to this new country. Hence the climate, crops and methods of farming are, in some respects, different from those to which he has been accustomed, as well as the habits of the people. But the intelligent and educated English farmer, however, will find this but a temporary inconvenience. He can readily learn the nature of our peculiar crops, and in a short time acquire from the native farmers the modes of husbandry best adapted to them.

Notwithstanding the local differences between farming in the old and in the new country, many farm products are necessarily the same in both. Our great staples, cotton and Indian corn (maize), it is true, are unknown in Great Britain, but our farm animals are just the same. Horses, mules, sheep, and hogs are profitable live stock here, and we cultivate the same grasses, and raise wheat, barley, rye and oats, etc., here as they do in Great Britain.

Our Indian corn, so very productive here, supersedes many of the feeding and fattening stuffs of England, furnishing food for both man and beast. It figures largely amongst our farm products, and takes the place of many of the minor crops of the older country.

The knowledge and experience of the intelligent English farmer in the management of the soil to maintain or increase its productiveness would be of great value in this region, where our native farmers have much to learn in this relation; and his skill in the raising and management of live stock could be of great service to him here.

The new country, however, requires adaptation on the part of the cultivator to the new conditions, as already mentioned, and the pioneer farmer must expect to turn his hand to many things which do not need his attention in his old home country, as well as to lay aside some of the old habits and customs in which he has been trained from his youth upward. But the grand compensation to him will be, if he is a good manager and of industrious habits, that he may become a fee-simple freeholder of landed and other property, which will annually become more valuable, in a free country of equal rights and very moderate taxation; and if he is near a market, his farming and gardening may not only give ample support to his family, but yield a good and increasing income.

The English farm laborer, accustomed to earn a very scanty pittance at home by daily labor, not having enjoyed the advantages of much early education, and having probably been trained on the farm to one special kind of labor only, may perhaps find it more difficult than will the capitalist or the renter to adapt himself to the new conditions

of this country. But if he is a man of good common sense and morals, and is not too old to learn, and is willing to be taught, he may very greatly improve his own condition here, and leave his children the patrimony of an improved social position, obtained by improved early education and an increase of his worldly goods. If he has no capital but his ability to labor and the farm training he has received, he may readily find profitable employment on the richer lands of the State in taking charge of live stock and in the common work of the farm; or, if he be a trustworthy man and a good farmer, he may either rent land or cultivate on shares. It is true he may be obliged to give up some of his old time-honored habits and customs, and learn to do many things he never was required to do at home; but he will soon find, if he is not too intensely wedded to the old notions peculiar to his own country, that he is more than doubly paid for the change by the greater advantages and profits of his new situation. His daily beer, considered a *sine qua non* by the English farm laborer, may not at all times be at hand for him here, but his daily ample meal of meat will soon enable him to forget its absence; and, moreover, he may find his head clearer and his body more healthy and strong under the daily meat diet than with the daily use of malt liquor. But above all other considerations, we would place that of his ability to greatly improve the condition of his family, and to leave his children citizens of a republic in which labor is honorable and all men equal in their civil and political rights.

TEXAS A WORKSHOP FOR MAN.

FROM the overcrowded mills of New England, from the sturdy tillers of high priced Western lands, from the dark and dreary mines of Pennsylvania, from the farmers, mechanics, miners and artizans of this country, and from the overworked and poorly fed millions of the old world, the cry is daily repeated, "Where can we find relief? What country offers us a home with better opportunities for an independent living?" This question, so pertinent and full of feeling, was answered by the Hon. Wm. W. Lang, in his eloquent oration before the Agricultural and Mechanical College of Texas.

An eminent writer has said, "The earth is the ground floor, so to speak, of nature; the home, or rather the cradle of man and of nations—the dwelling place of our race. It is not merely a region of immense space—a vast superficies; it is the theatre where all the forces of nature and the laws of nature are displayed in their variety and independencies. Besides this, it is the field of all human effort, and the scene of a divine revelation!" In the view that it is the great workshop of nature, and the home of all natural elements and forces, may be comprehended the whole body of the material sphere, but as the home or cradle of man and the scene of human efforts, the limit must be circumscribed by the boundaries of those portions that offer to the human

family, by reason of natural resources, soil, climate, atmosphere, vegetable and animal life, the best opportunities for rapid and continual advancement in power, in wealth, in civilization, in a ceaseless development of his power of thought. Man by his very nature turns away from the glistening icebergs, the chilling blasts and rigorous seasons of a polar zone, where two-thirds of his life must be spent within the narrow limits of closely-built walls, and sustained by artificial means. He does not care to dwell under the burning rays of a tropical sun, and however rich the soil or exuberant the vegetation, he will not make his home where disease-engendering malaria is the burden of every breeze, where listless torpidity seizes upon all his intellectual powers. Nor will he rest upon the barren sands of a Sahara, though its sunlight be the brightest, its atmosphere the purest. None of these portions of the globe offer a home to the Caucasian. But within the confines of this great State of Texas, with its incomparable climate and soil, adapted to the production of everything demanded by the necessities of the human race, with its mountains and hills ready to yield untold wealth to the industry of the miner, with its streams and rivers offering him food and easy transportation to an extensive coast, with its valleys and almost boundless prairies of unsurpassed fertility and beauty, the very inspiration of health and energy—have we not all that any country can offer as a home to the human family.

