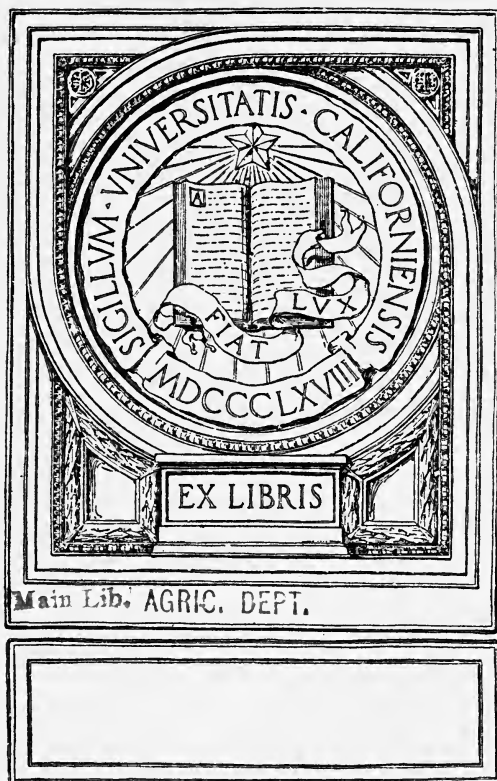


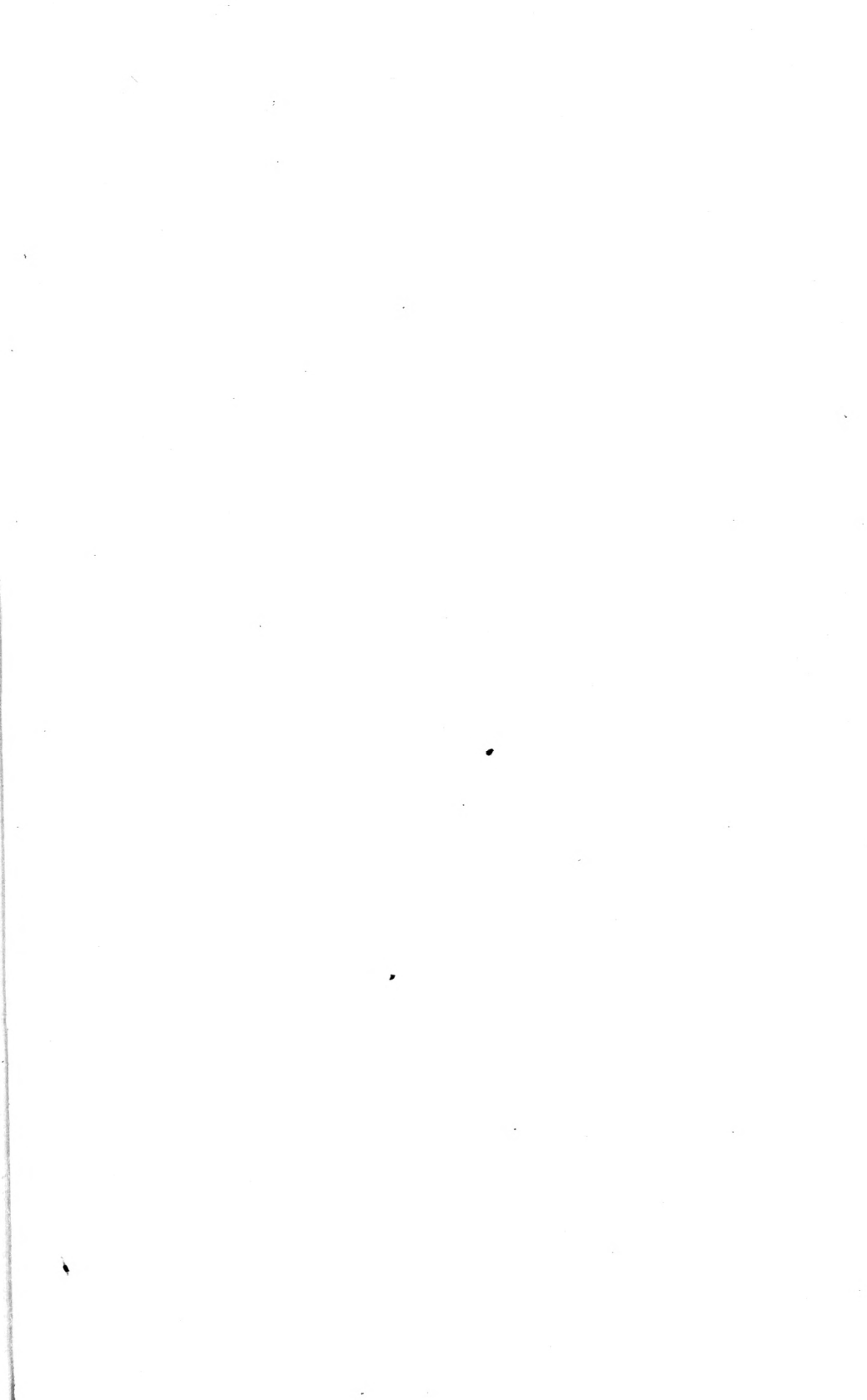
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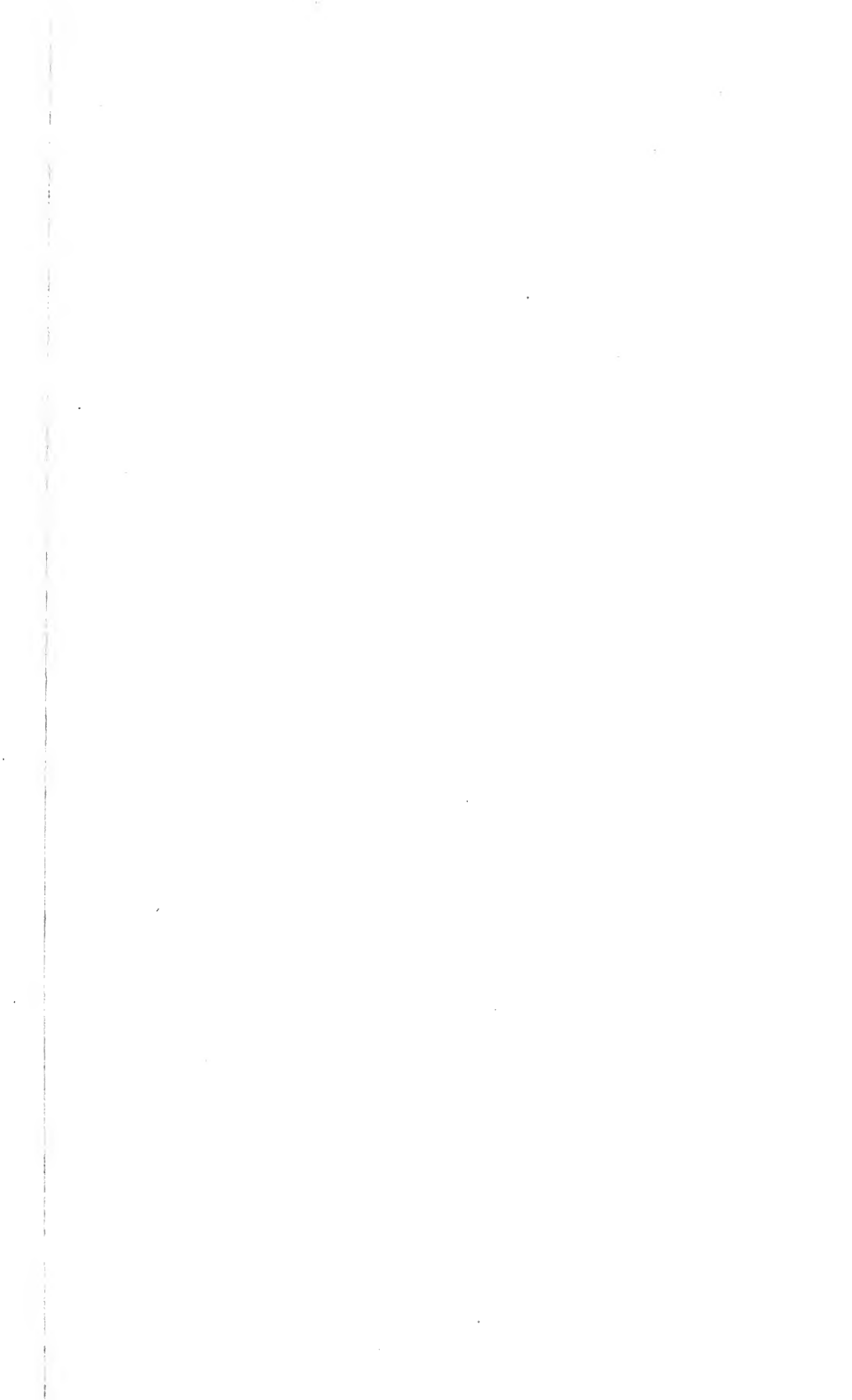


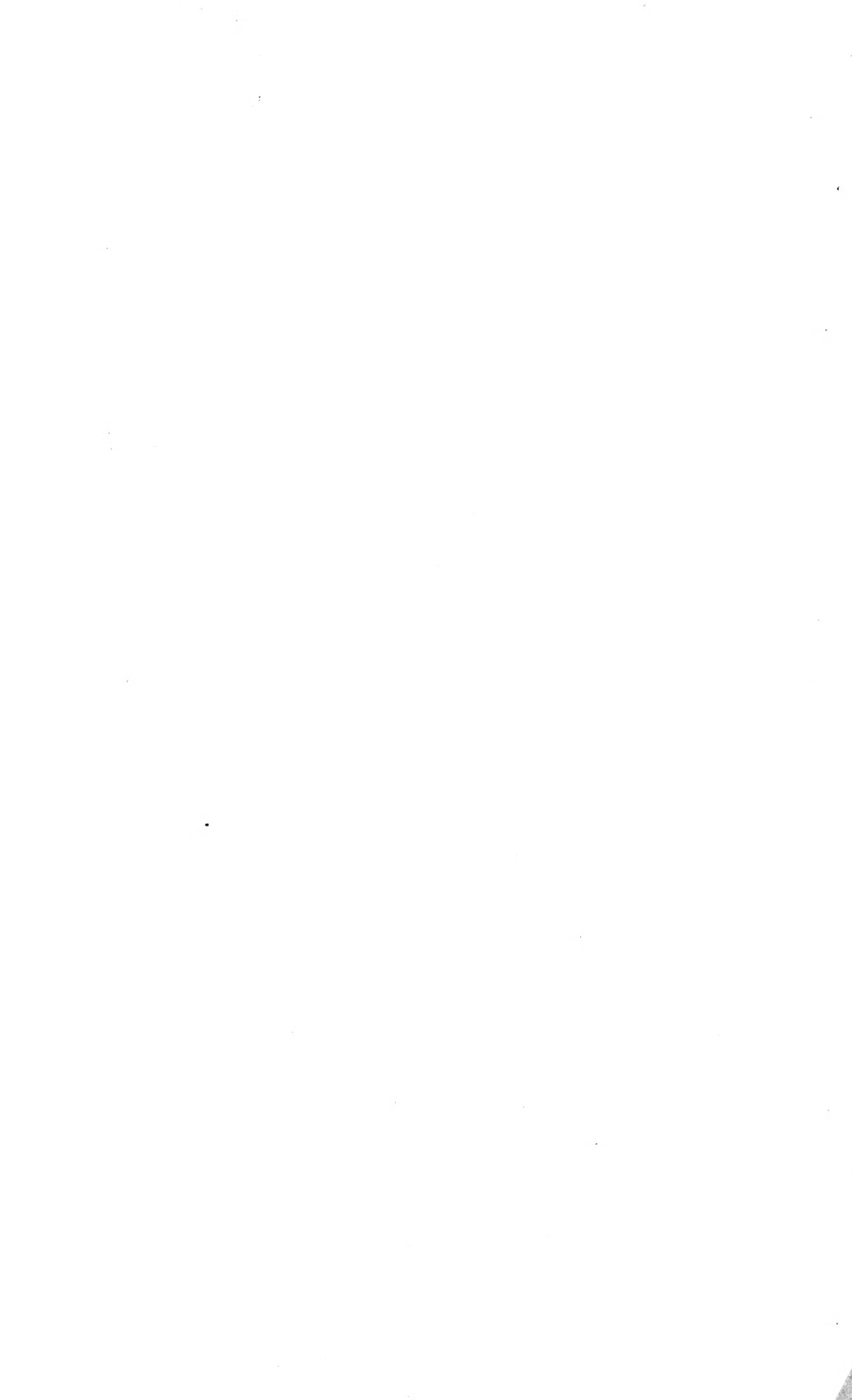
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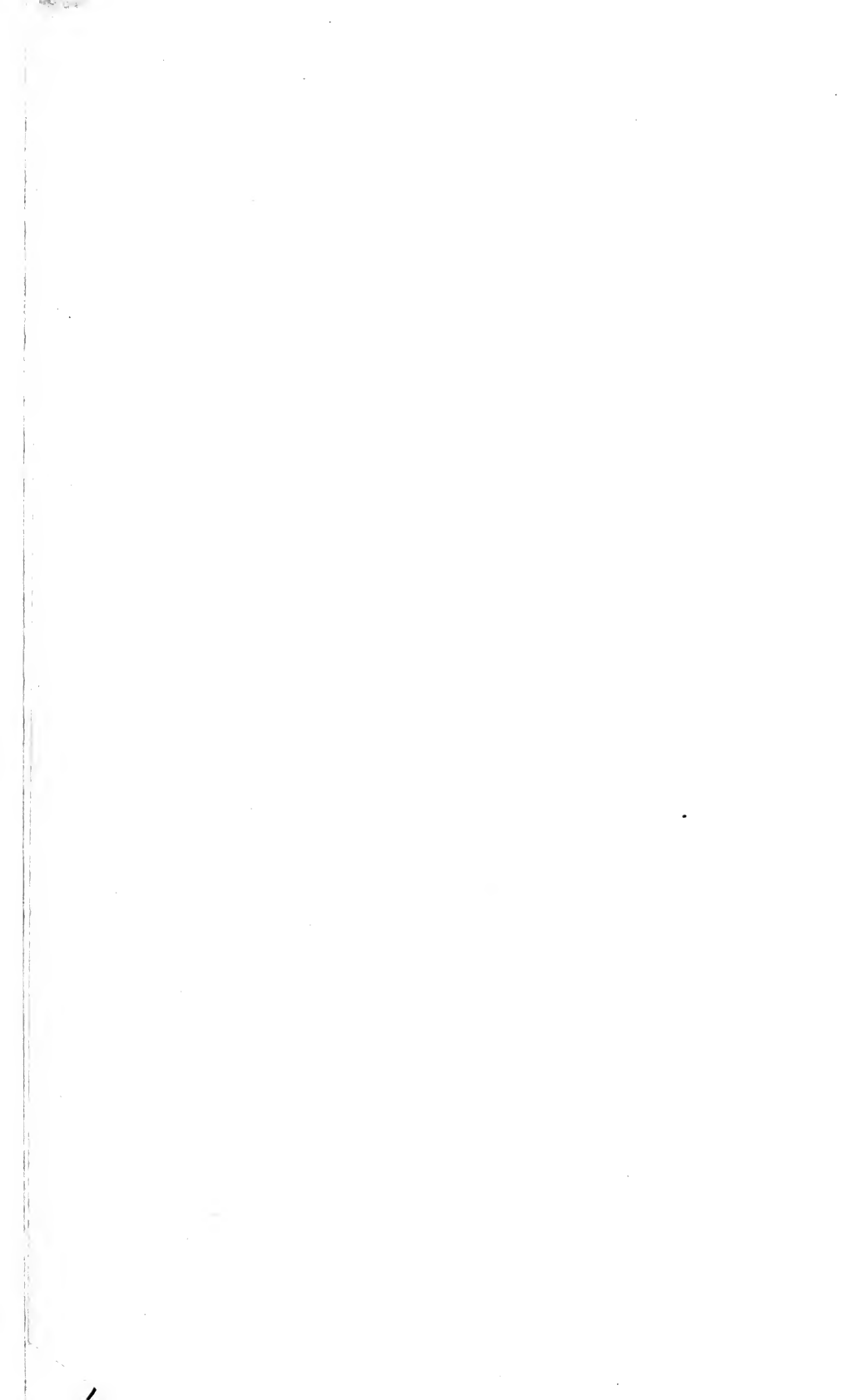
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THE TEXAS RICE BOOK.

INFORMATION FOR THE PROSPECTIVE SETTLER.

"WHERE SHALL I LOCATE IN TEXAS?"

Is a question often asked by those who contemplate moving to the State. Texas, being equal in territory to six of the largest states in the Union, we have within its borders a great variety of soils, climates and seasons, and a greater variety of crops are grown in Texas than in any state of the United States.

When coming to locate in Texas a great deal depends on the man; what means he has and what he is best suited to, the kind of crops he has been accustomed to raising and whether or not he has been living in a prairie or timber country. It is best for the man to bend to suit the soil, climate and seasons than to try to bend the country to suit the man. In other words, it is much easier to go with the tide than against it.

For those of limited means, and who have been accustomed to living in a timbered country, the counties of Eastern and Northeast Texas offer the best inducements, as the lands are cheap, ranging in price from \$2 to \$6 per acre, and a great variety of crops can be grown in that part of the State. Fruits, vegetables, corn, cotton and ribbon cane can be grown side by side. Hogs do well, also cattle, and one can have his own meat, and a few acres of Bermuda grass will carry cows enough to supply the family with milk and butter. One acre of Bermuda grass to the cow, with some forage, is all that is necessary.

For those who have a taste for growing rice or sugar cane, with some fruit and vegetables as a side line, and have the means, I would unhesitatingly recommend the counties in the Texas Coast Country lying between the counties of Orange and Victoria, between the Sabine and Guadalupe Rivers. This strip of country lies in the agricultural and rain belt of the Coast Country of Texas, and a large per cent of it is well adapted to the growing of rice and sugar, and when better drained, will no doubt produce other crops successfully, but we have every evidence now that rice and sugar are the best paying crops for this strip of

country. Unimproved lands are held at from \$6 to \$15 per acre in the country named, and improved farms from \$15 to \$25 per acre. Stock, also, does well in this section. Rice straw, rice bran and low grade rice make good feed for all kinds of stock. The low grade or inferior rice is crushed before being fed. This, mixed with rice bran, is good hog and cattle feed.

Those who desire to engage in the stock farming business, the raising of good stock and feed for them will find the country west of Guadalupe River, and also west of San Antonio and Beeville an excellent stock country. That section of Texas is very healthy both for man and stock. The winters are mild, and grass is, generally speaking, good and nutritious, and one can depend on growing feed stuff such as sorghum, kaffir corn and millet for feed. As compared with the States of Tennessee, Missouri and Illinois, very little feed is required to carry stock through the short winters of West and Southwest Texas. Unimproved lands in the sections named range from \$1.50 to \$5 per acre, depending on the distance from towns and railroads. Improved, from \$5 to \$10. Cotton is also grown successfully for from 70 to 100 miles west and northwest of San Antonio, and for about the same distance west of Victoria and Beeville.

To those who wish, and are able financially, to locate in Central and North Texas, the country lying between Denison, Greyson County, on the Red River, and Bremond, in Roberts County, on, and tributary to the line of the Houston & Texas Central Railroad, where corn, cotton, wheat and oats are successfully grown side by side, can do so by paying from \$10 to \$20 per acre for unimproved lands, and \$20 to \$50 for improved land. The country from Bremond, south to Hempstead, is adapted to the growing of cotton and corn, fruit and vegetables, but not to small grain, and unimproved lands can be had at from \$5 to \$10 per acre, and improved land at \$10 to 20 per acre. From Hempstead, south to the coast, the soil is best adapted to the growing of rice, provided an ample supply of water can be secured, of which there is little doubt. Stock also, does very well in this section. The unimproved lands from Hempstead to the Coast Country are held at from \$5 to \$35 per acre, and improved at \$10 to \$50. The country lying between Bremond and Waco is a very rich, productive soil. Corn and cotton are the principal crops grown; however, fruits, vegetables, melons, etc., do well on the sandy land. In the vicinity of Waco, wheat and oats are also produced. Lands are held at from \$10 to \$40 per acre, depending on distance from railroad, improvements, etc.

From Hempstead to Austin there is some fine country—as rich as there is in the State. A great variety of crops are grown corn, cotton, oats, fruit and vegetables, also good stock. Lands are held at from \$10 to \$40 per acre.

Those in search of health and who are afflicted with lung troubles, bronchial diseases, catarrh, etc., will find the country around and west of San Antonio beneficial—it is considered to be

as healthy a country as there is in the United States. The air is dry, pure and bracing, and very healing to the lungs.

There is considerable country in Texas classed as the "dry country." While this is true, there are tens of thousands of people in the United States who are looking for a dry country, and would extend their lives many years by moving to that portion of Texas. This so-called "dry country" is not only a good place for those who are run down in health and need a change of climate, but it is also entitled to the name of the Beef Belt in Texas, for, as we have said, as good stock as can be raised in any State in the Union can be produced in that section, and when we consider the price of lands and the small amount of feed required to carry the stock through the short, mild winters, no State in the United States can compete with the "Dry Country" of Texas, in producing beef, mutton, mules and horses. It would be well to note the fact in passing, that we have an area IN TEXAS that is larger than any two States in the Union (outside of Texas), that is, within the Rain Belt, and can be depended on to yield crops equal to that of any State in the United States, with a greater variety of crops than are grown in any other State.

Texas offers a good field for men who wish to engage in manufacturing, working up the raw materials, such as cotton, wool, hides, etc. There are ample railroad facilities and over 3,000,000 consumers in the State to be supplied, to say nothing of the States and territories tributary to Texas. To those who understand the canning business—canning of fruits and vegetables—Texas is an exceptionally good field. East Texas and portions of the Texas Coast Country, as well as some counties in Central Texas, can produce fruit and vegetables to supply the wants of the people of Texas and several other States. There are but few canneries in the State, but those that are here, we are informed, are paying investments, and they are finding ready markets for their products.

Those who have a taste for hunting, fishing, for fish and oysters, will be very hard to please if the Texas Coast Country does not come up to their expectations. Texas has about five hundred miles of coast country, which is from twenty to forty miles in width.—*John Howard.*

RICE CULTURE IN THE SOUTH.

By Prof. S. A. Knapp.

