



TO DOUBLE AMERICA'S COTTON CROP.

Stunning Results of Patient Experiments by Government Agriculturists.

GUY ELLIOTT MITCHELL
Cotton Illustrations by Courtesy Department of Agriculture.

With the cotton crop of the United States reaching an annual value of nearly \$600,000,000 it is easy to see that the man who can make it worth four or five cents a pound more to the grower will put a few dollars of depending money into the pockets of the southern planter.

This improvement of the crop has been realized, and there is no reason why in ten years from now the whole cotton belt should not be growing a longer staple cotton worth on the average of 4 1/2 cents a pound more than the present crop. Of course this millennial condition of things will not be altogether realized. That there will be a decided and general advance in the value of the crop as the result of work already done by the Agricultural



Department is certain. But there are always the factors of ignorance, indifference and prejudice to be reckoned with, and that will hold down the grand total of the advance.

This is human nature. Otherwise every one would be raising thoroughbred stock, cats and chickens, which cost no more to feed and rear than scrubs, but everyone does not breed thoroughbreds, whether they be dogs, cows, and so it is a certainty that on the average of the cotton crop vastly improved by the use of the selected and improved cotton.

Several new strains.

It is a fact, however, that the Department of Agriculture has, by several years of persistent work, bred from the old varieties of cotton raised in the south several new strains of cotton that, while having all the desirable qualities of the old types, produce a staple that is almost a half longer. It is just one branch of the general industry of plant breeding, and the result, as shown by the cotton itself, is a striking object lesson in the possibilities of plant breeding.

The Department has been at the work for some years, and in the course of its experiments has handled thousands of individual plants in making the selections that are now considered good enough to be sent out as new fixed types. The story of this improvement is a long one, interspersed with many disappointments. But the result now is success beyond contradiction. Northerners, people who live outside the cotton belt, do not realize just what a long staple cotton grown on the uplands means. Cotton is our principal export crop. It is the second most valuable crop grown in the United States, corn coming first. It is the principal crop of ten states, and in large areas of these states it is almost the only crop grown. The United States furnishes five-sixths of the cotton crop of the whole world, and while there are great areas, especially in Africa, that are adaptable to cotton, there is no prospect that the United States will be overtaken as a producer for many years to come. The world's consumption of cotton and the consequent demand are increasing steadily, so that there is little prospect of over-production. All these things are in our favor. Then comes the question of improving this great crop.

Outsiders do not realize that an eighth of an inch on the length of the

more like the old upland cotton than it is like Egyptian or Sea Island.

SEEDS OF NEW TYPES.

The parent types from which it has been evolved are listed and carded in the department's collection, and each year as the fresh crops come in from the improved fields their output is carded for comparison. These new types have now reached a point where the department feels justified in sending out the new seed to the farmers. And if the farmers will take a little trouble and spend practically no money at all, they will be able to keep up the improved strains so that in a few years the American cotton crop will have been doubled in value without necessarily expanding by a single acre.

It has been tedious work, and has been carried on systematically. "Score cards" such as are used in judging at stock shows are kept. The records of the individual plants are known, the shape and opening qualities of the boll, the date of maturing, the length and firmness of the cotton fiber and the degree to which the parent plant may be depended upon to transmit its desirable qualities to its progeny. The work has been done in the open field and not in the carefully tended plots of the experiment stations. Thousands of plants have been destroyed each year, and only the best types kept. These have again been weeded out the following year, and only the best of the best have been kept. The farmers who have been co-operating with the department in the work have been as a rule careful, enthusiastic and painstaking under the direction of the experts sent into the field by the department, and slowly but surely the length of the staple and other desirable qualities in the new cotton have increased, till the department now feels it has a new and fixed type that can be depended on to perpetuate its desirable qualities.

One thing that has been carefully observed is to keep growing the new types on the ground where they will be cultivated commercially. There are several new strains adapted to slightly different conditions of soil and climate. It has been found in the case of wheat, for example, that a strain may be improved in one locality, and that by moving it to new surroundings it shows little, if any, improvement over the local type. This error has been avoided with the new

modeled because of these handy little machines.

It is hard to find a place to begin to enumerate their advantages. In the item of traveling to the creamery there is a great saving. Where the dairy owner has one of these machines, he need not go to the creamery more than twice a week in the warm weather and twice in a week during the colder months.

When cream only instead of the whole milk is delivered to the creamery, the item of hauling is reduced to its lowest limits. Say ten cans of milk a day is the product of a given dairy. Where a hand separator is used, haul-



ing is reduced from taking the ten cans to the creamery every day to taking two cans of cream every other day, or three cans twice a week.

The hand separator allows the dairyman to feed the skim milk to calves or pigs within a few minutes of the time it is drawn from the udder and before the natural animal heat leaves it. This saves warming the milk and allows its use when it is perfectly sweet and fresh.