There are in Texas no glistening icebergs, nor dreary winters holding the earth for months in their icy embrace—no season of cold and inclement weather, during which the farmer must consume in feeding and sheltering his perishing animals, all that food and all that profit for which he has toiled under the burning suns of July and August. The climate of Texas is indeed incomparable. There is no extreme of cold to freeze and consume, nor of heat to enervate and destroy. The glorious configuration of her surface tempers the rigors of a northern winter, and the scorching heat of a torrid summer to a variety of weather conducive to health and vigor. Her soil is rich and fruitful, repaying the husbandman for his toil with great liberality in a series of crops whose diversity is without a parallel, and in this diversity there is a security, an insurance so to speak, which no other portion of the world can offer. For if the falling rains hurt the wheat harvest, they also give vigor and growth to the young cotton plant.

That which injures one crop, but makes the other more fruitful. Nature's great law of compensation is exemplified. The diversified landscape contains valleys fit for a world's granary, and mountains like those of which the prophet spoke when he said, "Out of whose hills thou mayest dig brass." Hidden beneath the fruitful soil is untold mineral wealth. The husbandman and miner alike have their reward. Turn where we may upon the broad domain of Texas, we find the elements of wealth and prosperity waiting the hand of industry to subdue and apply them to the uses of man. The means of comfort and competency are to be found everywhere. Industry will never fail to place its possessor in the honorable position of an independent and self supporting manhood. When the resources of Texas and her rapid increase in population are set before the thoughtful mind, an answer is

sometimes returned, that "this is all well for the present generation but that the next or at most the next following that, will find itself suffering from the same evils of exhausted soil and over-crowded territory that oppress so many of the present generation. There are many farmers in the Eastern States pouring expensive fertilizers upon exhausted lands that their grandfathers bought because of their great productiveness, in the hope that they would descend in undiminished vigor to their seed forever. The fathers who in early life emigrated to the prairies of Indiana and Illinois, now find scant opportunity for their sons among the high-priced lands of those States. May not they ask and wisely ask, "Will not the same result follow the springtide of immigration which is now flowing over Texas." We think not. For Texas, situated as she is, so to speak, at the foot of the North American continent, is enriched with the washings of countless ages until her soil has a depth to which no other soil on the continent extends. But the size of Texas precludes all fear of her being crowded for generations yet to come. The mere mention of square miles by the hundred thousand, and of acres by the hundred million, conveys but little idea of the magnitude of Texas, and her capacity for affording homes and profitable employment to millions of people. On page 11 of this pamphlet, an effort was made to realize the vastness of Texas, by a comparison with other States and other countries. We will endeavor to make some comparison between her capacity to produce and the world's consumption.

For the cotton year ending September, 1879, the cotton crop of Texas was 951,093 bales, and it was produced on 1,808,386 acres or 2,825 square miles of land, being a little less than the one-ninety-seventh part of the entire area of the State.

The entire cotton crop of the United States for the same year was 5,020,387 bales; it was produced on 12,595,510 acres of land. If we deduct this from the entire area of Texas, we shall find that Texas after producing the entire cotton crop of the United States, would have 162,992,330 acres left.

The wheat crop of the United States was 448,755,118 bushels, and it was produced on 32,545,899 acres. If we assume that Texas, has produced all this wheat, besides the cotton of the whole country, we shall have 130,446,431 acres left.

The amount of corn produced in the whole United States was 1,544,899,193 bushels, and it was grown on 53,085,401 acres. If we take this from the acreage left after producing all the cotton and all the wheat of the country, we shall have left 77,361,030 acres—so that Texas could produce all the cotton, all the wheat, and all the corn, the principal articles of bread and raiment used in the United States, and have more than 77,000,000 acres of land left.

But little more than half the area of Texas would produce all the cotton, wheat and corn of the United States. While that which remains has timber to an incalculable amount, and pastoral ranges upon which millions of sheep could feed and wool enough be produced for a nation's clothing. Beneath the soil lies hid coal, iron, copper, and other minerals, enough to supply the whole United States. Should

there be a famine in all the rest of the country, Texas could take upon herself the task of supplying the whole United States with bread and corn for food, and cotton and wool for raiment.