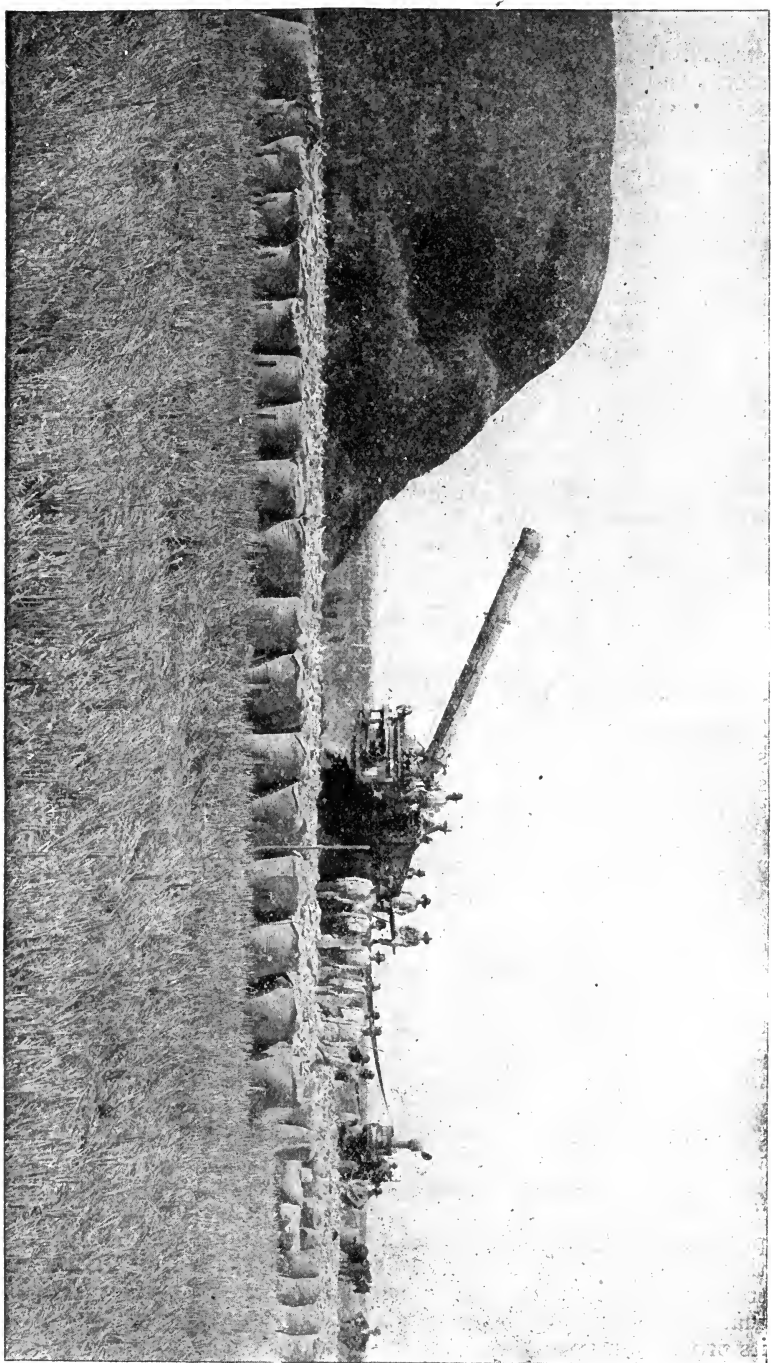
We are rapidly approaching the area of a universal density of population. To the people of the United States it has hitherto seemed a remote problem. The revelations of the last census show that within the present century we shall be confronted with the problem of a sufficient home food supply, instead of sending an enormous surplus to the old world. Thus far we have paid no

attention to the economic value of food nor its digestibility in our efforts to gratify the appetite. In fact, fifty years ago such values were unknown to the scientific world. Now we realize the amazing waste resulting from the selection of food on the basis of tastes instead of the amount of nourishment contained. As seven-eighths of the food consumed is on an average expended in the production of energy, the value of foods should largely be based on the amount of energy they will produce in the human body. It is interesting to note what a revolution in prices this would produce. On the basis of the amount of energy a food will impart, taking wheat flour as a standard at 2 1-2 cents per pound; good beef steak (round) should be sold at 1 1-10 cents per pound; porterhouse at 1 66-100 cents; turkey—the edible part—at 2 cents; chickens—broilers—at 3-4 of a cent; Irish potatoes at 3 1-10 of a cent; butter at 5 1-2 cents; cream cheese at 3 1-10 cents; red snapper at 4 1-10 of a cent; corn meal at 2 47-100 cents; oat meal at 2 80-100 cents; invalid food, such as malted milk, at 1 6-10 cents, and rice at 2 52-100 cents.

Three articles in this list are superior to rice, to-wit, oat-meal, butter and cheese, but their superiority is due solely to the large portion of fat in each. The consumption of fat in the body is like burning pitch pine under a boiler. It makes steam, but it soon burns out the shell. Fats make too hot a fire for warm countries. If perfect consumption and slight tax upon the system be considered rice again takes rank among the first of foods in value. Where rice is the principal food dyspepsia and other forms of indigestion are rarely found, and there is perfect health and great endurance.

In Japan it is a common saying among resident American women, "I could do that if I had a Japanese back," referring to the strength of loins possessed by the native women. Every traveler in that distant land has noted with surprise the ease with which a jinrickshaw boy will draw a man six miles an hour along the streets of Tokio. In the late rapid advance upon Peking it was found that the Japanese could outmarch all the armies of the Occident. With full equipment they advanced all day at double-quick and repeated it till even the Russians fell behind exhausted. These women with backs, these jinrickshaw boys with the speed of a horse, and these double-quick soldiers, live on rice, bean soup and fish. The Chinese coolie works in the rice marshes of Siam, under a tropical sun, breathes malaria, drinks stagnant water, and remains in perfect health. He lives on rice.

In selecting food for dense population certainty of the crop is an important consideration, especially where any considerable failure is significant of the death of a portion of the people. Rice, when properly cultivated, is the most certain crop of all the cereals. In the Orient it has been bred and trained to withstand the sweeping monsoon and the furious tornado. Last spring a farmer on the Lower Colorado River, in Texas, planted 150 acres with imported Japan seed rice. The Galveston tornado de-



THRESHING RICE ON LINE SOUTHERN PACIFIC—"SUNSET ROUTE."

stroyed all of his cotton, but his rice successfully withstood the storm and yielded seventeen barrels per acre. Given a suitable soil, plenty of water and intelligent husbandry and the rice crop may be depended upon with a greater regularity than bank dividends.

A third reason for adopting rice as the staple food supply in countries of dense population is that the annual crop does not exhaust the soil as rapidly as other cereals, the water of irrigation furnishing a material amount of plant food, and in some countries a winter renovating crop, as clover in Egypt, is used, making it possible to continuously crop a field in rice for an indefinite period. Further, a staple food for a warm climate must be one that can be easily preserved from one season to another. In the tropics corn and wheat cannot constitute the staple food, except in sparsely settled sections where corn can be held in the shuck. Corn meal and wheat flour are soon spoiled, weevil and must speedily make them unfit for use; but rice can be stored with reasonable safety. It can be prepared and cooked with the crudest implements, and is a healthful food for people of all ages and all conditions. It is fair, therefore, to assume that the consumption of rice in the United States will increase more rapidly than the population, all other things being equal. A dense population will demand it.

Fifteen years since it appeared highly improbable that rice would ever occupy any commanding position in the food markets of this country. Wheat and corn imperially controlled the situation and were dominating the markets of the world. The spinning jenny and the power loom did not do more to enthrone the cotton industry than the machine seeder, the twine binder and the steam thresher did to make wheat chief of cereals. Rice, in all this period of the evolution of wheat, remained stationary. Fifty years ago it was planted, harvested and milled the world over precisely as it was 2000 years before America was discovered and to all appearances there would be no improvement for the ensuing twenty centuries. One day some bold optimists conceived the idea that improved farm machinery could be adjusted to the rice industry. After many trials and failures it was a success. The gang plow, the horse drill and the twine binder and the steam thresher took possession of the rice fields. This involved a revolution, to-wit, the Southern States would become in the near future large contributors to the world's food supply as well as to her fiber supply.

I have digressed somewhat from the topic assigned me, "Rice Culture in the South," to discuss some of the general propositions relating to rice but necessary to a full understanding of the situation. It is needless to enter into an account of the introduction of rice into the United States. It is sufficient to state that its cultivation, until recently, was along old lines, and that its production appeared likely to decrease, owing to the stronger competition from India and Siam, due to the construction of the

Suez Canal and the employment of larger steamships in the Oriental service, greatly reducing the cost of transportation. Until 1885 rice production in the United States was practically limited to the alluvial lands of the Carolinas, Georgia, Florida and Louisiana, and it then appeared that the industry could not successfully meet the competition of the bonanza wheat farms of the northwestern prairies on the one hand and the low priced labor of India on the other; but when machinery was adjusted to rice production and it was discovered that the prairie lands of Southwestern Louisiana and Southern Texas, with their impervious subsoils, would dry out before the rice harvest sufficiently to hold up machinery, rice began to assert the supremacy which she held as a world's food, while the use of machinery in the fields of husbandry was unknown. This coast rice belt in Louisiana and Texas includes over 12,000 square miles of fairly level and very fertile prairie. Prior to the invasion of this territory by rice the land was regarded as almost worthless except for stock range. Subsequently it was ascertained that the soil was rich in plant food and that its non-productive condition was due solely to the lack of drainage. This rice belt is bisected by ten navigable rivers and by many smaller streams; all conveying fresh, soft water comparatively free from silt. Prices of land were barely above the cost of government entry. Settlers from many sections of the country began to camp upon this territory with improved machinery. Some people shook their heads but they shook out their plows, their drills and their binders and went to work.

In nearly every township there are one or more ridges slightly above the surrounding land. On these surface canals were built from 20 to 150 feet wide, according to the area to be watered. The sides of the canals were raised from 4 to 5 feet with plows and scrapers, or with grading machinery. Laterals were run from the main canal to accommodate remote farms. Powerful pumping plants were located on the banks of the river at the head of the surface canals. These canals, when well constructed and operated, proved entirely successful and made the rice crop a practical certainty over a large section of the country.

Scarcely had the surface canals been accepted as a success when Southwest Louisiana was startled by the announcement that there were strata of gravel at 125 to 200 feet under the surface of the entire section, containing an unlimited supply of water, which would, of its own pressure, come so near the surface that it could be easily pumped. This was received with incredulity at first, but repeated tests proved that there is a bed of gravel nearly fifteen feet in thickness underlying this section of Louisiana and Texas which carries a large amount of soft water. Pipes of 2, 3, 4, 6, 8 and 10 inches in diameter have been sunk to the gravel and pumped continuously for months without diminution of supply. The water is soft, at a constant temperature of about 70 degrees, and absolutely free from all seeds and injurious minerals. Such is the facility with which these wells are

made that a 6-inch tube has been put down to the full depth required—200 feet—in 14 hours.

The total cost of a well or wells and pumping outfit sufficient for 200 acres of rice is from \$1500 to \$2000, and for 500 acres about \$3500, or \$7 per acre. It is probable that over 50,000 acres of rice will be irrigated by wells the ensuing season. The cost of such irrigation is from \$1 to \$2 per acre for the season, depending upon the cost of fuel and other conditions. Where plantations are remote from timber and the railroad, the gasoline engine will be used. Since it has been found possible to transmit electricity with very small loss to distant motors the plan has been in contemplation to equip ten or twenty thousand acres with wells and electric motors, and furnish power from a central plant using the same power for milling the rice, when not in use for pumping.

The evolution in milling rice has been as great as the production.

PRIMITIVE RICE MILLING.

The primitive method of milling rice was to place a small quantity in a hollow stone or block of wood and pound it with a pestle. The blow with the pestle cracked the hull, and the friction created by the sliding motion of the rice under the blow removed the hull and the cuticle. The bran and hulls were then removed by winnowing. The first advance upon this primitive mechanical process was to take the receptacle for the rice out of a short section of a hollow log, using a heavy wooden pounder, bound to a horizontal beam 6 to 8 feet long, resting on a fulcrum 4 to 5 feet from the pounder. The pounder was raised by stepping on the short end of the beam, and by suddenly removing the weight the pounder dropped into the rice tub and delivered a blow.

As one passes along the street in an oriental city, a peculiar sound is brought to the ear as of a blow delivered upon some yielding substance. Looking to the right or left one sees a rice mill, consisting of a one-man power, jumping on and off the beam of the pounder and one one-woman power at a crude fanning mill cleaning the grain. Such a mill cleans about 11 bushels (a trifle over 3 barrels) of paddy rice per day, at a cost of 6 cents (gold) per barrel.

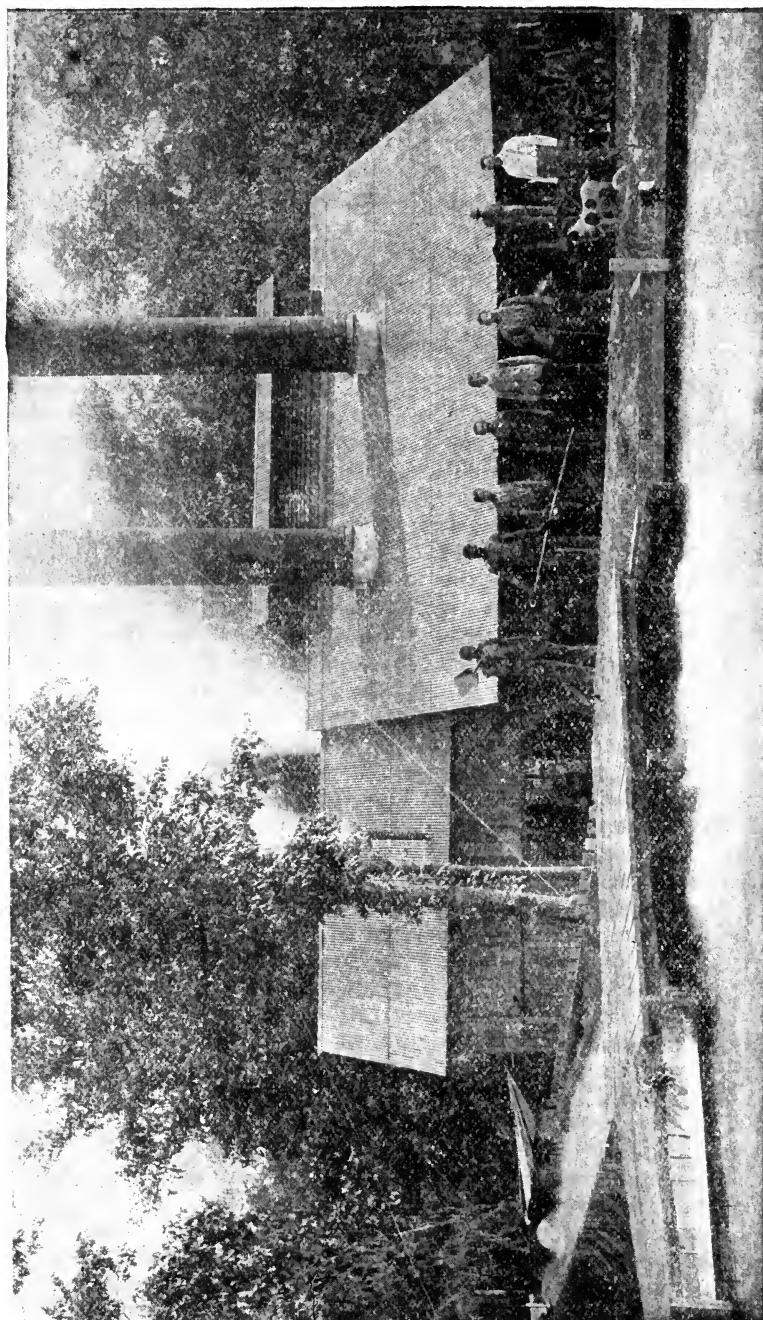
Where practicable water power is used to turn an over-shot wheel, which is geared to a long horizontal shaft with arms at distances apart equal to that of the rice pounders.

In every mountain village in Japan such mills may be found preparing the rice for local consumption. They usually have about eight pounders and mill 96 bushels daily, or 26 2-3 barrels, of paddy rice, at a cost of about 2 cents per barrel, which is more than paid for by the offal. In cities steam power is used, and the number of pounders greatly increased, but the process is practically unchanged.

Our modern rice mill is an automaton of complicated machinery, into which the rough rice passes and finally appears, ready for market graded, sacked and weighed, at the rate of 20,000 to 200,000 pounds per day, according to capacity.

Thus far the evolution of rice in its production and milling processes have gone forward with perfect success upon Southern soil. The problem now widens. It is one of economic distribution. The producer of wheat in Dakota receives within a third of a cent per lb. of the sum the consumer in Louisiana pays for the flour. In case of wheat, transportation, milling and profits are kept within a third of a cent per pound. Reversing it, the consumer of rice in Dakota pays five cents per pound more than the farmer in Louisiana receives at his home market. That is, it costs fifteen times as much to mill and market rice as it does to mill and market wheat. When I was a boy I held my atlas on an incline in front of me, and somehow the idea took possession of me that it was always uphill toward the north pole. Transportation lines must have arrived at some such conception, and are charging for heavy grades in moving freights toward the North. However, the battle of the toiling millions for cheap food will soon arbitrate the question in favor of rice, and the two great staples, wheat and rice, will be placed upon the same footing commercially. With transportation and other questions of economic distribution adjusted, the producers of rice will enter upon a battle royal with the producers of wheat. With what result? In India, China and Japan, which contain about one-half the population of the world, wheat and rice have been produced for centuries under similar conditions. Both are cultivated and harvested by the crudest hand processes. There, under similar conditions, the result has been favorable to rice. In the United States both are machine products, upon a parity. Rice has against it the greater cost of irrigation and of cutting. It has in its favor a larger yield per acre, a more certain crop, and an adaptation to rich low lands unsuited to wheat. The by-products of rice are fully as valuable as those of wheat. The straw is superior as a stock food. Thousands of tons of rice straw have been sold this year in Louisiana for \$4 to \$6 per ton to stockmen. Rice bran and rice polish rank for food with wheat bran and wheat middlings.

It should be noted that wheat production in the United States has passed the meridian of its vigor. Many States that were once large contributors to the wheat supply do not now produce enough for home consumption. Wheat was fortunate in finding wonderfully favorable conditions on the prairies of the Northwest, but it exhausts the soil rapidly; ten to fifteen years continuous cropping reduces the annual yield per acre to scarcely paying quantities. The center of wheat production is moving steadily to the North. There is little remaining territory for it to devastate. Already it is a giant with paralyzed limbs.



PUMPING PLANT IRRIGATING RICE ON LINE OF SOUTHERN PACIFIC—"SUNSET ROUTE."

Another question to be considered. Can the rice farmers of the United States, with their improved agricultural machinery, compete with the cheap labor of the Orient? On the prairie rice lands of Louisiana and Texas, one man with a four-mule team can plant and harvest one hundred acres of rice. He will require an additional man in harvesting and stacking, and, of course, help for two or three days in threshing. Well tended, his crop will net him 1000 barrels. He may do much better than this, and he may do worse. In Japan, one-third of an acre is a reasonable rice farm for a man. In China and India, the water buffalo is used in preparing the land, which enables one man to cultivate one-half an acre to two acres, depending upon the amount of additional help employed. With our improved machinery, there is no known country where a dollar will produce as many bushels of rice as in the United States. The indications are that rice production in India and Japan will decrease. These countries show remarkable progress in textile manufactures. This indicates that much land in the near future will be devoted to the production of fibre. Every acre devoted to fibre must be withdrawn from the cultivation of rice or wheat, for every available acre in China, India and Japan is now under cultivation. It should be noted that the increased production of rice in Southern Europe, especially in Italy and Spain, has been considerable within the past thirty years, and wheat, oats and barley have yielded ground.

The increase of the world's population in the next 30 years will not be less than four hundred millions, and the food for this immense number of people must be drawn from new fields. Before the expiration of that period, India, China and Japan will become exporters of rice, and the rice of Siam will find markets at neighboring ports. The markets of Europe must then be supplied by American rice, and the American consumption in the United States in the mean time will have more than doubled.

Let us take account of stock. Suppose our product last year to have been two hundred million pounds of cleaned rice (this is above the general estimate). We imported two hundred and five million pounds, and Porto Rico, with an annual demand for about seventy-five millions has been added to our markets. Cuba, just at our door, will soon require one hundred million pounds annually, and the Philippine demand will be about one hundred and thirty-five million pounds. These islands are all importers of food products, because they find other crops more profitable under their conditions. The Hawaiian Islands formerly sent to this country about five million pounds annually, now they import from us large amounts. With an annual production of about two hundred million pounds, we have present and prospective markets demanding seven hundred and twenty-five million pounds, with the probability that the demand will be more than doubled in thirty years and the markets of Europe added.

Some will ask, "If such is the rice situation in the South, what is the necessity of any tariff on it?" For several reasons.

First. The question of economic distribution has not yet been settled. Second. Many things are yet to be learned about rice in connection with machine production. As yet it does not take as high a polish as hand-produced rice. It has what is known as the chalky edge, which reduces the price of the finished product fifty cents per hundred. The price of rice at present is based on fashion and not on food value. It is the problem of finish or shine it takes and not on what it is. This chalky edge is due to careless management in producing large crops, and will soon be remedied. Credit is due to the United States Department of Agriculture for prompt and valuable assistance in overcoming some very serious obstacles in the way of economic rice production. Another thing to be learned is better cultivation, as necessary to quantity and quality of product. Third. Rice farming on our system is in its infancy. Many farmers have recently commenced with small means, and are not in circumstances yet to make a crop at the greatest profit, which requires ready capital. Fourth. The greatest danger from Oriental competition is what is known as dumpage, *i. e.*, after home consumption has been supplied the remainder is sold for what it will bring, regardless of cost of production. This occasional dumping of a surplus on our markets utterly demoralizes home prices. In the United States, when an enormous crop of grain gives us a cheap surplus it is fed to cattle and hogs. In Oriental countries it must be sold, because they do not have the stock to which it can be fed and hence is exported at any price it will command. It is like eggs, the surplus is sent to market, whether the price is four cents or forty cents per dozen. These are the reasons for a tariff.

I have thus far discussed rice almost entirely from its commercial standpoint. This is not its most substantial and attractive feature for the South. The paramount demand of the South is for some good, small grain crop, which will furnish food for the people and a profitable surplus for export, leaving upon the farm abundant and nutritious by-products for the maintenance of stock, and thus utilizing the luxuriant pasture lands now classed as waste. Cotton and pasture do not co-operate. The sole by-product of cotton is worth too much commercially to be generally left upon the farm. The full resource of the average farm can never be developed with cotton as the main crop. Corn is a grand grain, but its stalk is too woody, and has lost much of its value before it is required as a food for cattle. The plant that meets these requirements is rice. It has a wide habitat, and can safely be planted from the equator to the thirty-sixth parallel of latitude. South of this line most farms have a creek or river bottom, easily flooded, which might be devoted to rice. One hundred acres of rice furnishes at least 100 tons of straw superior to native prairie hay, and twenty-five tons of bran and polish. This provides for the wintering of 100 head of stock. Some plan will soon be devised for the use of agricultural machinery on bottom land, as well as on the firmer soils of the prairie. The future of this industry is full of interest.

The chief interest, however, in the general planting of rice in the South lies in the fact that it will make the Southern States resourceful and independent. In the nature of things there will ever be a struggle for empire, and survival of the most powerful. The decisive battles of the future will be won, not by serried battalions with emblazoned banners amid the rattle of the rifle and the roar of the cannon, but by the industrious millions on the farms and in the factories. It is a battle to the finish for the most economic production and distribution of the world's food supplies. War has become a problem of the exchequer, based upon industrial resources. A bread line 1500 miles long is improvident if safe. Economic forces are opposed to it; especially when we have a cereal at home, hardy, enormously productive, better suited to the requirements and can be milled upon the farm for home use at trifling expense.

I have heard with pleasure in this convention speeches and resolutions in favor of establishing cotton mills in the South until every pound of cotton produced within her fair domain shall be transformed by the magic of spindle and loom into fabrics of value for the marts of trade. Did it occur to the eminent speakers that, however desirable such a result, its achievement is impossible under present conditions. Why? Because we now import from the North immense quantities of wheat, beef, pork, butter, cheese and other food products. The question is simply this: Is it cheaper to transport the food for the operatives in cotton mills from its Northern base to the cotton centers of the South, or to ship the cotton bale to the food centers of the North. Cotton is the cheaper freight. If, however, we shall become a great food producing people, the whole problem will be changed. General cultivation and use of rice in the South will solve the factory problem.

To affirm that rice in the South can occupy the vantage-ground of wheat in the North, both in extent and economy of production, is equivalent to a commercial declaration of independence. It means that we shall feed our own rice people with a home-grown cereal, and that with by-products we shall produce the pork, the beef, the butter and the cheese required for home consumption. It means a better grade of cattle and horses, better beef and stronger teams. The substitution of rice for corn and wheat as the principal food for Southern people will tend to the development of a hardier race. It will decrease dyspepsia, malaria and mortgages. It will strengthen and fortify every line of industry and give us support at our weakest point, a lack of a proper ratio between the food and the fiber products. By general consent cotton is recognized as the best material to clothe the nations, and iron occupies a peerless position in all mechanical and structural works. In both these world necessities, the South has no successful rival. With the home production of food her commercial independence will be complete, and her conquests in the domains of industry will be a series of brilliant triumphs.

Foundries and factories will come to her unsought; her cities will broaden to meet the demands of an increasing commerce, and her marts of trade will teem with merchants from every land.

Thus far it appears to me that this convention, from an industrial standpoint, has been apologetic and penitential for the neglect of its past opportunities with promises of reform and good resolutions for the future. I do not think Louisiana and Texas require any apology. For the past fifteen years they have embraced every opportunity for industrial improvement, and have gone into every battle for the commercial and industrial advancement of their people with the flags of their States spiked to the staff.

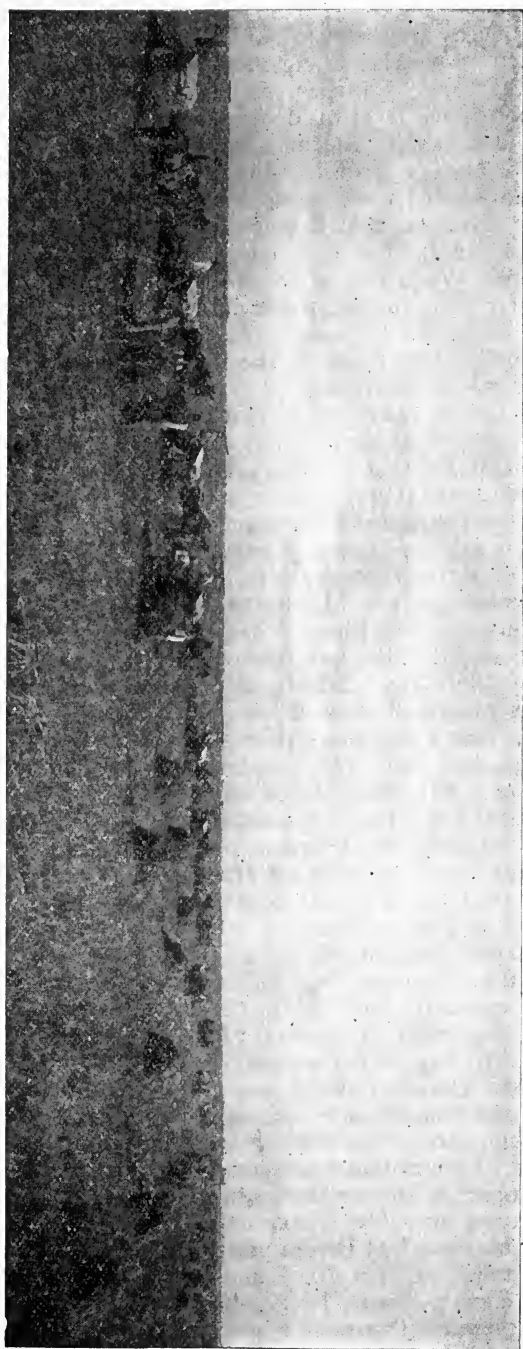
Speaking for the rice section, fifteen years since there was scarcely a barrel of commercial rice produced in what is now known as the prairie rice section, which extends 400 miles along the gulf coast, and contains some of the most fertile lands on this continent. These lands were then valued at 25 cents to \$1.50 per acre. There were few settlements and no rice mills. To-day it is the rice-producing center of this country. Unimproved lands are worth on an average of \$12.50 per acre. There are thousands of improved farms and happy homes. Within the territory are twenty-seven rice mills, with a daily capacity of over 20,000 barrels of rice. A score of young cities have sprung from the prairies, are clamoring for harbors and public buildings, and are heralding themselves as the future urban centers of the South.

To illustrate the momentum of progress, it may be stated that one firm has sold in a retail way over 20,000 acres of land for actual settlement since last July. Within the past ninety days over \$10,000,000 of new capital have been invested in the rice industries of Louisiana and Texas. I can not say we are exactly in line, but we shall be when the rest double-quick for a few years.

RICE CULTURE IN EAST TEXAS.

(By G. McManus, at the Texas Farmers' Congress, A. & M. College, College Station, July 5th, 1900.)

My friends, you may have been reading the cyclopedias, or, perhaps, newspaper correspondence from the Philippines, or your friends from the Carolinas have told you all about rice growing in their quags. But none of them knew about our methods in Southern Texas or Southwest Louisiana. Let me tell you of them. We cannot use a marsh or swamp for rice growing. We must have high, smooth (not necessarily level), well drained land. We plow the land for rice just as we would for wheat or oats, with ordinary sulky or gang plows, cut the sod with a disc harrow, and sow about one-third of a barrel of rice seed per acre with press drills. The land must be as dry for sowing as any wheat land. Then while the seed is sprouting and growing its first six or



MCCORMICK HARVESTERS AT WORK ON LINE SOUTHERN PACIFIC.

eight inches, levees are made to hold the water. These are simply constructed by plowing along the levee line about twelve furrows wide, the earth is thrown up to the middle by a scraper about one foot above level of field. Over a mile of such levee can be built in a day by one man and a four-horse team. The levee lines are always carefully staked out by an engineer, and must be so placed that there is no more than three inches of fall from levee to levee—so that if water is three inches deep at the upper edge of the field it will not be more than six inches at the lower edge. When rice is six inches high or more, and levees all properly constructed, water is turned on at the highest point on the land, and by temporary cuts through the levees is delivered from level to level till the lowest is standing in three inches of water, and so it is kept flooded for sixty or seventy days. When rice is ready to harvest, the water is drained off, and one can't very well drain water off a marsh or swamp; we never use a marsh for rice growing. Harvesting is done with the latest improved self-binders; grain is shocked and stacked like wheat or oats, and threshed with a steam threshing machine. All this, you see, is quite an improvement on the Filipino method.

We do not suffer from malaria. I am a native of Canada, and lived nineteen years in Minnesota, but never have I enjoyed such continuous good health as I have in the past five years in Southeast Texas. Besides, our farmers have all the usual social advantages of farm life. Schools and churches are not everywhere as conveniently situated as we feel sure they will be later on. We are as near a railroad station as you, and far nearer market than are most of you. Our rail travel is therefore much less and we pay less for freight. A majority of our rice farmers can afford to send their growing boys and girls to the near-by schools and colleges at Galveston, Houston or New Orleans. Oh, the poor rice farmer is not so badly off after all.

You may have a notion that Southwest Louisiana is the only rice country; you have good reason to think so, for this year they have over 250,000 acres in rice. No, sir; I can't take a single naught from those figures; and that means they will raise this season about 2,500,000 barrels, or nearly 8,000,000 bushels of rice. I know that up to November 23rd, 1899, there were marketed at the little city of Crowley alone 628,000 barrels of rice for that season. This was about two and a half million bushels. I admit Louisiana has 300 miles of main canals and 500 miles of lateral, and the canal companies have invested over two and a half million dollars. I admit that Louisiana has more than 160 irrigation wells with pumps and engines costing an aggregate of \$260,000, and irrigating probably 30,000 acres. But I wish to remind you that Louisiana has had fifteen years start of us, and, anyway we're "not so few." Listen, for I know I am going to surprise some of you. Texas—South Texas—has in rice crop this season approximately seventy thousand acres, and has eighty-six miles of irrigating canals and twenty irrigating wells. These 70,000

acres should produce 700,000 barrels, and give the rice farmers of Texas two million, one hundred thousand dollars for their crop. How does this compare with some of the other important crops of Texas? One of your leading sugar planters was at College Station yesterday. He told me the sugar acreage of all Texas was about 15,000, and a successful crop would bring the planters \$900,000 gross.

Don't you think it probable that it may pay you to further investigate an industry in which capital (mostly Northern capital) has been invested to the extent of \$800,000 in your own State alone? For we are surely going to equal and later excel the development already made along these lines in our neighboring State. I do not approach the figures of many of our rice enthusiasts when I state that we have in the Texas Coast Country not less than two million acres of available rice land. And when I say available, I believe I speak advisedly. And the knowing ones will promptly inform you that "available rice land" means available water, and *plenty* of it. And he is eminently correct.

The canal is always built like two parallel railroad embankments on the highest ridge of the prairie, the surface of the ridge being the bottom of the canal, so that all water, once in the canal, will flow out and *down*, upon the surrounding lands. Many smaller laterals are constructed to convey water at the same level to more distant fields. The canal company charges a toll of two sacks (or barrels) per acre for water supply. Sometimes the toll is one-fifth of the crop, and some of the companies give the planter an option to pay either one-fifth or two sacks, proving that they regard ten barrels per acre as a safe average yield. Unless one sees it, I don't think any words of mine will give a proper conception of the vast amount of water sent surging out of these mammoth pumps, through the canals and on the rice fields. The canals, of course vary in size, length and capacity, watering from 4,000 to 22,000 acres. The pumps of the Trinity Rice Land and Irrigating Company (Stowell, Texas) have a capacity of 80,000 gallons a minute. A river on which a coasting schooner, or small river steamboat might float, is sent whirling through the flume. And all this water is used up on a little over 7,000 acres, although it is estimated the same supply will cover 10,000 acres next season, when the old levees will be thoroughly puddled and water laid, and seepage stopped. Evaporation during the dry season is estimated to be one-half inch in twenty-four hours. This will require a water supply per acre of 13,000 gallons per day, 540 gallons per hour, or nine gallons per minute. Loss of water from any cause other than evaporation is so slight as to be hardly appreciable.

But what of these 2,000,000 acres of available rice lands I mentioned? Is water available? And if not, why do I classify them as rice lands? Canals cannot reach them all. Now we come to a problem—that was a problem. But, it is answered, lands "under" canals cannot be bought for less than \$15 to \$30

per acre. Equally good lands, yes, even better lands, in many instances— beautiful smooth lands, with fine drainage, close to railroad station, etc., can be bought at from \$6 to \$10 per acre, because they cannot be reached by water from the canals or bayous. They are worthless for rice growing unless water can be had. What were we to do for water for these hundreds of acres of lands, ideal in every other respect for rice growing? And again the answer came from Louisiana, and the answer was

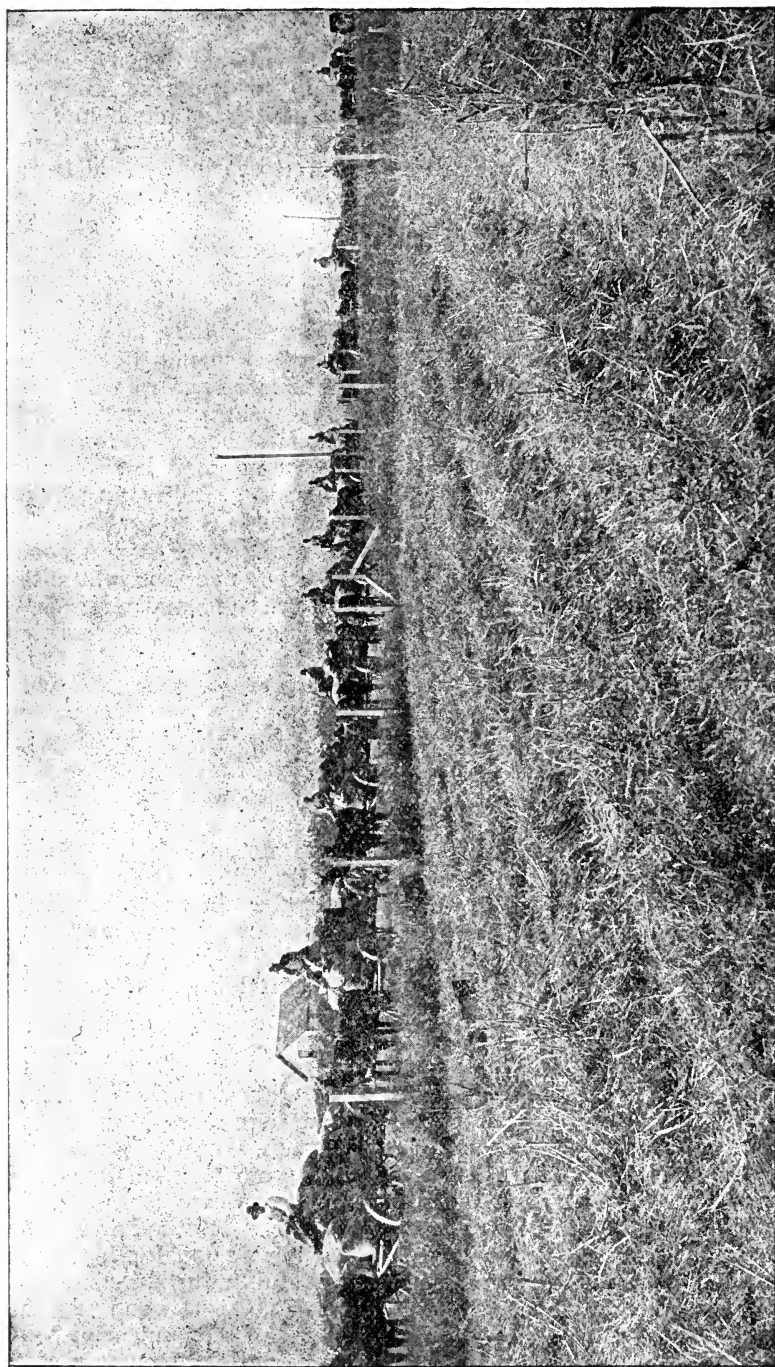
IRRIGATION BY WELLS.

At slightly varying depths at various places, 150 feet, 165 feet, 180 feet, 200 feet, or 206 feet deep, a thirty to forty foot stratum of water-bearing sand was found. The water slightly flowed over the surface at some wells, at others rose within two, four, seven or nine feet of the surface. Six and eight-inch wells were bored to this stratum—were bored by rotating the casing which had a thirty-foot wire wrapped strainer at the bottom, and a bit, a little wider than the casing, at the bottom of the strainer. A two-inch pipe down the middle of the casing, connected with a steam pump, was made to throw a strong stream of water at the bottom of the casing and washed and drove the earthly core outside the pipe up to the top. When the strainer was sunk thirty feet or more into the water-bearing sand stratum the well was complete. Centrifugal or propeller pumps were applied to the wells, and driven by twelve to sixteen horse-power engines, night and day for sixty to seventy days. Each well irrigated successfully from 150 to 250 acres of rice. This was done last season (1899), the driest summer ever seen in the coast country. Only nineteen wells, that I know of, were bored and used for irrigating rice last year. Not one of them was a failure. No diminution in the water supply could be observed. Wells bored fifty feet or more apart did not draw from one another. These first wells were scattered all along the line of the Southern Pacific Railway from Crowley to Lake Charles. In nearly every instance the yield of rice grown "under" well water was greater than that of the nearest fields watered from canal. The planter found that, allowing 20 per cent of the cost of his plant—well, pump and engine—for interest and sinking fund to replace it—after paying for oil, fuel, engineers, the cost of watering his lands from the well was less than 40 per cent. of canal tolls. Besides his experience happened to be in the driest of all dry summers, when he had no advantage of seasonable rainfall upon his crop. Had it been a wet season, so that his rice had been flooded from the clouds occasionally, he could have stopped his engine during such periods, and saved fuel and labor. Canal tolls are collected just the same, even if it rains enough to make a crop without their supply. Again the man with the well feels more independent in many ways. He can use his portable pump-driving

engine to thresh his crop or saw his fuel. He can deliver his water on his land right where he needs it without expensive laterals. If his land be early seeded and ready for water he need not wait till his rice is suffering because the average planter "under" the canal is not yet ready for water. He can feel certain if his land be clean that no foul seeds are carried to him. And he is pretty sure that his small plant, in case of break-down, can be quickly repaired, while he knows of instances where a break in the great pumps of the canal company have caused a calamitous delay to farmers "under" it. The above are some of the causes for self-congratulation the well man himself has given me. But there is another reason for congratulating the coast country on this important discovery. The great canal companies tend to increase the landlord system—to people the rice country with tenants. Among people who are willing to be tenants there are many excellent farmers and citizens, but as a class those who are willing to become and remain tenants, are not as good farmers nor citizens as those who insist upon owning and cultivating their land. And the best class of citizens is none too good for us.

To return to the wells; they were found to be such a good thing that they have increased their number to over 160 in Louisiana this year. Most of the later wells are eight and ten inches in diameter. The California propeller pump seems to exceed the centrifugal in popularity. Batteries of four and five wells have been bored, operated by one fifty-horse power engine, and will irrigate from 500 to 1,000 acres.

We find it costs us in Southeast Texas about as follows: Ten-inch well complete 200 feet deep, \$650; California propeller pump in place in well, \$250; twenty horse-power engine, \$700; total for plant, \$1,600. This should water 250 acres of rice land for sixty days at a total cost for fuel, oil and engineers, of \$400. *What is there in it?* I had almost forgotten to tell you that, Well, there's money in it. More money than in any other field crop grown. The average yield is ten barrels per acre, and that average is made when the crop of the ne'er-do-well, the fishing, hunting farmer, who puts his crop in any old way, and leaves it to take care of itself till it is ready for harvest, when his crop, I say, is averaged with that of the careful farmer, it makes ten barrels per acre. The better farmers get sixteen barrels. But call it ten. The average price again is \$3, or a gross average for the crop of \$30 per acre. It costs \$3 per acre more to raise rice than to raise wheat. A total of \$10 per acre should cover all expenses, including your work and that of your teams. One man with a good team of four horses or mules can care for 100 acres of rice. He should not try to do much more. So one man with four mules should count safely on making \$2,000 for his summer's work. If he is a good farmer, a careful, industrious farmer, he is more likely to make \$3,500 net than \$2,000. I won't take up your time to tell you all I know about rice—of the number of people of my acquaintances who have made little fortunes in rice



FROM FIELD TO MILL—RICE EN ROUTE TO FACTORY ON LINE SOUTHERN PACIFIC—SUNSET ROUTE.

raising in the past four or five years. I'll give you a few very representative crops I know of. Albert Anderson, of Jennings, La., on ninety acres raised sixteen and two-thirds barrels per acre, and sold his crop for \$6,800. He watered it from one eight-inch well. E. S. Abbott, of Welsh, La., flooded 250 acres from one eight-inch well. Crop paid for land, teams, tools, seed and all improvements and \$1,300 besides. George Mound, of Jennings, La., sold his crop of 126 acres for \$7,200. John Robinson, of Welsh, La., sold his crop of 196 acres for \$6,500—watered by eight-inch wells.

Now gentlemen, I hold that no other section of Texas offers such inducements as does the coast country. Its climate, in consequence of the proximity of the sea, is always equable. I'm sure it is most healthful. For rice growing it offers better and cheaper lands than can now be had in Louisiana. The rice grower is sure of his climate, for he practically makes it himself. He is certain of a good return for his investment and labor, and he can make more money in return for intelligent farming in cultivating this staple than in any other crop grown.

I wish any of you who may be interested in what I have said would send a postal card to John Howard, Immigration Agent of the Southern Pacific Company, Houston, Texas, and ask him to send you their pamphlet called "Southwest Louisiana Up-to-Date." It will give you more accurate information about rice growing than any other publication I have ever seen.

S. L. CARY.

THE RICE FIELDS OF TEXAS.

From Farm and Ranch.

BEAUMONT, Tex., July 7, 1900.

Modern rice growing is no longer an experiment in Texas, as the results obtained last year have proven. No longer does the citizen of this section look forward, dreading the time when the timber would be all cut and the land become useless for habitation, for the rice-growing industry will abide as long as time itself, because so long as people live they will consume rice. Under the modern method of flooding the fields and regulating the seasons, using improved machinery for harvesting and threshing, other rice-growing countries cannot successfully compete with American farmers and the staple can be grown here and exported at a price for which they cannot produce it, with all their cheap labor. Rice-growing in Texas is on the increase. Where there was one acre last year there are six acres this. The area has extended as far west as Raywood, while there is a large acreage at Orange, and the increase in this vicinity is about 200 per cent.

Prominent among the promoters of this industry is the Beaumont Irrigating Company, which flooded last year 4,500 acres of rice, and this year have over 4,000 acres of their own land, while

they are flooding over 12,000 acres. Other irrigating companies have a like increase.

As last year was the first of this new method of raising rice by flooding they had many things to learn, and consequently the yield was not so great as it would have been with more experienced men, yet the results secured were so satisfactory as to warrant the tremendous increase in acreage.

The average yield last year was ten sacks per acre, which sold for an average price of \$2.50 per sack. As one man can cultivate 100 acres of rice, even this yield appears to be a more paying crop than cotton.

The question of what is to become of the renting class of farmers in Texas seems to have been solved by this new industry, for to my mind it presents the greatest possibility with the least risk to the man without money to make a stake and finally secure a home for himself. To the renters, these land and irrigating companies furnish land, water and seed for one-half the crop, and also furnish a house to live in during the time they are engaged in making the crop. If the renter makes only eight sacks per acre (and no one has gone under that), and secures \$2.50 per sack, he has made \$10 per acre for himself and the same for his landlord. Estimating that he can cultivate 100 acres, he will have \$1,000 for his services for six months' time, less the expense for harvesting and threshing, which will probably be about \$300, leaving \$700 net profit for his services. This is putting the estimate at the lowest possible figures, while it might run much higher—as much as twenty-five sacks per acre having been made by the more experienced rice-growers.

Rice lands that are close enough to the canals to be furnished water by the companies sell at from \$10 to \$25 per acre. The owner of a rice farm pays one-fifth of his crop for water rent, and thus takes the company into partnership and makes it to their interest to see to it that he has sufficient water to properly flood his fields.

Texas is at present the greatest cotton-producing State in the Union, and as the cotton acreage in Texas is the main factor in setting the price of cotton, the indications are that in ten years the market value of rice will depend largely upon the acreage of this State. As rice can be produced at a profit of 75 cents per bushel, there appears to be little danger of this industry being overdone for several years at least. But let not the reader of this article think that rice-growing is all sunshine, as the rice farmers tell me it is a very disagreeable pursuit. However, the results obtained appear to justify the privations one is compelled to endure.

Truck farmers and horticulturists are learning that this part of the coast country is well adapted to their specialties, and there is no doubt that many will engage in fruit-growing and truck-gardening, who prefer that method of tilling the soil to rice-growing.

M. C. SCOTT.

GREAT ARE RICE AND SUGAR.

On the Wing, in the Coast Country of Texas, Dec. 28, 1900.
—To The News: In traveling over and through the counties of Wharton, Matagorda and Colorado, we find that hope is fast taking the place of disappointment with the people in the counties named. While there was no loss of life during the severe storm in these counties, there was considerable damage done to property, also to crops. However, the rice and sugar crops came through the storm much better than was expected. Quite a good percentage of the rice was planted late, and this was very much in its favor, as the early rice was more damaged than the late. There was little or no damage to the sugar cane, and those who were fortunate enough to have a sugar cane crop came out very well. As high as \$50 per acre has been paid this fall in Wharton and Matagorda counties for sugar cane standing in the fields by those who own the sugar mills. They have paid the growers this sum per acre and then harvested the crop at their own expense. I have met and talked with a number of people who have received from \$50 to \$65 per acre for their sugar cane after paying all expenses. It has been demonstrated beyond a doubt that the best of our prairie lands will produce sugar cane profitably, and it is said that the cane grown in the prairie lands has a greater amount of sweetness to the acre than that grown on the valley lands. In a dry year it would probably be necessary to have water to irrigate the cane on the prairie lands. This past year there was plenty of rainfall, and cane did well where it has been tried on the prairie lands.