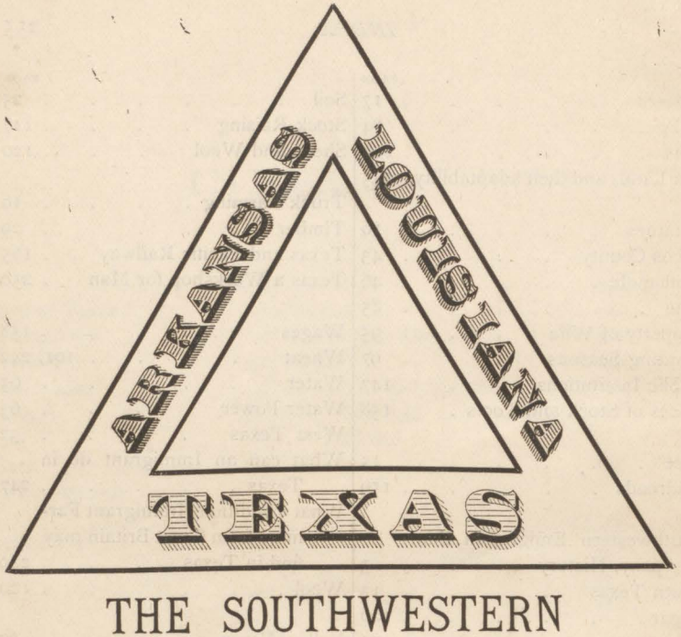
But we may take a step farther, and we shall see that the world's consumption of cotton is about 12,000,000 bales, and that Texas has the capacity to produce ten times as much cotton as the whole world consumes.

Competent statisticians state that the amount of land used in growing the nine principal crops of the United States, cotton, wheat, corn, oats, barley, hay, rye, potatoes, and buckwheat, is 223,763 square miles—so that Texas has land enough to raise all the nine principal crops of the United States, and have a garden plot of 50,000 square miles to spare. These simple calculations indicate the part which Texas is destined to take in the world's production. Her soil, enriched, as we have seen, by the washings of a continent, cannot be exhausted, while generations must elapse before her boundless territory can be even moderately filled with people. Within her boundaries almost every production required for the use of man can be grown. The mineral resources of the State are boundless in extent and wonderful in richness. All that tends to the comfort and happiness of mankind, is found in abundance within her borders.

A country with so many capabilities and such a variety of resources, will always afford a great multiplicity of occupations. No military servitude, taking the best years of youthful vigor and early manhood, for the service of the State is exacted here, as is done in so many countries on the other side of the broad Atlantic. The government is managed on the economical principles of "pay as you go," and the State this year calls for no more than forty-five cents on the hundred dollars, while the county levy is but half that amount. Sixty-seven cents on the hundred dollars, all told, will surely satisfy the most clamorous advocate of cheap government.

These are a few of the manifold attractions and advantages which makes "Texas the home and cradle of man," affording such splendid opportunities for rapid and continual advancement in power, in wealth, in civilization, in a ceaseless development of the power of thought—and which to the peoples of all climes and all nations, she offers in the language of the eloquent speaker before quoted, saying: "Come, take your places in the front rank of those who, inspired by the heroic traditions of her past and her grand future destiny, are now battling for the material prosperity and progress of Texas, and cease not your efforts until you shall have adorned her vast continental area with a splendid agriculture; established from border to border, lines of railroads, canals, and telegraphs; taken tribute from the rich deposits of her mines and mineral lands; built up her manufactories, her cities and towns, her public buildings, churches, and, above all, her school-houses. Provided with men true to her institutions, men capable of directing the construction and operation of her public works and of developing her rich stores of latent material wealth, Texas will attain her proper degree of industrial prosperity, and become the admiration of the civilized world."

INDEX.



THE SOUTHWESTERN

IMMIGRATION COMPANY

TEXAS.

"A LAND OF PRESENT PLENTY AND FUTURE PROMISE."

From the *Galveston News*, a journal to which we are indebted for much of the information herein contained, we make the following extract expressive of the aims of this volume:

"There is no desire here to raise hopes that may never be realized. Facts and statistics are given of a very valuable character, from which the seeker after information may draw his own deductions. Those looking to Texas as a future abiding-place should not be lured with the idea that this State affords a means of livelihood without persistent and consistent effort. Here, as elsewhere, the battle is to the willing and to the strong, and success awaits the honest, the hopeful, and the industrious. But it is a land of great capacity, of great fruitfulness, of great promise. No section of the world presents superior advantages. In saying this, all is said. With the individual himself rests the responsibility of success or failure."