Caney Valley, as you know, is said to be as rich land as there is in or out of Texas, and I don't think there is room for an argument on this question.

In going over the new extension south from Wharton to Van Vleck, the terminus of this branch of the New York, Texas and Mexican, we cross the Caney Creek eleven times, passing through sugar cane plantations, corn fields, cotton fields and big patches of sweet potatoes. The cotton crop this year in this section of the State was what might be called a failure. Many men who in a good season marketed from 1,800 to 2,000 bales of cotton, this year did not market over 18 to 100 bales. This, of course, was a great disappointment. But like many other disappointments in life, it looks very much as though the people of the coast country were going to profit by the failure of the cotton crops during the past few years. Their attention is now turned to the growing of rice and sugar cane, and many are of the opinion that the raising of good stock will mix well with the culture of rice. Rice straw rice bran, rice polish and rice stubble make excellent feed for stock. On the Lovell farm, convenient to Crowley, La., Mr. Lovell has thoroughly tested the raising of good stock of all kinds, and feeding them on the by-products of rice and pasturing them on the rice stubble. Mr. Lovell has an excellent grade of cattle,

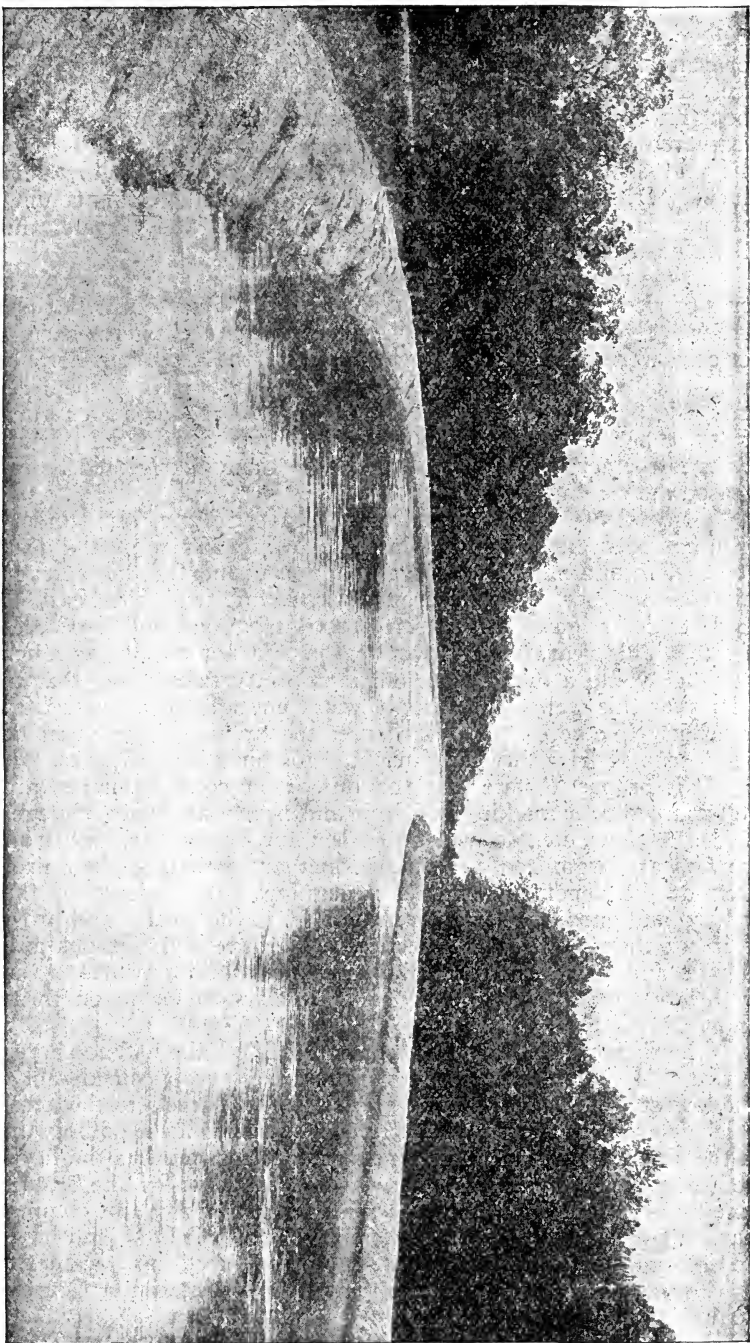
fine Berkshire and Poland China hogs, good sheep, fine mules and horses, all fat and sleek. What Mr. Lovell has been doing in the past for several years and is now doing in stock farming in connection with rice growing can and no doubt will be repeated in the Counties of Colorado, Matagorda and Wharton.

Judge J. H. Barbee, formerly of Wharton, but now living at Van Vleck, the terminus of the new road, is good authority on this section of the country. Judge Barbee informs me that there are three water-bearing sand strata within 100 to 150 feet from the surface and that an ample supply of water can be had for growing rice by the deep well system. The water from the Colorado and Brazos rivers will supply irrigation for a large acreage of land convenient to the rivers, and outside of that wells will have to be depended upon. During the past two months there have been quite a number of large land sales to parties who are now preparing their land for the coming rice crop. Canals are being built and as I have said, hope is fast taking the place of disappointment. The Caney Valley is capable of producing an immense amount of sugar, and there are several good openings along the valley and on the line of the railroad, between Eagle Lake and Van Vleck, or Bay City, for sugar mills.

I am informed that arrangements have been made to erect a \$160,000 sugar mill at Wharton. There is a rice mill being built by Capt. Donovan at Eagle Lake.

Speaking of farms and farmers, I can not help mentioning the farm of Taylor Bros., which is located about half way between Van Vleck and Wharton. This is what can be called a model farm, and in taking a survey of it from the car windows one can see that there are practical men in charge of that farm. Sugar cane, cotton and sweet potatoes are grown side by side, and the land is free from weeds, the crops well cultivated, fences and ditches all in good repair, the stock speaks well for their keeping; in short, it is a model, up-to-date farm, and those who are interested in this section of the country could not do better than to visit the Taylor Bros.' farm. They can see what can be done by good management.

The experience of Mr. A. P. Borden, of Pierce, Wharton County, Texas, in the culture of rice this last year is not only interesting, but very encouraging. Mr. Borden's patience and his rice crop were put to a very severe test. It seemed as though the elements were against him. His 160 acres of rice was planted in the mud, and had it been any other kind of grain I doubt very much if there would have been any signs where the seed had been sown. But the rice not only stood the unfavorable weather for planting, but it also stood the severe storm. Mr. Borden, not being an experienced rice grower, had, of course, a great deal to contend with. Notwithstanding all this, he succeeded in harvesting 10,000 bushels, or 17 sacks to the acre, of as good rice as any country can produce. Some of his rice he has sold for seed at \$4.50 per barrel. His rice crop will pay all expenses and the cost



RICE IRRIGATION CANAL ON LINE SOUTHERN PACIFIC—SUNSET ROUTE.

of the machinery, which was about \$3,000, and a net profit of 25 per cent on the original investment. Mr. Borden planted Japan rice. He finished planting his crop June 20, and his rice was about ready to harvest when the September storm struck it. It weathered the storm all right. The experience of Mr. Borden this year will no doubt benefit the people of this section very much. Mr. Borden is going to increase his acreage this coming season. He says: "We have the land, water and climate, and all we need is people and capital to cultivate it."

In the vicinity of Eagle Lake there was this year about 5,000 acres of rice in cultivation. The lowest yield I have heard of per acre was five barrels, and from that up to ten and twelve barrels per acre were made. The storm damaged the crop considerably in this section of the country, but even at five barrels to the acre, and \$3.50 per barrel, which is the price received, makes a return of \$17.50 per acre, which is not bad, all things considered. I understand the acreage in rice in the Eagle Lake district will be increased the coming season.

Convenient to Chesterville, in Colorado County, Mr. Linderholm has been experimenting in the growing of rice by the deep well system and he is encouraged enough to increase his acreage this coming year. Mr. George Vick, living two miles east of Eagle Lake, irrigated last season (1900) from one well, 150 acres of rice. This year, being a wet season, did not require as much water as would a dry season, but it is pretty safe to say that in a dry year this well would supply water enough for at least fifty or seventy-five acres. Mr. Vick uses the traction engine that he uses to run his rice threshing machine for pumping purposes.

It is proper to state that portions of the counties named are well adapted to some kinds of fruit and nearly all kinds of vegetables. Melons, etc., do well, and when our Texas truck and fruit growers are organized and stand together marketing their products at the depots instead of consigning, the products of the orchard and garden will add considerably to the wealth and prosperity of the people of this section. We have soil, seasons and climate, and if we can reach the consumers with a profit to the producers we can secure practical gardeners to locate on these lands.

The firm of Vineyard & Walker of Eagle Lake had 200 acres of rice this year. The storm damaged their crop considerably. The lowest yield they had, however, was five barrels to the acre, which is equal to \$17.50 per acre. They turned a lot of hogs in on the rice stubble, and Mr. Vineyard informs me that the hogs are doing well on the rice that was beaten down by the storm. Vineyard & Walker will increase their acreage in rice this coming year. They secure their water supply from Eagle Lake and have the Colorado River to draw from should they need more water.

I learn that among recent enterprises in Matagorda County are the following:

Moore-Cortes Company, 20,000 acres, East Texas and Louisiana capital.

The Matagorda Rice and Irrigation Company, home capital. Expanded from 600 acres in 1900 to 10,000 acres in 1901.

Dr. G. W. Collier, W. H. Turner and T. J. Hookes, of Beaumont, 6,000 acres.

R. W. Warren & Son, East Texas, 2,000 acres.

Le Tulle & Vaughan, home capital, 2,000 acres.

Sig Brown, Louisiana, 1,280 acres.

Bay Prairie Rice Company, Houston and LaGrange capital, 23,000 acres.

Several home people are sinking wells, a test well having a depth of 102 feet struck a sheet of water-bearing sand through which the pipe dropped eighty feet and the water rose to within four feet of the surface.

Now that the people of the Texas coast country are going to profit by the experience of the people of Southwestern Louisiana, the future of the Texas coast country looks bright. I believe that rice and sugar mixed with stock farming will do a great deal for the further settlement and development of the coast country during the next five years, provided those who own the vacant lands do not ask too much for them, and provided warehouses, rice and sugar mills are erected to care for and manufacture the crops by the business and monied men.

The counties of Colorado and Matagorda and Wharton are among the best in the State, provided the lands are used for the purposes to which they are best adapted. But let us bear in mind that only a very small percentage of the lands in these counties are yet occupied or cultivated by actual settlers. It is safe to say that at least 65 per cent of the lands in Wharton and Matagorda Counties are yet vacant, and in Colorado County probably 40 per cent of the land is yet undeveloped.

Speaking of Wharton County, permit me to say that in the vicinity of El Campo there is quite a thrifty settlement of Northern people. The success of such communities as that at El Campo means much for the business men and railroads of the Texas coast country, whereas, if they should fail, it will not only be a disappointment to the settlers, but also to all others interested in the development of this part of the State. There is room for at least 200,000 people between Houston and Victoria along the line of the Southern Pacific and New York, Texas and Mexican railways. This being the case, I can see no good excuse for our large land owners raising the prices of their lands as they have done in the past on the strength of securing a few settlers.

Yours truly,

JOHN HOWARD,

Immigration Agent Southern Pacific Ry.

THE VALUE OF WELLS.

WHAT A SIX-INCH WELL AND 120 ACRES WILL PRODUCE.

[Written expressly for Jennings Times by S. L. Cary.]

In the childhood of the old century (just passed away) a great writer, one Horace Greely of agricultural memory, wrote a famous book entitled "Five Acres Enough." Another writer, after a hard, practical trial, wrote a humorous article entitled "Five Acres Too Much," in which he seemed to have the better of the man who said, "Go West, young man, and grow up with the country." And now in the early infancy of the twentieth century we are telling young and old to go South and get a farm in the rice belt, and a very common question is, "What can be done with 120 acres of rice land to support a family and a home?"

The 120 acres cost \$20 per acre; buildings and fencing \$500; one 6-inch deep well, 180 feet, \$360; 5-inch pump, \$125, making a permanent investment of \$3,485, at 6 per cent, \$209.10; taxes, \$20; seed, \$125, and sacks, \$70; \$600 for fuel and engineers for pumping would represent the cash outlay, to which must be added the use of machinery and labor to put in, care for, harvest, thresh and market the crop.

Now what can be reasonably expected from a rice crop of 120 acres, well put in with clean seed and plenty of water at the proper time? There should be harvested in good condition at least ten sacks per acre of good grade clean rice, making 1,200 sacks, which for the past 18 years has averaged \$3.50 per sack—say \$3.00 per sack; from this deduct \$1,024 for interest, seed taxes, fuel, engineer, sacks and twine, leaving for labor and profit \$2.576; from this deduct for plowing \$120, seeding \$60, watching levees \$50, harvesting \$250, threshing \$300, marketing \$120, making a total for labor of \$1,000, leaving \$1,576 to the profit side of the account, being over 40 per cent on the permanent capital invested, which if land is worth all it pays, 5 per cent, will be 5 per cent upon \$250 per acre.

Such a home, with this climate and the most favorable conditions, would not be on sale. Homes can be made in the rice belt more attractive and profitable than elsewhere, more cheaply, easily and in less time. Nature is more generous; humanity is at its best. It is the last best work of the great Creator of all things, and to be a land-owner, a freeholder, with such surroundings, is a position to be proud of; and such is the position of hundreds of families in the rice belt at the beginning of the twentieth century, to be followed by thousands more.

Why there is so great a difference between prices and the value of land in the rice belt is easily accounted for. Early teaching and a lack of correct knowledge of this country by our only customer, the man of the far-away northwest, coupled with the traditions of the Acadian settler, who was perfectly happy and

satisfied with the pastoral condition of the fertile prairies of the Attakapas. Cultivation, wire fences and agriculture were an abomination to him and any change was dreaded. Now the stranger has come; his once beautiful pasture is the home of thousands, who partition the land among them and set a price upon each acre of his once unlimited pasture. And the stranger has come to stay; he has stuck his stake, built his roof-tree, made a home, and must have his price, which will be its true value, reckoned by the interest it will pay upon the money invested, and when all agree upon that, and they soon will, the price will represent the rate of interest it will pay.

ONE GRAIN OF RICE.

One grain of rice produces on being sown, the first year, sixty bunches, or heads, of rice, each bunch giving 250 grains, thus yielding the first year 15,000 grains of cereal.

These 15,000 grains on being sown the next year, will yield one and one-half (1 1-2) barrels of rice, and 1 1-2 barrels of rice sown the third year will give six acres of rice, at twelve barrels an acre, amounting to 72 barrels.

Thus the conclusion is reached that one grain of rice will yield at the end of three years, 72 barrels, and still there was a time when rice lands went a begging in our parish.—*Plaquemines Protector*.

PREPARING FOR RICE CULTURE.

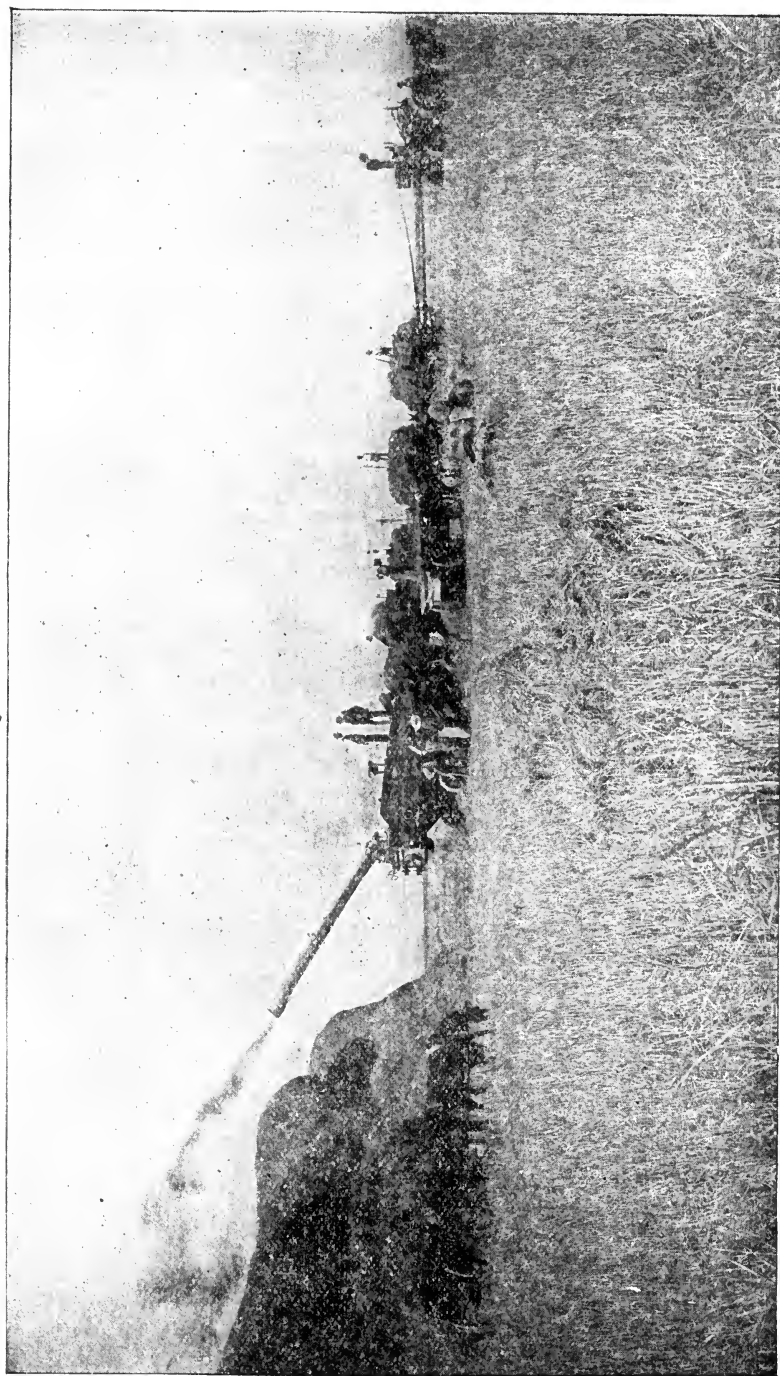
CANE AND RICE WILL LEAD ALL CROPS AROUND WHARTON.

Wharton, Tex., December 2.—Active preparations for rice farming are taking place on the 8,000-acre farm belonging to Moore and Cortes. Dirt has been broken on the large canal, which will be used to irrigate the rice. The lumber used in the building of the canal will be floated down the river from Wharton. Wharton planters are also going largely into rice, though the great adaptability of the soil for such numerous varieties of product will prevent any one industry becoming predominant. Cane and rice will lead all crops next season.—*From Houston Post*, Dec. 3rd, 1900.

THE SEASON'S RICE CROP.

Gustave A. Jahn, a New York rice authority, builder of rice mills, owner of the new plant at Beaumont, and an importer and exporter, was at St. Charles Hotel Saturday, after three weeks in the rice belt of Louisiana and Texas.

"What is my estimate of this year's rice crop?" repeated Mr. Jahn, after the reporter, and he stood for a moment, tapping one shoe on the tessellated floor of the hotel corridor.



RICE THRESHER AT WORK ON LINE SOUTHERN PACIFIC—SUNSET ROUTE.

"I think it fell a shade under last year's crop. I believe this season's output has been a little overestimated. The yield for Louisiana and Texas one year ago was 2,000,000 sacks. In my judgment, after being in the belt for three weeks, this year's crop will be about 1,800,000 sacks for Texas and Louisiana, which means a shortage of 200,000 sacks.

"But the quality is fine. I cannot remember the year when the general average was so good. The better grades predominate. There is, in fact, very little red rice. The heavy rains the forepart of the season seemed to drown it out. The low grades are scarce and are in demand. They are bringing good prices."
—*Picayune*.

RICE CULTURE.

Galveston News, Feb. 3, 1901.

Stowell, Tex., Jan. 27.—S. A. Hackworth, Esq., Galveston, Tex.—Dear Sir: In reply to your favor of the 25th will say: We raised 6,000 acres rice last year. We harvested five sacks per acre—six barrels. It requires from 50 to 60 pounds of seed rice per acre. Seed rice domestic, such as raised from imported seed sown last year on virgin soil, is worth from \$4.50 to \$5 per barrel. We sold our rice at from \$3.05 to \$4.50 per barrel, except some that was damaged by rain, which sold for less.

Very respectfully, F. W. SCHWETTMANN,
Secretary.

Wallisville, Tex., Jan. 29.—S. A. Hackworth, Esq., Galveston, Tex.—Dear Sir: In reply to your inquiries of recent date concerning rice culture, I will say: That myself and other farmers of Chambers County have made good profits by planting rice in drills, and cultivating same, like corn without irrigation, and I find rice so cultivated will yield as many bushels as rice raised by irrigation, the only difference being that one field hand can not cultivate over 40 acres by plow, while one field hand can cultivate 100 acres by irrigation. In this coast country, owing to our heavy dews and frequent rainfalls, it is a sure crop, but it will stand a drouth as well as corn. I have seen it grow five feet in height and the heads of rice seem fuller and larger than when raised by irrigation. About two and one-half pecks per acre is sufficient to sow it into drills. We plant seed rice raised from our own crops and find it just as good as imported seed rice. Upon rich river bottom lands I believe 40 bushels per acre can be easily raised by cultivation. On low, wet, flat prairie lands it can be sown like wheat, and raised without irrigation or cultivation. As evidence of this fact, the Trinity River Irrigation Company, this county, last year sowed 6,000 acres of newly broken prairie land in rice, and was unable to irrigate a large part

of it, but raised as much per acre from land not irrigated as it did from the irrigated portion. If you will write the company at Stowell, Chambers County, the manager will give you all the information you desire. Rice can be planted at any time between the first of March and the first of June, and I advise where it is sown in drills that it be planted early in the spring, like corn.

Yours truly, N. V. WALLIS.

Dickinson, Tex., Jan. 28.—S. A. Hackworth, Esq., Galveston, Tex.—Dear Sir: Your letter of 23rd instant received on 26th. I have pleasure in writing what experience I have had in Texas, as I have never planted except on a small scale to prove how profitable the crop might be made. In drills 30 inches is correct, so is easily worked with bull tongued plow or cultivator. With the land well prepared and frequent cultivation upland rice will yield, with my experience, 25 to 30 bushels per acre. Either variety of rice will produce a profitable yield here without irrigation. My experience in rice culture extensively cultivated was in Carolina Cooper River; 5,000 to 20,000 bushels was the crop on large plantations, and 50 to 60 bushels per acre was the average. The tide ebbed and flowed regularly and the fields could be plowed if necessary to the depth of 4 to 6 feet. Mr. Brown sent me seed of Japan high land rice. I planted in drills 30 inches, some three feet. The growth and yield were fully satisfactory. It can be planted in March; in fact, as early as corn, and when cultivated will stand a dry season equally with corn. Half a bushel will plant an acre. If not sown too thick the grain will be heavier and stand a dry season best. Will be pleased to hear from you again, and will write more fully. I notice your article on fig culture. Charleston, S. C., my native home, is the home of every variety of fig, where the production is regular and large. I have over a hundred bearing trees here of different varieties. Rich ground and cultivation they require.

C. M. DESEL.

RICE CULTURE.

Galveston, Tex., Jan. 18.—To *The News*: A rice farmer of Chambers County recently informed me that he has, during the past five years, averaged a net profit of \$18 per acre by thickly sowing rice in drills thirty inches apart and cultivating like corn. He says in this moist climate, where the dews are heavy and rains frequent, rice can be profitably grown on any of our coast prairie lands without expense of flooding the rice fields, the only difference being that it must be cultivated and all vegetation kept down by plowing between the rows, and thus stirring up the soil, so all moisture in the soil will go to the rice. One ordinary field hand can easily cultivate forty acres, and the average will be upon black waxy or black sandy loam soil twelve barrels per acre, or sixty bushels; five bushels in one barrel of rice measure. Upon

poor sandy soil the average is about eight barrels per acre. Upon river alluvial soil the average is about fifteen barrels per acre. The average price of rice is \$3 per barrel. It is planted the latter part of May or the first of June, and ripens in September.

It is evident if our Brazos River planters will now thus cultivate their plantations in rice they will not experience any further difficulty in securing all the labor they require, because they can afford to pay labor living wages and the work required of laborers or tenants will not be one-third of the labor required to raise a cotton crop, while the certainty of raising good rice crops will be assured. Another great advantage over a cotton crop is the fact that an overflow of the Brazos River, which has been so disastrous during the past two years. When these overflows occur it is usually in June and July, therefore if rice is planted in May it will be so far advanced when these overflows occur that an overflow will not injure but benefit the growing rice. Not only can our Brazos River plantations be thus cultivated in rice, but they can also be flooded from the Brazos River and made into the usual rice fields; but this is expensive, because it requires embankments thrown up around the rice fields and steam pumping machinery to flood the fields and maintain certain depths of water during the growth of rice.

This will be expensive, for the Brazos River soil is so porous it will absorb the water rapidly, and the soil is so fertile the rice raised by this method will grow too high and likely to be blown down and badly damaged before it is ready for harvest.

By cultivating it with plows the stems grow thicker and not so tall as when raised in water, therefore it is stronger and can withstand heavy windstorms without injury. The Star flour mills here have a first-class rice mill, and I am informed pay the highest market prices for all crude rice delivered to them at our wharves, therefore our rice planters have a steady and permanent market at home for all rice they can raise. All seed rice required can be had here at lowest market prices. There is ample time between now and the 1st or 20th of May for farmers with small capital to break up and prepare prairie lands to plant and cultivate rice in rows thirty inches apart, and thus realize a sure crop which gives them fair profit.

I submit the above suggestions to readers of *The Galveston News* because I have evidence to believe that rice culture can be made a sure and a profitable crop upon our coast prairie and Brazos River alluvial lands.

S. A. HACKWORTH.

GREAT RICE PLANTATION.

ESTABLISHING A PLANT IN AUSTIN COUNTY TO COST \$50,000.

Sealy, Tex., Dec. 20.—Though wet weather, boll weevil and the September storm have almost ruined this country it seems a new era is dawning. Bottom farmers are to a great extent going to raise sugar cane and the vast prairies will in the course of a few years be converted into great rice fields.

Messrs. G. Frank Rossire, of New York, E. Peperkorn, civil engineer of the Beaumont Rice and Irrigation Company, with Mr. A. Ludwig and his surveying corps, have been busy for a week or more laying out reservoir and canals on the lands owned by G. A. Jahn & Co. and G. F. Rossire on the Bernardo River. These two firms own over 5,000 acres of land near here. They will build a reservoir with a capacity of 100,000 gallons of water which, with the additional flow of the San Bernardo, will enable them to flood all their land and probably two or three thousand acres more. The pumping plant will handle 30,000 gallons per minute. Cost of the plant will reach over \$50,000. The canal will be 100 feet wide, three feet of water constantly to enable them to float barges up and down from their siding on the Cane Belt Railway. It will probably be five to seven miles long. Work is to begin at once.

Messrs. Rossire and Peperkorn leave to-night for Beaumont to confer with Mr. G. A. Jahn, and will return in a short time.

These gentlemen say the prairie lands adjacent to the San Bernardino are as fine rice lands as any in the State.

Messrs. Magruder, Hamby, Menke, Hill and several others are going to try their luck at rice also the coming season and have commenced work.

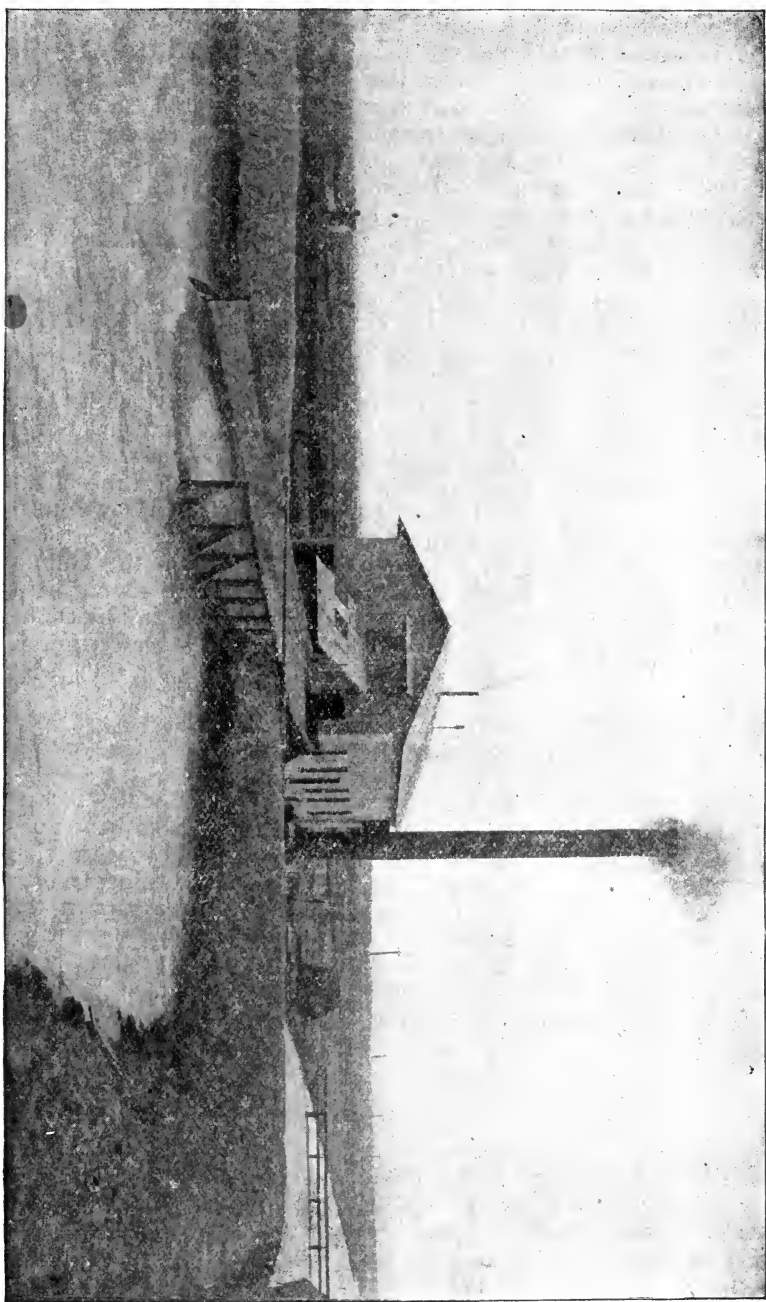
RICE GROWING IN TEXAS.

BEST LAND ON EARTH FOR THE CROP, SAYS PROF. A. S. KNAPP.

Beaumont, Tex., Dec. 24.—During the course of a conversation which took place Saturday night at the Crosby House between Prof. A. S. Knapp, who is connected with the Agricultural Department of the United States, Mr. Gustave A. Jahn and *The Post* correspondent, Prof. Knapp said that the best piece of advice he could give the rice farmers of Texas was to plant only the best seed.

"I find," said Prof. Knapp, "that the Texas farmer has the best soil on earth for raising rice, and being new soil he has every advantage over the farmers in the older rice sections like Louisiana and the Carolinas, but he is recklessly regardless of the seed that is planted. I can not understand why a farmer will plant poor seed and reap a crop of poor grade rice when, if he would use care and judgment in the selection of the seed, his crop would be worth thousands of dollars more to him. If they plant domes-

RELIFT PUMPING STATION ON LINE SOUTHERN PACIFIC—"SUNSET ROUTE."



tic seed every grain of it should be selected with the greatest care, but my advice would be to buy the very best imported seed. With good soil and plenty of water there is no reason on earth why there should be a particle of red rice in the whole Texas crop."

Mr. Jahn here cited an instance where a rice farmer in this country, after saving his seed for the coming year and selling his rice at an average price of from \$3.40 to \$3.50 per barrel, was offered \$1.50 for his seed rice. The illustration pointed the moral of Prof. Knapp's advice. The farmer should have saved the \$3.50 rice for seed and sold the \$1.50 rice.

Prof. Knapp is making a tour of the Texas rice belt and spent Saturday in this city. He visited the rice mills in this city and examined closely into the grade of the rice which was raised in the county. His conversation quoted above was the point he most desired to impress upon the farmers, and one which he said he would bring before the Department of Agriculture in his report. He will deal at length with this question in his report, and by the circulation of this report he expects to influence the farmers to give more attention to the grade of the rice. He will also endeavor to impress upon the department the necessity of encouraging the raising of a higher grade of rice in the United States. He sees no reason why the imported cereal should be a better grade article than the domestic if the farmers in this country will investigate and study the means to reach a perfect grain.
—*Houston Post*.

OPENING A RICE FARM.

Wharton, Tex., Dec. 3.—Hon. G. W. Collier, with Messrs. T. J. Hooks and W. H. Turner, all of Beaumont, who have purchased a tract of Matagorda rice lands, comprising between five and six thousand acres, are in the city to-day, returning from a view of their purchase. They say that the greater part of the tract will be put in rice, and are arranging for a speedy setting to work on the canaling and plowing. The water of the Colorado River will be used for irrigation. The Cane Belt Railway will be the shipping line.—*From Galveston News of Dec. 4th, 1900.*

A RICE GROWERS' EXPERIENCE.

A. P. Borden, of Pierce Station, in a communication says: "I purchased a gasoline engine and centrifugal pump to furnish the water supply and had to buy a quantity of farming machinery such as harrows, drills, threshing machines, self-binders, etc. Also had to build a canal three-fourths of a mile long, throw up levees, etc., which was expensive work owing to so much wet weather.

"I finished planting June 20, and my rice was about ready to harvest when the storm of September struck it. It weathered the storm well, and I threshed and hauled something over 10,000 bushels, or seventeen sacks per acre, of as good rice as any country can produce. One car I had milled and it netted me \$3.65 per barrel of 162 pounds, or 98 1-2 cents per bushel, free on board cars here. Two cars I have sold for seed purposes at \$4.50 per barrel, free on board here.

"Taking the balance of the crop for what it will net for milling purposes, free on board here, it will pay all expenses and cost of machinery, which was about \$3,000, and a profit of 25 per cent net on the original investment, which I consider a good profit, considering the distance from railroad, cost of hauling, etc.

"I shall put every acre in rice next year that I am able to, and if anybody has land that they can flood, I think it is far the best crop to plant."

Mr. Borden had in 160 acres of land and was located twenty miles from the station, on the line of the Gulf, Western Texas and Pacific Railway.

BIG DEAL IN RICE.

TEN THOUSAND SACKS SOLD IN ONE LOT BY A BEAUMONT COMPANY—THE RICE COMBINE.

Beaumont, Tex., Nov. 30.—The Beaumont Irrigating Co. last Wednesday sold to the National Rice Mills of New Orleans 10,000 sacks of rough rice in one lot, which is one of the largest deals ever made in rice in Texas. The agent who made the deal for the New Orleans mill said that the rice is graded better than any he ever saw before. The irrigating company is particularly pleased with the deal, and the price was better than has been paid for any considerable amount of rice in the market this season. The price is private, but the 10,000 sacks will bring between \$30,000 and \$40,000. The sale was made at a moment when the market was very favorable, and the Beaumont Company is considered very fortunate in the deal. This is about one-half the rice owned by the Beaumont Irrigating Company, nearly all of which is stored in three large warehouses in this county. Shipment on the 10,000 sacks began yesterday, and will be pushed as fast as the railroad can handle it.

Gustave A. Jahn, President of the Rice Mill Co. of this city, arrived in the city to-day from New York. He was asked of the condition of the rice combine, and said the matter was being closed as rapidly as possible. Arrangements are being made to buy all the cleaned rice now in the mills in Louisiana and Texas in order to make the object of the company operative. The company expects to operate this season.

THE RICE CROP.

Beaumont, the hustling capital city of Jefferson County, with a population of 12,000, is now and for a great many years past has been the recognized lumber center of the Southwest. Till two years ago its whole business depended upon the lumber trade. Railroads came to it because of this trade. New mills sprung up in the grand virgin long leaf pine forests near it, and Beaumont became the great distributing depot of their piney products, as well as commissary supply store for a territory extending over 150 miles north into the East Texas forests. The agricultural products of the surrounding counties of Jefferson, Chambers, Orange and Hardin were practically nothing until about two or three years ago. In imitation of their Louisiana neighbors across the Sabine, these Southeast Texas farmers began to plant rice.

Although so new a Texas industry its success was so remarkable and the rapid increase in acreage and output of rice so astonishing as to gain the immediate attention of most readers of *The News*, through whose columns they have learned all material facts concerning it. For the benefit of more careless readers the salient facts of the rice industry in Southeast Texas may be given. About 55,000 acres were cultivated in rice in 1900. There are 125 miles of irrigating canals, and twenty-four irrigating deep wells. These irrigating plants have cost an aggregate of \$850,000. The total Texas crop of 1900 was over half a million bushels. Its total value was more than one and a half million dollars. And last, but by no means least in its significance, at Beaumont have been built three large rice mills, at an aggregate cost of over \$200,000, whose total daily output of finest grade milled rice is 350,000 pounds. One is ready to believe the statement that Beaumont has doubled its population in the past two years, and the prophecy that it will probably double itself again in the next two.

As to the effects of the storm in these eastern counties, an interview with Mr. George J. McManus, formerly of Galveston but now at Beaumont, elicited the following:

"I was at Minneapolis at the time of the big storm. Read of it in morning papers of the 9th of September, and started within an hour for Galveston. Reached Beaumont evening of 11th, to learn that I was not needed at Galveston; could do nothing there and would better not go. From the Minneapolis, Kansas City and St. Louis papers I had been led to believe there was not a house or tree standing in East Texas, to say nothing of such a puny plant as rice. From the 12th till the 18th of September I interviewed every rice planter I saw, and visited more than twenty plantations. I have been familiar all my life previously to the past five years with the cultivation of wheat, oats, barley and rye. I knew that any one of those crops after such a wind storm would have been flat upon the ground, and the loss

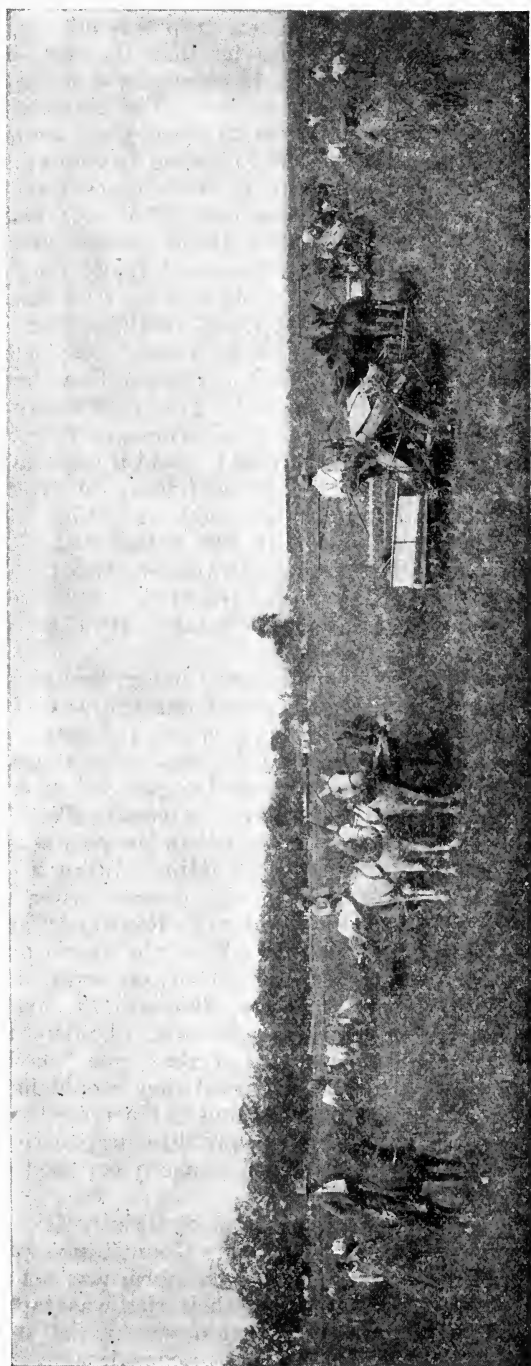
total and irretrievable. But the rice crop was not beaten down. Here and there a patch of it heavier than the rest, was pretty badly broken. Much of the ripe Honduras was whipped out by the wind. Japan stood the storm best. The farmers estimated their losses by the storm variously at from 5 per cent to 25 per cent. The harvest weather of the following two months was perfect, and the threshing machine in most cases discounted the estimate of the farmer as to his loss. Most of these farmers are northern men who never raised rice before, and many of these, paradoxical as it may seem, are actually cheered rather than discouraged by the results of the storm. One said, 'What a bonanza we have in this rice crop! Notwithstanding all the vicissitudes of the worst season ever seen here, long delayed seedling, fifty days' continued rainfall with this final hurricane to blow it down, we have threshed out a greater and more valuable crop to the acre than ever we raised of wheat, corn, rye or barley on the rich prairies of the Northwest!' And this about expresses the sentiment of many of these farmers from the North.

"What effect had the wind on cotton? Why, blessed if I know. We raise no cotton, and mighty little corn. Too expensive, too hard work. No Negroes in the rice fields. We raise a crop on which we make horses and mules do all the heavy work. I can give you names of several planters, their acreage, opinions, etc.

"J. A. Lambert, the Beaumont rice buyer, though no planter, is very well informed. He says storm damage was 15 to 20 per cent and that crop averaged 8 to 10 barrels per acre. Japan rice stands storm best. Rice under wells was fully as good as that under canals. A deep well, pump and engine will nearly pay for itself in one year by difference saved in canal tolls. There will be 50 per cent larger acreage in 1901 than the past season.

"E. Goldsmith, manager of the Hinz Milling Company of Beaumont, visited nearly all the rice country after the storm. He says the 7,000 acres of rice under the Raywood Canal in Liberty County was not damaged at all by the storm and made a good crop. Nearly 25 per cent of the 11,000 acres of the Beaumont Irrigating Company was lost, but still the average yield was very good, being nearly 10 barrels. Under the Arthur Canal the storm damage was about the same, maybe a little worse. If the storm had not occurred they would have had an enormous crop. Acreage will perhaps be increased 50 per cent next year. Is not acquainted with any discouraged rice planters. They must increase their warehouse capacity for next year. Now full to the doors.

"F. W. Schwettmann, Secretary of Trinity Rice and Irrigating Company of Stowell, Chambers County, says of the 7,000 acres under their canal: The danger by storm was not more than 10 per cent. About 70 per cent of their rice was Japan; 30 per cent Honduras. Hardly any blown down by the storm. The wind threshed out the ripe Honduras to considerable extent. Will



MCCORMICK HARVESTERS AT WORK ON LINE SOUTHERN PACIFIC.

increase their acreage to 10,000 next year. They are going to dig a slack water ditch from Lake Charlotte to Turtle Bayou.

"Stagg Brothers (four families of them, eight miles west of Winnie, under Trinity Canal, were rice planters for twenty-two years at Crowley, La. They had 1,100 acres of rice in 1900 and are well satisfied with their new crop and location. They will plant 1,600 acres next year.

"John Stewardson, six miles west of Stowell, had 100 acres, all Honduras. Not hurt at all by storm; yielded 11 1-2 barrels per acre. His rice took the first premium at the Houston fruit and flower festival. He will double his acreage in 1901.

"J. S. Jordan, 120 acres, one mile north of Hamshire, on Gulf and Interstate Railroad. Water furnished by one 8-inch well. Not damaged at all by storm. Yielded 11 barrels per acre. He will plant 250 acres next season.

"Governor H. C. Wheeler, 100 acres, two miles south of Hamshire, watered by one 8-inch well, yielded 11 barrels per acre of fine rice. He will bore six more wells and plant 1,000 acres on his old dairy farm next year.

"George Gill, 700 acres, four miles east of Hamshire, under canal from Taylor's Bayou. Not damaged over 10 per cent by wind. Yielded over 10 barrels per acre. Will plant 1,200 acres next season.

A few important lessons may be learned from the experience of our farmers this year.

1. Seeding can not be too early done. It is desirable to finish by April 15 to 30 if possible. Sow Honduras rice for the earlier crop and if forced to seed later than April, sow Japan rice last, as it stands autumnal storms, late summer drouth and general "grief" better than Honduras.

2. To be sure of water for irrigation is not the only desideratum. Perhaps drainage is absolutely necessary twice in the lifetime of each rice crop, at seed time and at harvest. Very few rice farmers have the perfection of drainage necessary, but it can be obtained in every instance with as great certainty as irrigation. A dyke can be built around boundaries of each farm high enough to surely exclude all storm or back-waters. This would not usually need to be more than three or four feet high at its highest point. All levels on the farm could then be readily made to drain to the lowest point along the dyke, where an ordinary pump, lifting three or four feet driven by a portion threshing engine, could be made to pump out in every few hours all the water that might fall on the farm or any seepage the result of crawfish holes or imperfect dykes.

3. In case of storm, which has heretofore and no doubt will again beat down, or lodge grain, so that a binder may not get it all, we should remember that the crop is valuable enough to pay for extraordinary methods of saving it. If it can not be cut and bound by binders cutting the field on one side only, then it can be cut with ordinary mowers, cutting field on one side only, with

seven or eight men behind the mowers to pick it up and bind it. And when all machinery fails on down grain, then the supple-backed reapers, with the hand sickle of our forefathers, can save it.

AS TO THE RICE INDUSTRY.

Houston Post.

The rice industry has come to Texas to stay. In the past two years the crop has grown from a few thousand acres in Jefferson County to hundreds of thousands of acres located in a dozen counties. The rice crop is a costly one to get started, owing to the necessary preparation for irrigating—which involves the machinery for pumping, the digging of canals, the building of flumes and levees—and the costly machinery for harvesting and threshing. A number of companies have recently been organized to undertake the cultivation of rice on a large scale and the capital of each ranges from \$50,000 to \$300,000; some of these companies will put in only irrigating plants to furnish water to the farmers, but others will or have purchased land and will themselves cultivate rice as well as furnish water to others. These figures apply to the industry on a large scale.

Matagorda County has shown the greatest development of the rice industry; if all the plans now in contemplation or under way are carried to completion, the acreage will amount to 15,000 or 20,000, as against 750 for the season just ending. The increase for the year following will be enormous, though not now estimatable.

Jefferson County farmers have developed the industry beyond the realm of speculation; they were the pioneers and have reaped a rich harvest. Beaumont now has two rice mills and another building, and draws rough rice from all portions of the section engaged in its cultivation. The increase in acreage will be very large the coming year, but exact figures are not obtainable. The growing of rice is not carried on as an experiment, but is an established business and one which is as certain to return a profit as any other sort of business.

Below will be found reports from the different rice centers of Southwest Louisiana and Southeast Texas; these reports also contain estimates of the cane crop, which is generally cultivated in the same section with rice. The cane industry was once a great one in the coast country of Texas, and is now being revived with every promise of growing to greater proportions than it reached "before the war," when this section of Texas was popularly known as "the sugar bowl." In Brazoria County the cane industry is going to be a most important one; the new State farm and refinery at Brazoria will give it a great impetus. The State has already arranged to put in 1,200 acres in cane for this season, and the refinery will be built in time to handle this and all that can be raised by the farmers in the vicinity.

RICE PROSPECTS, ACADIA PARISH, LA.

TWO HUNDRED AND FIFTY THOUSAND ACRES CAN BE PUT
INTO RICE.

Houston Post.

Crowley, La., December 8.—Acreage in rice the coming season, based upon the average amount irrigated by the different canals, is as follows:

	Acres.
Lechtenstien & Hechinger canal.....	20,000
Abbott Duson canal.....	20,000
Acadia canal.....	15,000
Abbott Bros. canal.....	12,000
Crowley canal.....	10,000
Railer canal.....	10,000
Morris Miller canal.....	12,000
Ferre canal.....	12,000
Midland canal	10,000
Hurd & Wright canal.....	4,000
Numerous smaller plants.....	20,000

Total.....145,000

Amount of rice land covered by these different canals will equal 250,000 acres, but more or less of it is left out each year.

In the east and northeastern portion of this parish some cotton is grown, possibly 15,000 to 20,000 acres.

Cane, about 500 acres in small patches. The production of cane and rice does not effect the cotton acreage in this section. Rice can not be produced to advantage on cotton land and vice versa. On account of price of cotton there will very likely be a 15 per cent increase in acreage of that staple.

Rice, the increase largely depends upon the planting season. On account of increased immigration it is possible there will be an increase of 10 per cent in the acreage.

CALCASIEU PARISH, LA.

THE WELL SYSTEM WILL CAUSE INCREASED ACREAGE.

Welsh, La., December 8.—The acreage in rice planted this year was 50 per cent increase over last year, the yield varying in increase from 50 per cent to 75 per cent over last year. The deep well system proved a success last year and insures still an increase of 75 per cent or 100 per cent acreage for next season. Homeseekers are flocking into our town. Lands that were offered two years ago for \$10 and \$15 per acre are now being rapidly taken at \$38 and \$40 an acre. On 270 acres one farmer raised 2,700 sacks or barrels of rice, realizing in proximity of \$8,000. These are figures, not fiction.

JEFFERSON COUNTY, TEXAS.

BETWEEN FIFTY AND SEVENTY-FIVE THOUSAND ACRES IN RICE.

Beaumont, Tex., December 8.—It would be difficult at present to give anything near a reliable estimate of the number of acres that will be planted in rice in Jefferson County in 1901. This year there were 30,000 acres, and conservative men figure between 50,000 and 75,000 acres next year. In all probability the acreage will reach 50,000, but if it exceeds that the planting season will have to be favorable and the irrigation plants now in course of construction will have to reach a point where water can be guaranteed to farmers when it is needed. It would probably be safe to estimate the rice crop for 1901 in this county at 500,000 sacks, which, at the present market price, would be worth nearly \$2,000,000.

ORANGE COUNTY, TEXAS.

MANY NEW RICE FARMS WILL BE OPENED.

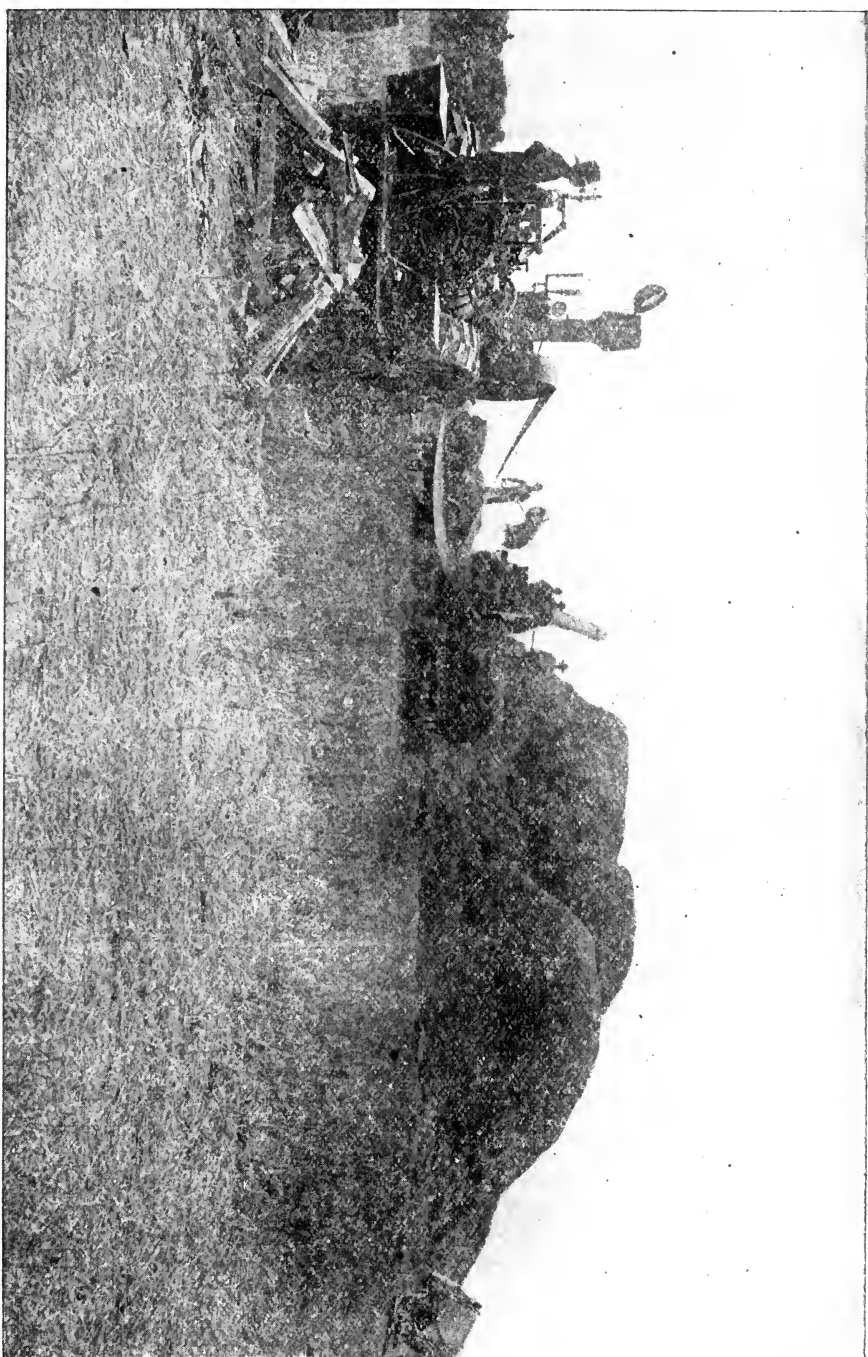
Orange, Texas, December 8.—Inquiry among the rice farmers of this county develops the information that the rice acreage in this county will be increased fully three times next season. This year the acreage was in the neighborhood of 5,000 acres, and for the season of 1901 a conservative estimate places the probable acreage at 15,000 acres. The Cow Bayou Rice and Trust Company is preparing to dig an irrigation canal six miles in length and expects to put in 4,000 or 5,000 acres. The Orange County Irrigation Company will extend its canal four miles and contemplate putting in 4,000 acres. The Des Moines Rice Company will also put in an increased acreage. All who were in the rice business this year will continue in it, and many new farms will be opened up. It is reported that the Magnolia plantation, which was not cultivated this year, will be purchased by other parties and cultivated next season, and, if so, the acreage will reach nearer 20,000. Very little cotton and cane are raised in this county, 300 bales of cotton being average crop, and it will hardly go above that next year.

MATAGORDA COUNTY, TEXAS.

ACREAGE WILL REACH FIFTEEN THOUSAND AND PERHAPS MORE.

Bay City, Texas, December 8.—The increase of acreage put in cane for 1901 over 1900 will be about 400 per cent.

There were about 750 acres of rice grown in this county this year and from present appearances there will be 15,000 acres or more planted in 1901. The probable increase of rice acreage for 1902 will be very large, and can not, at the present time, be estimated.



RICE THRESHER AT WORK, ON SOUTHERN PACIFIC.

COLORADO COUNTY, TEXAS.

INCREASE IN BOTH RICE AND CANE FOR THE COMING YEAR.

Eagle Lake, Texas, December 8.—There will be about 1,800 acres planted in cane in this vicinity this next season, of which amount about 1,200 will be on the Wm. Dunovant plantation. A slight increase over last year.

There will be about 10,000 acres planted in rice in this vicinity this next season, an increase in acreage of about 80 per cent over last season.

Lots of good cotton land will doubtless be idle for want of tenants able to furnish themselves. Owing to the two successive failures in the cotton crop in this community and the fear of boll weevil the landlords are weakening on cotton and will not furnish so extensively, in advance, on cotton crops as heretofore. They are turning their attention to the raising of rice. This will have a tendency to lessen the acreage of cotton probably 25 per cent, but it can not be reasonably estimated with any certainty yet. Good bottom lands heretofore renting for \$4 and \$5 per acre are now down to \$2 and \$2.50 per acre, and not finding ready renters at that.

Freisburg, Texas, December 8.—The rice industry is the talk of the day in this county. This community will not have an acre in rice, as the land is not suited for rice culture, being hilly and very uneven. However, a great deal of land is being prepared in the southern part of this county and after a thorough investigation *The Post's* correspondent is not booming the enterprise to any extent in saying that 20,000 to 40,000 acres will be planted in rice next year. The crop this year yielded enormous profits, and it encouraged individuals to abandon cotton to a great extent and plant rice; besides there have been several stock companies organized to cultivate several thousand acres each.

Weimar, Texas, November 30.—From the best information to be had on the subject there will be about 10,000 acres planted in rice and 4,000 in cane in Colorado County this season. That will be done southeast and south of Columbus. No cane of consequence and no rice will be grown in any other portions of the county, though north of Weimar is as fine a section for rice culture as is in the county. The planting of rice and cane, however, will make no change in the usual acreage for cotton, as just that number of acres, in addition to the old cotton acreage, will be taken in as new lands.

It is thought that the acreage to be planted in cotton the coming season will exceed that of last by 10 per cent.

BRAZORIA COUNTY, TEXAS.

CANE AND RICE WILL TAKE THE PLACE OF COTTON.

Angleton, Texas, December 1.—There will probably be planted in Brazoria County next year about 8,000 acres in cane, 2,500 acres in corn, 2,000 acres in rice and 4,000 acres in cotton. This shows a large increase in rice and cane, and a small decrease in cotton and corn. There will be some shortage in truck farming also.

Velasco, Texas, December 8.—*The Post* correspondent met Mr. Allen Barbee from the Gulf Prairie neighborhood, who gave the following information which is considered reliable. Mr. Barbee stated that he did not think any cotton or rice would be planted in his neighborhood, but that an increased acreage in cane, say 75 per cent more than last season. He says the reason why the people have abandoned cotton for this year is on account of the boll weevil, which, he says, can be found at this time in every field that had cotton planted this year. He thinks that the percentage in cane will be about 50 per cent more throughout the whole county than was planted last season, and that the cotton will be cut 50 per cent, at least.

WHARTON COUNTY, TEXAS.

Wharton, Texas, December 8.—Wharton County as a rice county is forging rapidly to the front. A few years ago a few enterprising farmers near El Campo planted several acres in rice, using the "craw fish flat" land, with quite imperfect irrigation. They succeeded in raising first-class, thickly fruited rice, and now the larger farmers will include many acres of rice on their plantations watered by wells. Near the Embury place, not far from Louise, a well was sunk about forty-five feet, which irrigates 100 acres of rice. At the Kountz ranch last season, experiments with wells were found to be highly successful. The crayfish flats, which have been heretofore regarded as only fit for pasture land, which bears a close resemblance to the rice lands of Louisiana, were found, when watered by wells, to produce rice of the best quality.

HARDIN COUNTY, TEXAS.

Kountz, Texas, November 30.—The acreage of cane in this county will not be increased. Rice probably one-third more. It will not affect cotton crop, the acreage in which will be about the same.

RICE FARMING.

AN ALPHABETICAL LIST OF REQUISITES TO SUCCESS.

Texas Industry.

A.—A warm and salubrious climate.

B.—Be sure of plenty of fresh water and a certain way of getting it on the lands when wanted. About 1,300 gallons per acre per day will be required.

C.—Clay subsoil that will hold water is a pre-requisite to success.

D.—Don't go off half cocked at the start and expect impossibilities. Don't assume that water will run up hill except as it is forced by proper appliances, or that it will be confined with slipshod, illy-constructed embankments. Don't select land that is not comparatively level. Don't fail to subdivide it into cuts or fields from five to twenty acres each. Don't figure on having over ten inches on the lower side when the upper or high side of cut contains above two inches.

E.—Each cut should be leveled and ditched so that complete drainage can be had—you must be able to get the water off as well as on.

F.—Foolish and inexperienced people plow deep for rice. Those who know how and are wise plow shallow—not exceeding 2 1-2 to 3 inches.

G.—Ground should be harrowed and seed drilled in same as wheat. Broadcasting is practiced by some, but the best results are had from use of the drill.

H.—Harvest rice same as wheat, using a rice harvester.

I.—Irrigate from 70 to 90 days, beginning when the rice stalks are from six to eight inches high. Insist on the "irrigator," whether with well, reservoir or canal, being ready for the work when your crop demands it.

J.—Just thresh same as wheat, of course using a rice thresher.

K.—Know and realize that you can plow all winter. Plowing wet don't hurt and the ground never freezes.

L.—Let your drill be gauged to put in from 54 to 81 pounds of unhulled seed to the acre—about one and a quarter bushels.

M.—Must sell in the rough. The mills take off the hulls and put the polish on the rice grains.

N.—Note that 162 pounds of rough rice makes a barrel. A sack is an indefinite quantity, like a sack of wheat. Ordinarily a "sack" means a barrel of rice—162 pounds. A bushel is 45 pounds and 100 pounds cleaned rice a pocket. It takes about a barrel of rough rice to make a pocket.

P.—Properly harvested and marketed rough rice brings from \$2 to \$5 per barrel, depending upon general prices, grade, etc.

Q.—Quite satisfactory profits are had in well managed rice growing. Quietly quit raising precarious and unprofitable crops, we should say, and try rice—provided you are in shape to do so properly.

R.—Rice is one of the surest crops raised, not being subject to drouth, if water supply is sufficient, and little injured by excess of rain. It has been known to yield as much as 30 sacks or barrels to the acre.

S.—Sacks cost about eight cents a piece and hold from 170 to 200 pounds. The rice mills and buyers furnish sacks when they are the purchasers.

T.—Threshers charge ten cents per sack for threshing.

U.—Unless you can sow in March or April do so in May—usually the earlier, when the season permits, the better. Much the past season was not sown till June, on account of the continuously wet weather of the spring months. It is yielding well, though earlier sowing is preferable.

V.—Very likely you can begin harvesting in August and maybe the work will continue on through September well into October.

W.—When ready for market the market will be ready for you.

X.—Xmas times should find you in a happy frame of mind and easy in your bank account.

Y.—You will learn, among other things, that rice straw makes good roughness for stock and that horses and cattle will keep in good order on it. It will yield from two to four tons per acre and is worth baled in the market, from \$5 to \$8 per ton.

Z.—Zeal in proper quantities is essential to success in rice farming, as in every other business. Zealously pursued and backed with good judgment and industry, rice farming in the Texas coast country promises good profits and happy results.

&.—& you will find, too, that rice stubble will fatten hogs, cattle and horses until the winter frosts, which sometimes fail to come, destroy it. And, this closes the alphabetical list of rice raising requisites we started out to give you.

In conclusion, we beg to submit an estimate of Mr. T. F. Cooley, of Houston:

ESTIMATE.

Average yield, 12 bbls., at \$3.....	\$36 00
Deduct water and land rent, 4 sacks.....	\$12 00
Deduct for other expenses.....	10 00	22 00
		<hr/>
Total net profit per acre.....		\$14 00

This estimate includes land, rent of two sacks, or \$6 per acre. Add this, and the land owner has a clear net profit, after paying a two-sack water rent, of \$20 per acre. Where else, and with what crop and with greater certainty can you beat this?



RICE IRRIGATION CANAL ON LINE SOUTHERN PACIFIC—SUNSET ROUTE.

A NEW TEXAS CROP.

WHAT RICE CULTURE WILL DO FOR THE COAST COUNTRY.

Port Lavacca, Texas.—One of the most interesting features of the meeting of the Texas Real Estate and Industrial Association at San Antonio, June 27th and 28th, was an address by Mr. S. L. Cary, of Jennings, La., on the subject of "Modern Rice Growing in Texas." In reviewing the history of rice culture, Mr. Cary said:

"Modern rice growing is something new under the sun. Rice has fed the world from Adam to McKinley, with little or no improvement in its growing or its preparation for market from creation until A. D. 1884, when Maurice Brien brought his twine-binding harvester from Delaware County, Ia., to Jennings, La., where it was used successfully in the rice fields.

"Fifteen years ago a few of us were growing one to five acres of rice in some low spot, trodden in the ground by Creole ponies or cultivated with a wood tooth harrow, harvested with the sickle, threshed with mules, and cleaned with a club. To-day gang plows, press drills, 6,000 twine binding harvesters, threshers and the largest and best mills on earth are placing on our home market the finest rice the world has ever seen; and all this was accomplished by immigration from the Northwest of people too poor to live there longer. They brought their poverty, their day's work, their knowledge of machinery and a laudable ambition to get to the top in any line presented.

We have in Louisiana forty rice mills, with 300,000 acres in rice; Texas has one or two small mills at Beaumont, one at Galveston and one at Houston, with over fifty thousand acres in rice, and with two very large mills building at Beaumont by the largest importers of foreign rice on either side of the continent, and more to follow. Now capital is freely offered at reasonable rates."

"If the man who makes two blades of grass grow where one grew before is a public benefactor, what shall be said of the man who puts down a well and makes a farm? Two hundred such wells are already in use, and it is found that for a hundred and fifty miles East and West, by fifty North and South, in Southwest Louisiana and Southeast Texas, these conditions exist. How much further, will soon be determined. One six-inch well, a five-inch pump, with a fifteen horse power engine—cost of all \$1,200 to \$1,500—will flood from one hundred to two hundred and fifty acres of rice at a cost of \$1.50 up to \$3.50 per acre and with results fully equal to the canals.

The most noted artesian wells of history, of great depth, could not furnish the amount of water we get from our shallow wells. The noted Crenelle, near Paris, 1798 feet deep, only furnishes 516 gallons a minute, while we get from 500 to 3,500 gallons in the same time. Seventy-five wells in the great Sahara yield 600,-

ooo gallons an hour when united, while one of my pumps in Southwest Louisiana gives 1,000,000 gallons in the same. Who can imagine the beauty and value of such a country, every acre a garden and every garden capable of almost perpetual cultivation?"

Mr. Carey told many instances of remarkable success.

"I know," he said, "of boys who have been working for from \$5 to \$20 per month who last year cleared from \$500 to \$2,000 each, and to-day are wearing store bought clothes. I know of single farmers who last year bought and paid for farm, improvements and machinery, and had enough money left to last until next harvest. Albert Anderson came from Maryville, N. D., one year ago, bought 195 acres in corporate limits of Jennings for \$2,500, put in one eight-inch well and ninety acres in rice. The crop paid for the whole land, all improvements and expense of crop. He has bought and put into rice three hundred acres and three more wells, and gone back to North Dakota after more people. The Mayville canal plant sold last year from 2,000 acres \$75,000 worth of rice and have 6,000 acres for 1900, including 3,700 for the company."—*Farm and Ranch*.

RICE GROWING.

The recent combinations by which a capital of \$15,000,000 was added to the vast sum already interested in rice and the recent wonderful increase in Texas acreage devoted to the cultivation of the pearly grain has drawn general attention to the crop throughout the State. About thirty-five years ago the quantity of rice raised in Louisiana began to be worthy of attention and a considerable yearly increase was made until in 1896 the State produced 127,600,000 pounds of clean rice, which is a little more than was raised last year. Rice has been and is grown also in Georgia, North and South Carolina, as well as Texas and Louisiana. Any land in the latter State that can be irrigated will grow the crop.

The manner of cultivation changes with conditions and soil. The seed is usually sown broadcast the latter part of March or early in April. In wet culture the fields are flooded and plowed in water, the rice is sown and harrowed in wet, after which the water is withdrawn and germination ensues. In alluvial sections drainage ditches run from the levees through the fields 100 to 200 feet apart, the ground is plowed in fall and winter, harrowed, and the seed sown either with a drill or broadcast. After the plants are up the ground is gradually moistened and the water kept from covering the top of the plants until a good size is reached, then the field is flooded and kept so until the rice is ready for harvest. Weeds are gotten rid of either by hand pulling or with a scythe. Before harvest

the water is withdrawn. The crop is generally ready for garnering in August. In many alluvial sections machinery can not be used on account of the character of the ground and the crop is cut with sickles, laid upon the stubble to cure, then shocked and threshed.

Prairie rice lands in Louisiana and Texas have become, within the last ten years, an important feature. Owing to plenty of water, these lands have been very heavy producers. Gang plows, harrows, seeders, self-binders and the different sorts of machinery used in wheat culture in the Northwest are profitably used in the rice fields and, with exception of the flooding of the fields, the culture and care of the two crops have much in common. The Louisiana experiment station collected the expressions of a number of the most prominent rice growers, who agreed in the main on the following methods: The land is broken with four mule gang plows, reaching about three inches, although two to two and one-half inches is deep enough for sod. Disc and spring tooth harrows are used and, where necessary, complete pulverization is secured by the use of a smoothing harrow. Should the ground be too hard, water is turned in to soften it. The stand is found more uniform where a drill is used, although the rice may be sown broadcast. In moist, warm weather, water is not turned on for from four to six weeks and then care is taken not to cover the tops. An average season requires three months' flooding.

The water is withdrawn from the field when the heads begin to turn and the rice is passing into the "dough" stage. This is usually from 10 to 14 days before harvest begins.

Three horses with a modern self-binder will harvest from five to twelve acres daily. The same thresher used for oats will thresh rice. Where the farmer supplies the hands the thresher usually charges two and one-half cents a bushel. In threshing from the shock something like seventeen men are required. No fertilizers have been used thus far in rice culture, some claiming that after several years of rice growing, land shows no deterioration. The price of rice lands runs all the way from \$20 to \$100 per acre, and the yield per acre runs from 1,000 to 2,000 pounds. The prevalence of weeds is one of the most serious drawbacks to the cultivation of rice.—*Texas Stock and Farm Journal*.

RICE CULTURE.

While scores of people throughout the length and breadth of our State and the United States hear of rice culture and read of the great profits and plenty it pours into the laps of the fortunate producers thereof, still these same scores of people are in blissful ignorance regarding the mode, methods and general details of this "king of all crops."

LAND.

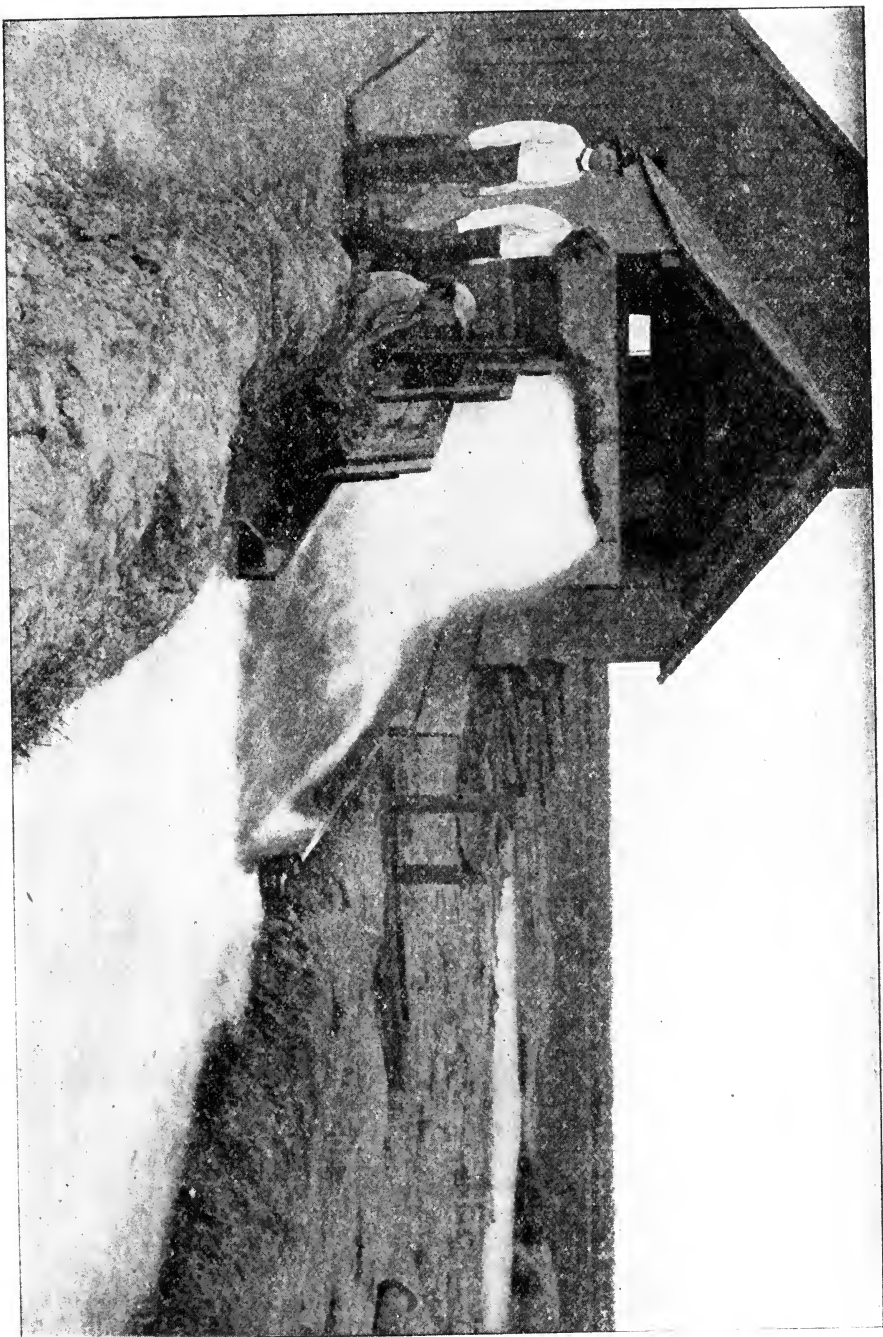
The first essential in the cultivation of all crops is selecting land suited to the growing of the crop you desire to cultivate. In rice farming the lands must have a nearly level surface so that the water will stand evenly on the land and enable large fields to come under the smaller levees, which hold the water on the land. The soil should be from four to fifteen inches in depth under which must be clay so as to prevent the sinking of water into the earth. There are also several other important reasons favoring shallow soil. The growth is not so rank which gives a better head and less straw, the ground dries out more rapidly than deep soil and the harvesting is much easier.

IRRIGATION.

Probably the greatest element in the transformation of the industry from a small and significant beginning to what is recognized to-day as one of the leading and best paying industries in the Southern States, may be found in the extensive system of irrigation that has been established in the last few years. The most sanguine believers in rice culture never expected to see the many inexhaustible streams and bayous, with which the prairie region abounds and which connect the large bodies of fresh water lakes and bays lying close to the Gulf coast, utilized for irrigation purposes, on account of the high lift from these streams which, in many instances, is from twenty to sixty feet. In consequence, thousands upon thousands of acres of rice land that was supposed to be inaccessible for this purpose have proven to be a "bonanza" to their owners. They have on this account suddenly developed an intrinsic value that readily places them by the side of the most valued agricultural lands in the United States. The development of rice culture requires considerable preparation and goes much further than planting and harvesting. In the first place, companies are organized to build the canals and put in the pumping machinery. This necessitates an outlay of from \$50,000 to \$300,000, according to amount of land to be irrigated.

RICE CANALS

are constructed by building two parallel levees over the prairie: one hundred feet apart and varying from three to eight feet in height. These levees are made the same as railroad dumps, except not so wide. These levees often extend fifteen miles, and from these main levees, smaller ones extend four to six miles and are termed lateral canals. Some canals have as many as six and eight laterals. The engineer in locating the main canal and laterals selects the highest lands and hence some canals have many different courses. The object in clinging to the most ele-



IRRIGATING WELL, ON SOUTHERN PACIFIC, FLOODS 250 ACRES.

vated land is that all land will be below the level of the water in canal. Now, get pictured in your mind these parallel levees of the main canal and branching off therefrom, the lateral canals, all of which penetrate, say twenty thousand acres of land. The levees of the main canal begin on the bank of some inexhaustible stream, or its tributary, at which point the immense pumping plant is located. Whenever it becomes known that a rice canal is going to penetrate a certain territory, there is a rush for lands, and by the time the canal is finished, houses are completed and many farmers are engaged in breaking the sod. The two-ten gang plows and four large mules do the work. After plowing, the disc harrow is needed to cut the sod and in April and May the sowing commences and is done after the manner of wheat, oats and similar grain. The press drill or seeder can be used, but the drill is preferable, for it gives a more regular stand and ripens more evenly.

THE PUMPS

started and a regular stream is sent boiling and foaming through the levees, filling them bank full. The flood gates to the lateral canals are loosed and they are soon filled. You will note the water is now from one to six feet above the lands to be irrigated. You behold field after field of rice, which resembles so many wheat fields in appearance and which are now ready for the water. The canal superintendent goes from farm to farm and the flood gates from the main and lateral canals are lifted and thousands of gallons of water go pouring into the fields, which is held on the land by small levees constructed for this purpose and with a view to have the water stand as evenly on the lands as possible.

The rice farmer from this time until harvest begins, has only to watch his levees and cry out, "Give me water, water," which he keeps up for about seventy days, the usual period of irrigation. The flood gates are now closed and the drainage gates opened.

HARVESTING

begins as soon as the field dries sufficiently to permit the harvester to enter, which is from ten to fifteen days. The rice self-binder is identical with other grain harvesters, except stronger, heavier and with broad wheels to prevent cutting into the soft earth. The rice straw is larger and the yield of grain greater than wheat, hence the increased strength of machinery. Rice is shocked and permitted to stand for about twenty days, when it is either stacked or threshed from the shock.

THRESHING

proceeds just as with wheat or oats. There is but little difference between the rice and wheat thresher. The charges per bushel are practically the same. Rice is sacked at the machine and the average weight is one hundred and eighty pounds. It is not unsacked until emptied into the bin at the rice mill for the reason, each field may have a different grade, and hence it is sold in lots. The unloading of a field of red rice into an elevator of pure white rice would depreciate in value the entire lot, hence the handling of the crop in sacks. Rice is sold by the barrel, which weighs one hundred and sixty-two pounds.

THE YIELD.

It is difficult to determine the exact average yield of rice for the reason some farmers adhere to the "providence system," which means maybe fifteen barrels one year and five barrels the next season. It is safe to calculate, however, when an abundance of water is at hand, the average yield will run quite twelve barrels per acre. Some farmers greatly exceed this and I shall show herein some top crops as a possibility to those who have the best seed, land and plenty of water.

MARKETING.

Rice warehouses are found in all the towns in the rice growing territory, for the farmers who desire to ship to the larger markets. This method, however, has been largely superseded by the rice mills, which have located in the towns and either buy the crops or mill and sell the rice for which they charge forty cents a barrel and also retain the bran and polish. The rice planter has, therefore, the opportunity of milling and selling his own crop, or the mills will do it for him, or he can dispose of it to the highest bidder "in the rough."

PROFITS.

Now we have reached the vital part of rice culture and which, of course, influences all business enterprises. The first consideration is given to calculating the cost and the profit. No wise man ever embarked in an undertaking without weighing well these two points. One man can easily handle one hundred acres of land. Some handle a hundred and fifty. The cost per acre, including water rent, is about \$10 per acre. If you are a tenant add \$7 more for land rent and your total cost is about \$17. The average price of rice is \$3 per barrel and with an average yield you have \$36 an acre, or \$19 profit per acre, of \$1,900 from one hundred acres. These figures are conservative, and many farmers make much more. Having recently obtained some state-

ments of last year's crop, I give a few of them in this article to show the possibilities where all conditions are favorable and the best seed is used.

Mr. Bob Andrews planted rice in Jefferson County in 1899, and from forty acres of Japan rice, he harvested twenty-three barrels per acre and sold it for \$3.40 per barrel, making \$3,128, or \$78.20 per acre. He also harvested from ninety-six acres of Honduras rice, thirteen barrels per acre, for which he received \$3.60 per barrel, or \$46.80 an acre, making a total of \$4,492.80 from the ninety-six acres.

Mr. William Day is from Illinois, but is living in Jefferson County, Texas, along the Beaumont Irrigation Canal, and last year, 1899, planted a crop of rice, and reports that from sixty acres of imported Honduras rice, he made the following sales: Four hundred barrels at \$4.50, 150 barrels at \$5.00, 75 barrels at \$5.00, 100 barrels at \$5.00 and 175 barrels retained for seed to use on his farm, which is worth \$5.00 per barrel, making a total of 900 barrels from 60 acres, with a total value of \$4,300, or \$70 an acre.

D. C. Turner, living in Jefferson County, Texas, at China Station, writes as follows: "I only had thirty-five acres of last year's crop sufficiently watered. It made sixteen sacks per acre, averaging one hundred and eighty-seven pounds per sack. Ten acres were seeded with pure seed, second year from importation, which I sold for \$5.00 per barrel. The other twenty-five acres were seeded with rice which had red in it. I sold it to the Beaumont Rice Mill for \$3.55 per barrel. You can make your own figures and see what it is worth per acre. I farmed rice in Louisiana four years."

Mr. Frank Hammond, manager of the Port Arthur Rice Canal, which is located in Jefferson County, under date of April, 1900, says: "We planted here last year 750 acres of ground, from which we harvested 9,627 sacks. This amounted to 10,500 barrels of rice, making an average of 14 barrels per acre. We had one piece of new land amounting to 110 acres, upon which I planted imported Japan seed. We harvested from this 110 acres about 2,270 sacks of rice, which averaged 193 pounds each, making making about 2,700 barrels. I have sold this rice at an average price of \$4 per barrel for seed purposes. This makes 10,800 gross receipts from the 110 acres of ground. I fully expect to repeat the operation this year."

The difference between rice culture and other agricultural pursuits is, that a rice planter grows nothing else. He does not want to do so. for the product from one acre of rice will buy several acres of corn, oats, hayseed. Therefore, he buys all his feed-stuff, except, possibly, a portion of his rice straw, which, when properly saved and cured, is used instead of hay. The rice farmer is not a competitor, as regards any other crop grown in our State. In fact, he has gone on to lands heretofore unoccupied, and being a good consumer, he is creating a market for great quantities of

corn, oats and hay. In fact, he goes further than this, and buys, practically everything to eat and wear. He can afford to. Rice farming also takes just that much corn and cotton land from use for these crops, and pushes up the notch of diversification as regards this State.

The increase in Southeast Texas this year will probably reach 60,000 acres, and preparations are now under way to increase it to 100,000 acres next year, which will represent an output of not less than \$3,500,000 worth of rice. Every indication points to the maintenance of present prices, which are quite satisfactory to the producers.

Thousands of acres are rented to tenants for crop rent, and there is no crop grown that pays them so well. There is no road to a home quicker than rice farming. It is nothing uncommon for tenants to buy their own farms with the result of one year's work.

W. C. MOORE.

THE GROWTH OF TEXAS.

A THIRTY YEARS' VIEW OF THE LONE STAR STATE BY JUDGE Z. T. FULMORE, OF AUSTIN.

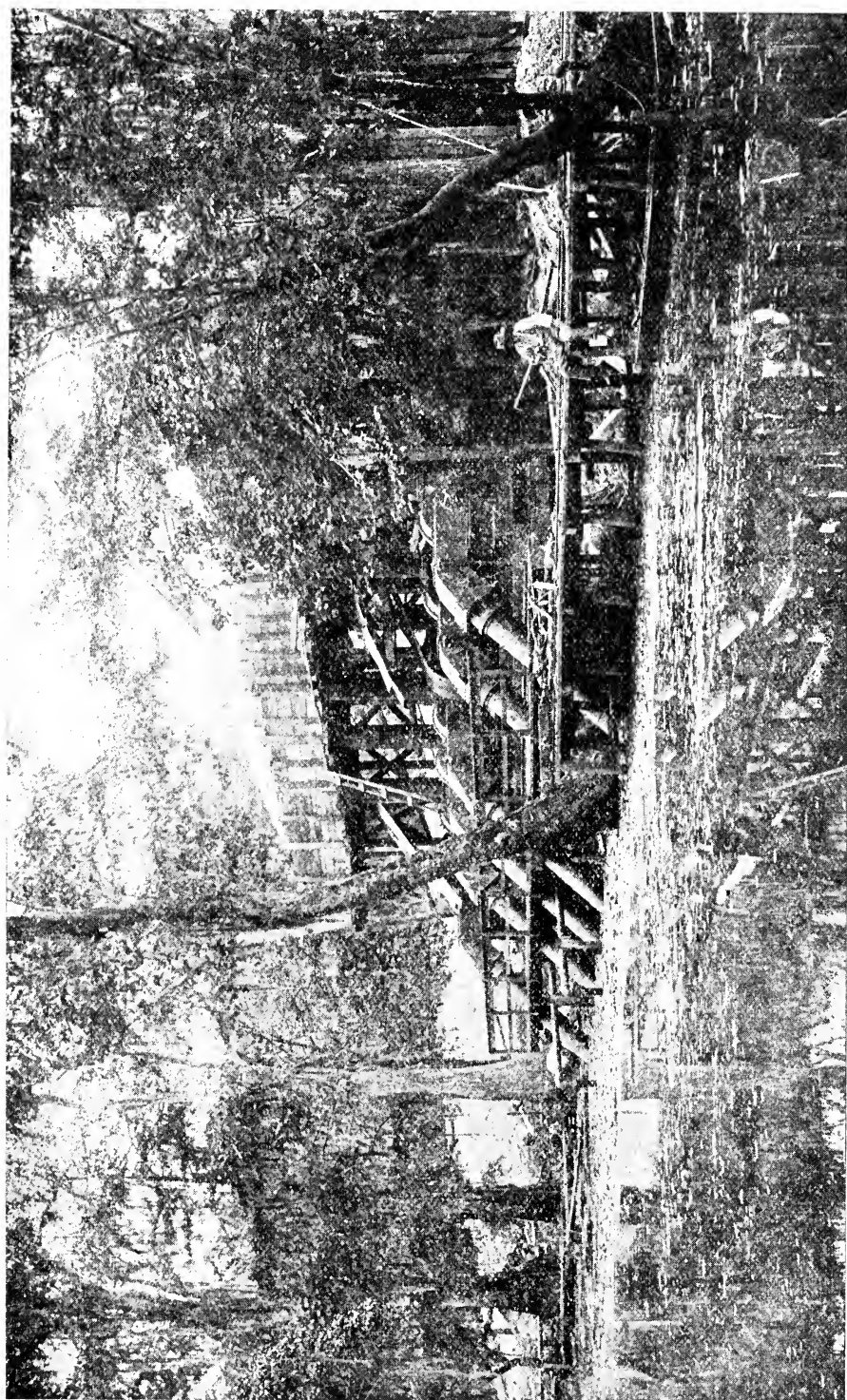
DATA FROM OFFICIAL SOURCES.

Judge Z. T. Fulmore in the Current Issue:

The closing month of the closing year of the century affords the proper occasion for a partial review of the material growth of Texas since she resumed her place in the Union in 1870 under the changed conditions brought about by the great Civil War.

No comprehensive summary would be practicable in a paper of this sort, even though the data were available; hence this review will be limited, in the main, to our growth in population, wealth, agriculture—our main pursuit, and the transportation facilities, which have become so necessary to our development. The data has all been obtained from official sources of the State and United States, and embrace the period from 1870 to 1900, with just enough from the reports of 1860 to give a proper understanding of some conditions existing after the war.

That due allowance may be made for what might seem extravagant estimates of United States agencies, the statement is made that they underestimate our resources in important particulars. For example, the census of 1890 credited the State with only 6,201,552 cattle. In the same year there were actually assessed for taxation 7,378,203, with 3,354,658 sheep, when our tax rolls showed 4,281,812; with 1,253,494 horses, mules and asses, the tax roll showed 1,528,819. The rice product of the State has



A RICE IRRIGATING PUMPING PLANT, ON SOUTHERN PACIFIC.

been regarded as of too small moment to be mentioned at all in the year book of Agriculture, while other States producing less than half the product of Texas are listed as among the great rice producing States of the Union.

In his visit to Texas in 1899, the Secretary of Agriculture made several public addresses, one of which was before our Legislature, in which he urged the necessity for diversification in agriculture. In each of these addresses he stated that Texas ought to be producing as much as 2,000,000 pounds of butter.

The census reports of 1870 showed the product of that year to be 3,712,474 pounds. The report of 1880, 13,899,320 pounds, and the reports of 1890, 21,100,500 pounds, and if the rate of increase since 1890 had been the same as in the previous ten years, was producing over 50,000,000 pounds in 1899.

Up to this date the greatest quantity of rice ever produced in the State, according to United States estimates, was less than 110,000 pounds, when all know that the most conservative estimates will give us all the way from 25,000,000 pounds up.

These illustrations are not cited to disparage the great value of the Agricultural Department at Washington, but rather to fortify the estimates based upon its reports.

In order to get some idea as to the changes brought about by the results of the Civil War, we may note that the assessed valuation of all property in the State in 1860 was \$294,315,639. The first assessment after that war was in 1866, which showed a shrinkage of \$122,749,233. Among the items of assessed values in 1860 was \$106,698,920 of slave property. This was, of course, a total loss, but in addition to this there was a shrinkage in other property of \$64,977,596. It took the State eleven years, or until 1877, to gain sufficiently to overcome this loss in property values.

The cotton product of 1860 was 431,463 bales, and it required seven years to reach that point after the war.

It is a fact worthy of notice that those counties which had an excess of negro population in 1860, and maintained that excess up to 1890, with an increase in white population of 61 per cent, and an increase of 114 per cent in negro population, produced 31 per cent less cotton and other crops in 1890 than in 1860. To be more specific, the Counties of Brazoria, Fort Bend, Grimes, Harrison, Marion, Matagorda, Walker, Washington and Wharton had, in 1860, a white population of 30,746, and a negro population of 39,939, and made 124,417 bales, or about one-third of all the cotton produced in the State. These same counties, in 1890, had a white population of 49,649, and a negro population of 85,520, and made only 93,148 bales, or about one-fifteenth of the State's product for that year, or about one and three-quarters of a bale per capita in 1860, and about two-thirds of a bale per capita in 1890, the disparity in other products being still greater.

The State started out in 1870 with a population of 818,579, an increase of 36.47 per cent over 1860. In 1880 the population was 1,594,749, an actual increase in numbers of 773,170, the ratio

being 94 per cent. In 1890, 2,235,523, an actual increase of 640,874, or 40 per cent. In 1900, 3,042,828, an increase of 807,305, or 36 per cent, the number of the last increase being only about 11,000 less than the entire population of 1870, and the largest in the State's history.

The ratio of increase in population for the thirty years ending in 1900, has been 274 per cent. The growth of other important factors in our progress has been much greater: For example:

In cotton production the increase has been 800 per cent.

In corn production the increase has been 425 per cent.

In wheat production the increase has been 3,754 per cent.

In oats production the increase has been 2,653 per cent.

In taxable values the increase has been 430 per cent.

In railway mileage the increase has been 1,323 per cent.

The cotton product of 1870 was 350,628 bales, or about one-ninth of the total crop of the United States—3,011,996 bales. Of 1880, 805,284 bales, or about one-seventh of the total crop—5,755,359 bales. Of 1890, 1,471,511 bales, or about one-fifth of the total crop. In 1894, the product reached 3,154,000 bales, or about one-third of the total crop, and since that date has alternated around the 3,000,000 mark, and this may be estimated as the crop of 1900. The increase in Texas has been over six times as great as in the balance of the country.

The large increase in 1894 was followed by a corresponding decrease in price, which arrested progress in cotton culture and turned attention to other crops, so that the corn crop, which was 69,112,150 bushels in 1890, reached 107,905,565 bushels in 1895. This in turn was followed by a corresponding increase in the hog product, which went from 2,252,476 in 1890 to 3,035,119 in 1895, ranking the State in 1895 and 1896 fourth among the great hog-producing States of the Union.

The corn product of 1870 was 20,559,538 bushels.

The corn product of 1880 was 29,065,772 bushels.

The corn product of 1890 was 69,112,150 bushels.

The corn product of 1900 was 100,000,000 bushels, estimate.

The wheat product of 1870 was 415,112 bushels.

The wheat product of 1880 was 2,567,737 bushels.

The wheat product of 1890 was 4,238,244 bushels.

The wheat product of 1897 was 9,342,464 bushels.

The wheat product of 1900 was 16,000,000 bushels, estimate.

The oats product of 1870 was 762,663 bushels.

The oats product of 1880 was 4,893,359 bushels.

The oats product of 1890 was 12,584,310 bushels.

The oats product of 1897 was 21,121,639 bushels.

The oats product in 1900 was 20,000,000 bushels, estimate.

The assessed valuation of the State in 1870 were \$170,473,-

778.

The assessed valuations of the State in 1880 were \$311,-470,736.

The assessed valuations of the State in 1900 were \$914,-080,403.

The only time during the history of the State since 1870 when values decreased was from 1893 to 1896, when there was a shrinkage of \$35,886,149.

Railroads have played such a conspicuous and necessary part in the development of the State and are such a reliable guide to our increase in wealth, as to justify their being ranked as one of the most important factors. The largest increase in railway mileage in the history of the State during any four years was between 1880 and 1884, when there was a correspondingly large increase in values. That increase was from 3,224 miles in 1880 to 6,198 miles in 1884, and in taxable values from \$311,470,736 to \$603,060,917, or an increase during the four years of 92 and 93 per cent respectively.

In 1870 the total railway mileage of the State was 711 miles, or one mile to every 1,151 inhabitants, and 373 4-5 square miles of area. In 1880, 3,224 miles, or one mile to every 439 inhabitants, and 82.43 square miles of area. In 1890, 7,810 miles, or one mile to every 256 inhabitants, and 30 5-1 square miles of area. In 1900, 10,124 miles, or one mile to every 300 inhabitants, and 26 2-5 square miles of area.

The actual miles increased and ratios by decades are as follows:

From 1870 to 1880, 2,513 miles and 353 per cent.

From 1880 to 1890, 5,486 miles and 170 per cent.

From 1890 to 1900, 1,414 miles and 16 7-3 per cent.

In 1860 the value of all farm products was \$104,610,281.

In 1870 the value of all farm products was \$49,186,170.

In analyzing this shrinkage, it must not be forgotten that cotton was worth twice as much in 1870 as in 1860.

In 1880 the value of all farm products was \$65,204,329.

In 1890, the value of all farm products was \$111,699,430.

In 1890 Texas ranked sixth among the States of the Union in the value of her farm products—Illinois leading with a valuation of \$180,431,662.

Estimating the cotton crop of 1900 at 3,000,000, worth an average of 8 1-2c per pound, and 1,500,000 tons of cotton seed at \$11.50 per ton, the value of the crop of 1890 is \$144,4750,000. Add 100,000,000 bushels of corn at 40 cents per bushel, \$40,000,000; 16,000,000 bushels wheat at 65 cents per bushel, \$10,400,000; 20,000,000 bushels of oats at 35 cents per bushel, \$7,000,000, makes the value of these four crops in 1900 \$202,150,000.

If to this is added the value of the products of sugar, molasses, sorghum, rice, hay, potatoes, fruits, vegetables, with butter, eggs, chickens, turkey, tobacco and various other products, the value of all the farm products of 1900 will be considerably in excess of 100 per cent over the values of 1890.

The relative position of the citizen of 1870 and of 1890, with reference to these conditions, may be stated as follows:

There was, per capita, in Texas in 1870 25 bushels of corn.

There was, per capita, in Texas in 1900 32 2-3 bushels of corn.

There was, per capita, in Texas in 1870 2 1-3 pecks of wheat.

There was, per capita, in Texas in 1900 5 bushels of wheat.

There was, per capita, in Texas in 1870 3 7-10 pecks of oats.

There was, per capita, in Texas in 1900 6 3-14 bushels of oats.

There was, per capita, in Texas in 1870 214 pounds of lint cotton.

There was, per capita, in Texas in 1900 500 pounds of lint cotton.

Cotton seed which had no market value in 1870, equivalent to 20 per cent, or 100 pounds more.

Assessed wealth, per capita, in 1870, \$208.25.

Assessed wealth, per capita, in 1900, \$310.94.

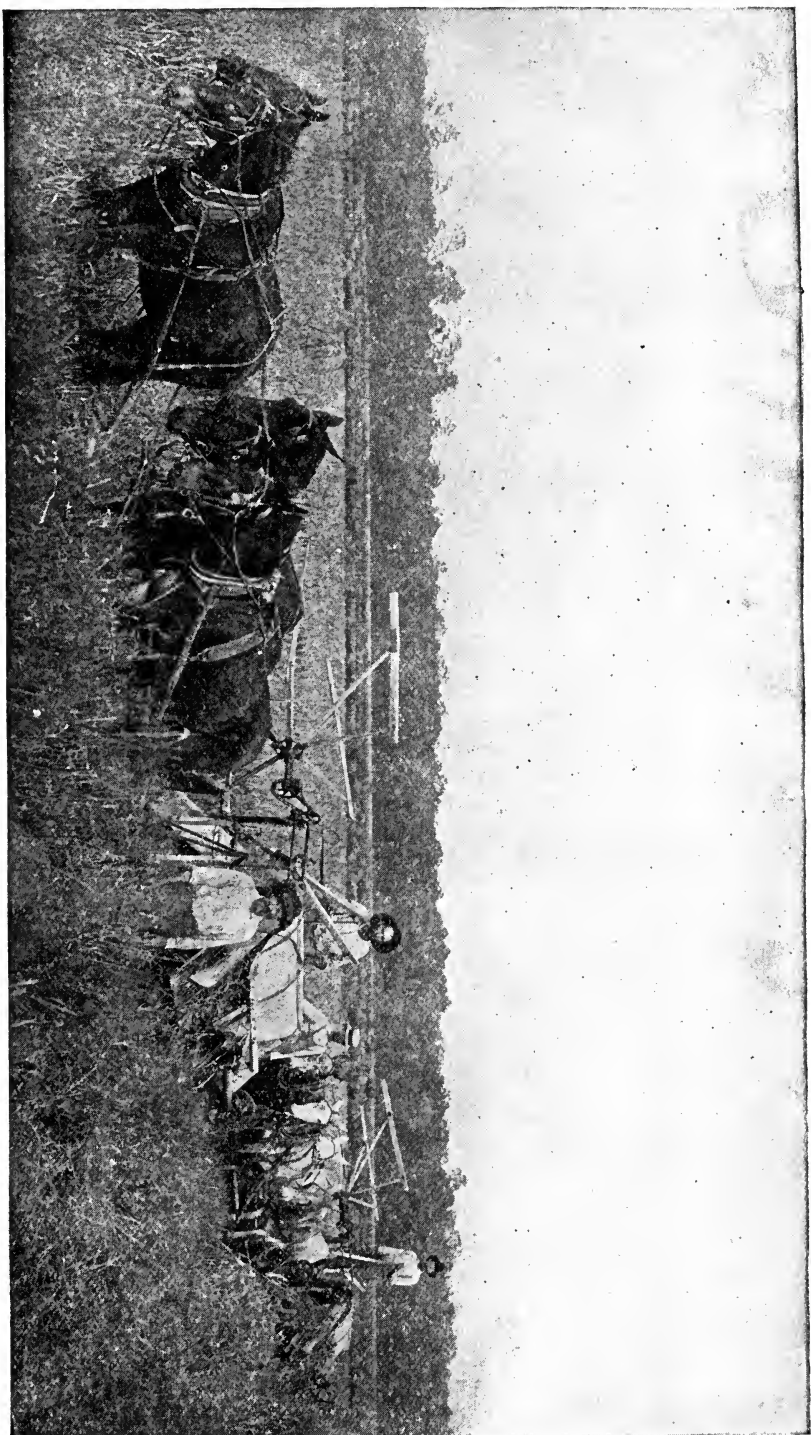
To these should be added the annual products of horses, mules, sheep, cattle and other domestic animals, as to which no reliable data are available.

If we estimate the annual beef product of the State by the number of cattle other than milch cows and oxen, it will be seen that it is about equal to that of all the Atlantic and Gulf States, with Arkansas, Tennessee, Kentucky and West Virginia added. The number of cattle other than oxen and milch cows, as shown by the census reports for 1890, for Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, North Carolina, South Carolina, Florida, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Tennessee and Kentucky, was 7,048,606. The number assessed for taxation that year in Texas, including milch cows and oxen, was 7,378,203. If we add to this 10 per cent as the number which the Tax Assessor failed to reach, and deduct the proportion for milch cows and oxen, as shown by the census, it can be readily seen that the beef product of Texas is equivalent to that of these twenty-three States combined.

The increase in cotton production during this decade has been 104 per cent, corn 44 per cent, wheat 274 per cent, oats 58 per cent, taxable values 16.83 per cent, and railway mileage 16.23 per cent; whereas, in the two previous decades the increased ratios were the reverse.

Progress in agriculture, during this generation, at least, can not be arrested by exhaustion of the area of soil.

There are twenty-five counties of the State, extending from Travis to Grayson, intersected by the Houston and Texas Central and the Missouri, Kansas and Texas Railways, with an aggregated area of 22,626 square miles, or 14,480,640 acres, about one-twelfth of the State's area, capable of producing as much cotton, corn, wheat and oats as is now produced in the entire State. As far back as 1894 one of them produced 120,470 bales of cotton, 2,311,626 bushels of corn, 582,271 bushels of oats, 69,398 bushels



MCCORMICK HARVESTERS AT WORK ON LINE SOUTHERN PACIFIC.

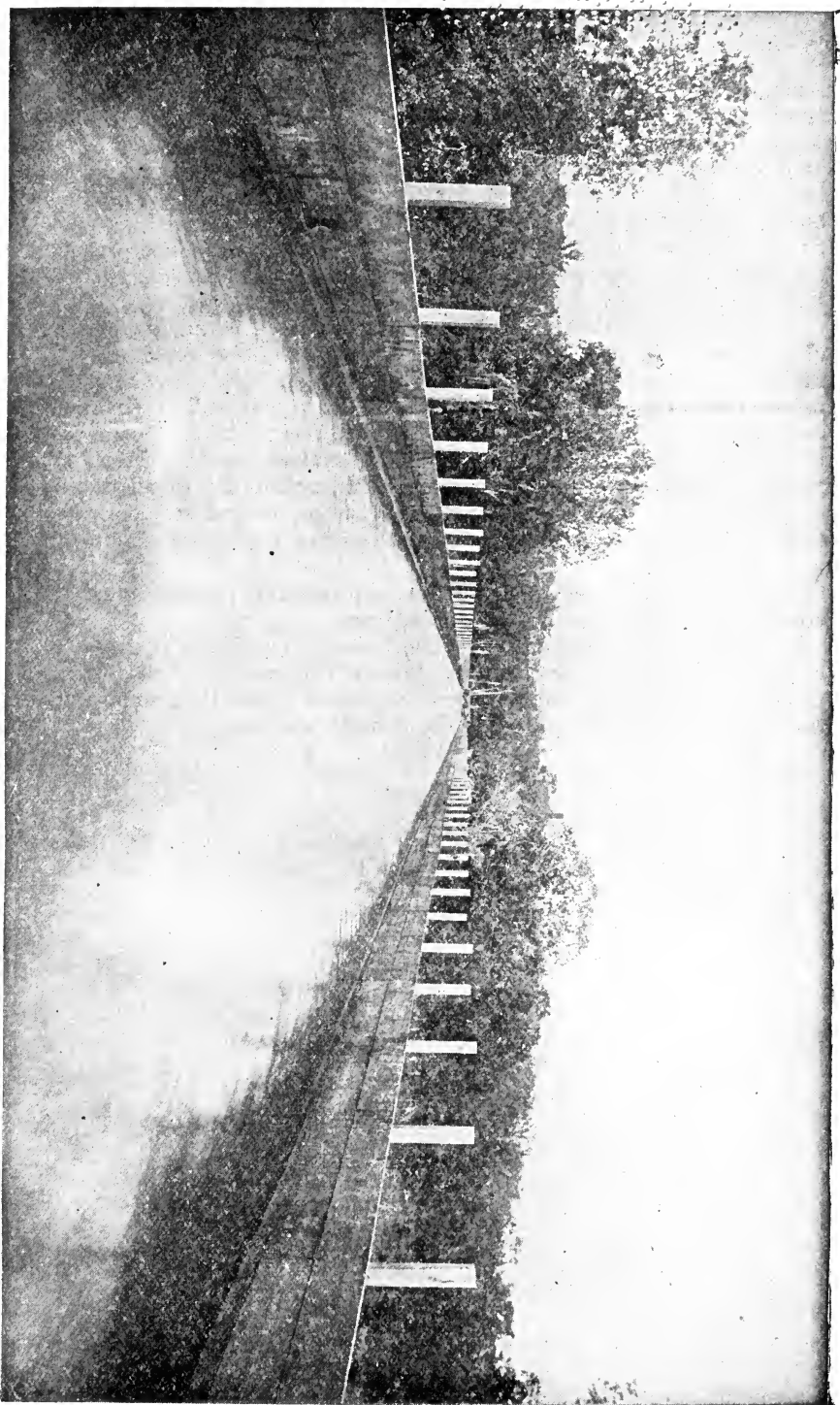
wheat, 56,647 bushels of sweet potatoes, 5,777 bushels of Irish potatoes, 2,513 tons of millet, 6,723 tons of hay, besides the other crops. The total value of these products at present prices is \$7,093,444.75. The county's area is 969 square miles and the population in 1890 31,174, one-fifth of which was urban. This crop was produced on less than two-fifths of the county's area.

Without consuming the space to itemize, the value of the products of this county exceeds by nearly \$500,000 the entire cotton, corn, wheat, oats, sweet potatoes, Irish potatoes, hay, rice, sugar, molasses and sorghum crop of the State of Florida, to produce which required an expenditure for fertilizers of \$857,327. This group of counties produced 657,989 bales of the 1,471,279-bale crop of 1890, and more than 49 per cent of the 3,154,000-bale crop of 1894.

Several things must be noted among the changes in the rate of progress made by these several factors in our growth. The wealth of the State, according to the Comptroller's report, has increased during this last decade only 16.87 per cent. Population has increased twice as rapidly as either, and the value and quantity of agricultural products has increased over 100 per cent. This is, of course, the gross income of the farm, and would indicate that the results have not added to the wealth of the State as would naturally be expected. This is doubtless due, in the main, to the low prices which have ranged for cotton from 1894 to 1900. If the price of this product can be kept approximately near the ruling prices of 1900, the increase in the taxable wealth of the State may be expected to increase proportionately. With the large increase in other products, which will doubtless continue, the general addition to the wealth of the State is assured from this source. With a tonnage of something like 100 per cent greater than in 1890, an increase in passenger traffic commensurate with the increase in population and the improved financial conditions of the people, the outlook for the profitable operation of railroads is better than at any previous stage of our history. The railroad is the boldest pioneer among all the factors in our industrial development, hence we may reasonably expect a large addition to railway mileage in the near future.

While agriculture is rushing ahead at such gigantic strides, the probability of a relapse in its profitable pursuit should, if possible, be anticipated and prevented.

It may not be hazarding too much to predict that by the time 1910 rolls around Texas will be producing more than half of all the cotton in the United States, and enough wheat, corn, rice, beef, mutton and pork to sustain 12,000,000 people. These by no means represent all the food products of the State, and a slight digression will be made to illustrate. The sweet potato is one of the staple products of the South. It is probably the most prolific, the most certain and the most easily cultivated of all our products. Its value as a food product in the North is indicated by the fact that the State of New Jersey annually produces about 2,250,000



RICE IRRIGATING FLUME, ON SOUTHERN PACIFIC.

bushels for consumption in New York City and other markets. Excluding New Jersey from the computation, the product of the whole United States north of parallel 36 degrees 30 minutes in 1890 was only 2,278,591 bushels; including New Jersey, 5,532,935 bushels. The Texas product for the same year was 5,505,452 bushels, virtually all of which was consumed or wasted in the State. The Irish potato is equally prolific and certain. The proportions in the peach product were about the same and its disposition about the same.

If the value of our farm products increases within 25 per cent of the ratio of increase during this decade, and prices are maintained at anything like the ruling prices of 1900, the values of 1910 will reach \$400,000,000. If all the cotton mills now in operation in the United States shall double their capacity during the next ten years, they will not be able to manufacture the Texas product. More than half of all the wheat, one-fourth of all the corn, four-fifths of the beef, one-third of the mutton and pork, three-fourths of all the horses and mules must find outside markets.

Without this, such products as potatoes and peaches must continue to be consumed or wasted at home.

There are no waterways to the sea, and unless Congress comes to the rescue the transportation of this immense mass of product must devolve wholly upon the railroads and their exportation upon the facilities afforded by a single seaport.

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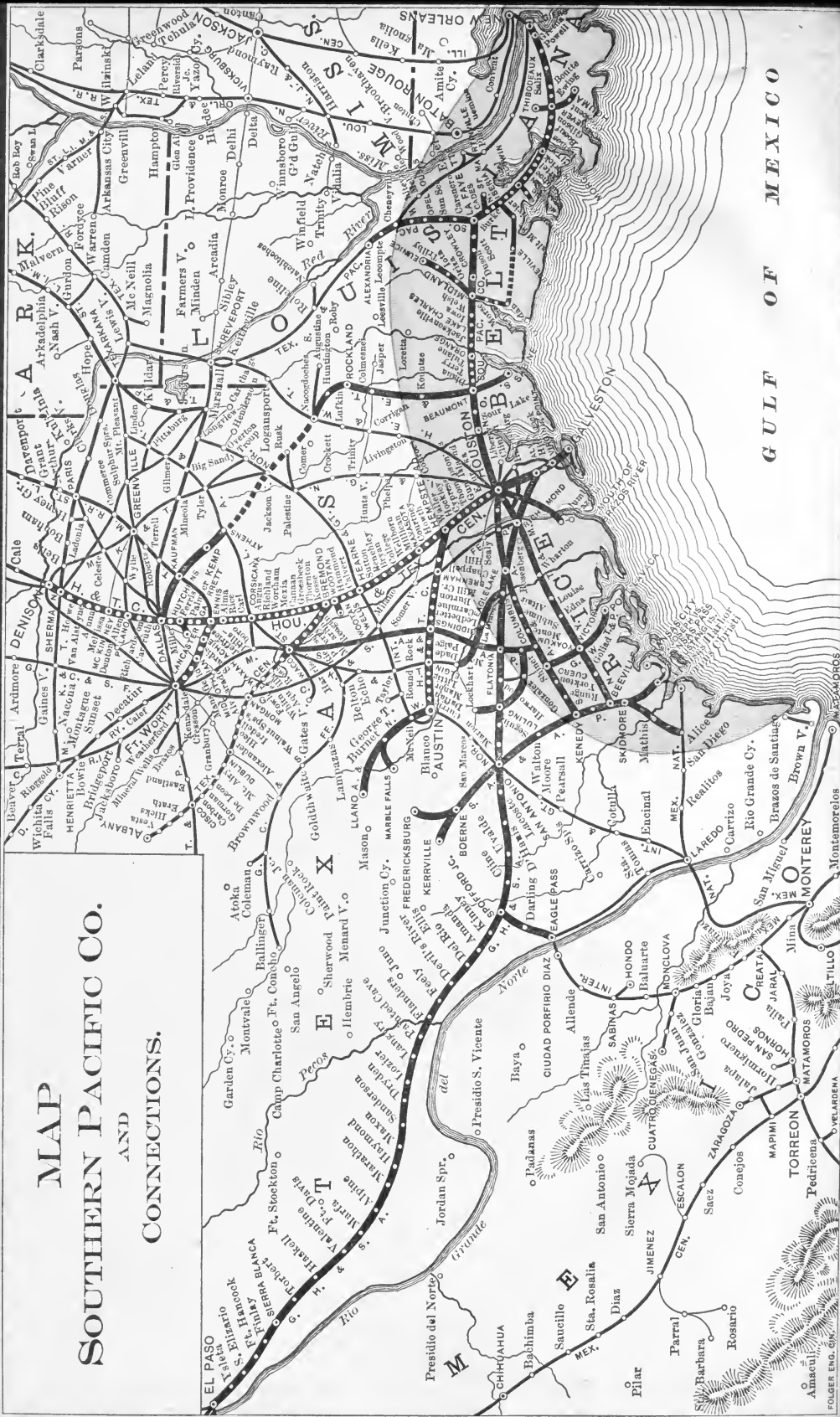
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RUDOLPH FALCK, General European Passenger Agent.

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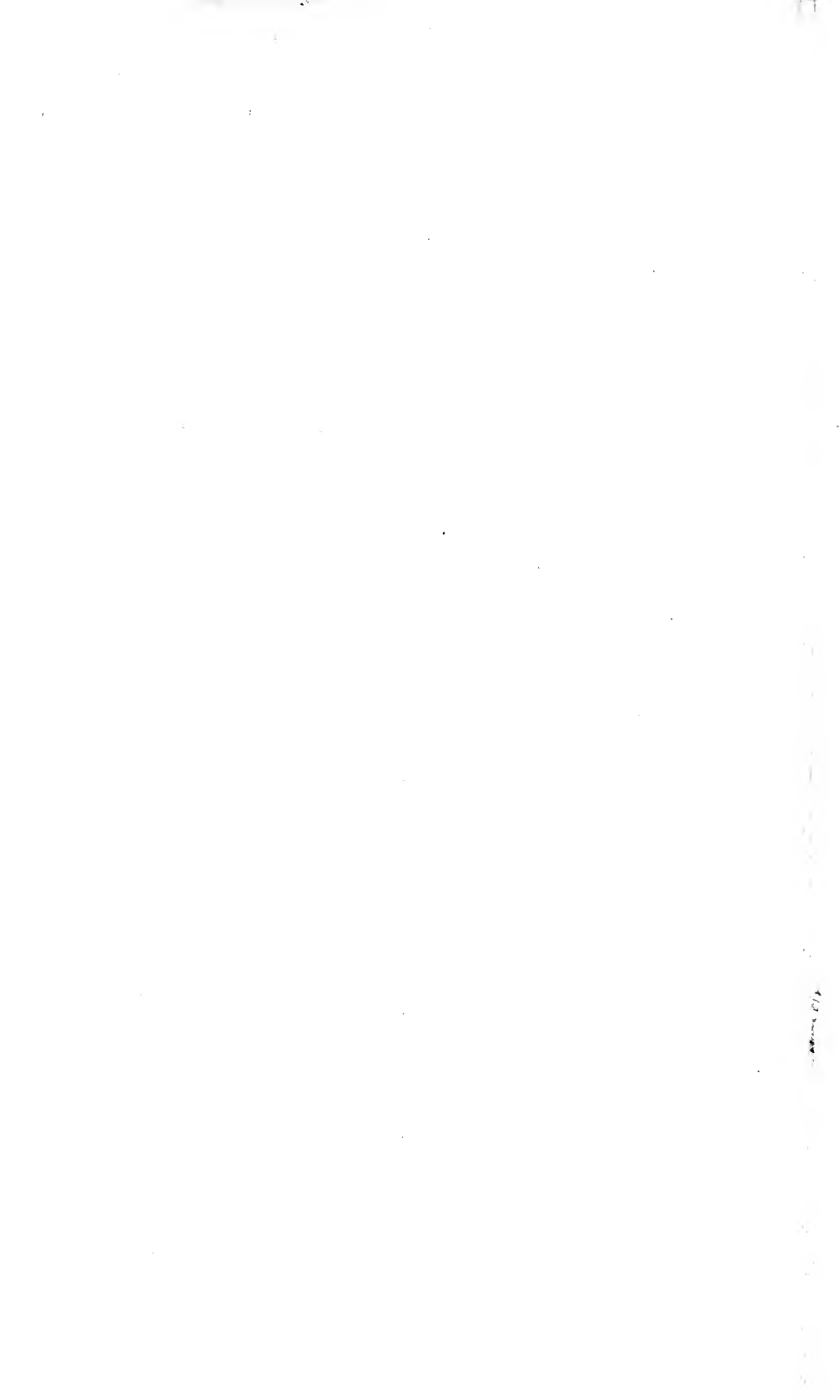
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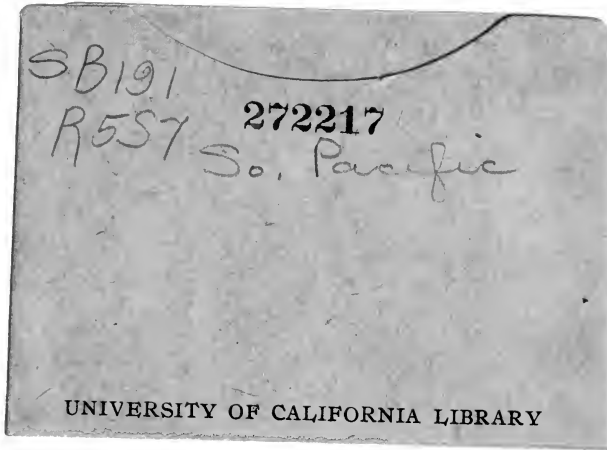
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