The hand separator saves hauling skim milk from the creamery to the farm, and it also saves the dairyman from the risk of getting milk from diseased cows to feed to his young stock. This is not a great risk, to be sure, but it is worth considering. Tuberculous cows are frequently found in this country, and probably there is hardly a creamery among the patrons of which no cows suffering from this disease could be found. If the dairyman is sure of his own cows, the hand separator saves him from the risk of getting tuberculous milk from the mixture in the milk vat at the creamery, from which he gets his skim milk when he delivers the whole milk.

The saving in work is a large item. Instead of ten cans to care for and keep clean and free from germs, there are only two. This saves labor and the investment of money in utensils. At the low price at which hand separators are sold, one will pay for itself time and again before it wears out, on the various items of economy mentioned above.

There is another item. The hand separator is rapidly bringing about the centralization of the creamery industry. Cream gathered from hand separators is now transported as far as 200 miles to the central creamery, and here it is made into butter at much less cost than would be possible in the local creamery with a limited field in which to operate. This allows the creamery to pay a better price for butter fat and gives the dairyman more money from his cows.

The man who keeps as few as five cows will find it to his advantage to buy a hand separator, especially if he makes butter on the farm, for in such a case the saving in work is much greater than where a creamery takes the cream.

fiber in a cotton boll means a cent a pound additional on the value of the crop. Now by careful breeding and selection the Department of Agriculture has produced cotton that runs from three-quarters of an inch to an inch and a quarter longer than the parent plants from which it was produced. This is not a freak growth, either. It is an improvement that has developed into a fixed type, and is no

and if the planters will co-operate with the department to even a reasonable degree the value of the whole cotton crop in the United States can be vastly enhanced without planting a single additional acre, and there will still be enough land available in the cotton belt to assure the United States of its supremacy in the cotton world for many years to come.

UNITED STATES RECLAMATION.

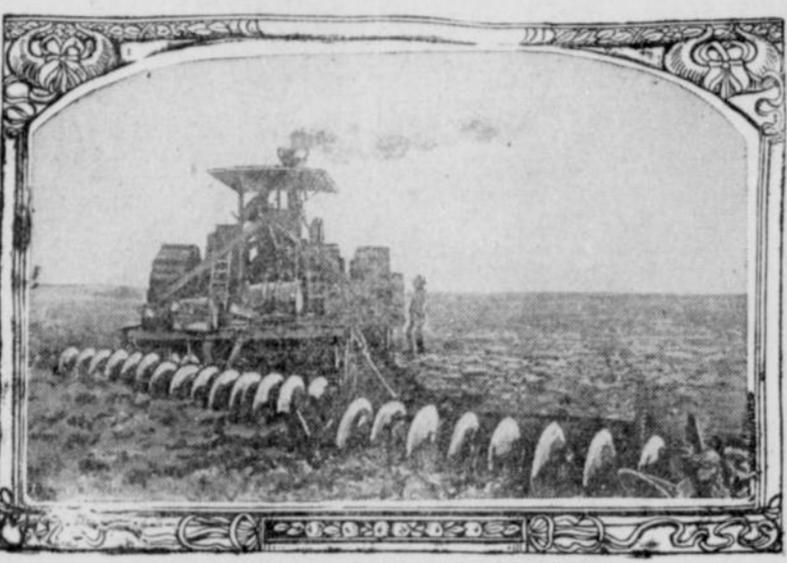
Plowing by Co-Operative Traction Engines.

By C. J. Blanchard.

A million acres will be added to the cultivatable area of the country during the next three years, under the various government irrigation projects. Most of this acreage is raw land upon which the plow has never turned a furrow. Thousands of new settlers will be located there and for several years the principal work will be clearing, leveling, and plowing, to prepare the land to receive the water.

Over vast stretches the sage brush is the only vegetation. In other places the bunch grass makes a tough sod, unyielding and hard to break. The subjugation to agriculture of this new empire has attracted the attention of the manufacturers of implements and machinery. They see in this work a virgin field for the products of their factories. As most of the settlers go up upon this land are not in affluent circumstances, and as feed for stock will be scarce and costly, any proposition which will eliminate the necessity for the purchase of horses, plows and forage will naturally prove interesting.

It has occurred to the writer that in



DISK PLOW DRAWN BY TRACTION ENGINE.

every one of these projects there is an excellent opportunity for the use of powerful traction engines, accompanied by gang plows and harrows. These engines could be purchased and managed by a number of settlers or they could be operated by one man who would contract to do the work. Up in the Northwest Territories a Michigan man is preparing to introduce this method of custom plowing and cultivating. He is building a plow which will turn nine furrows, each fourteen inches wide, and with a traction engine which he has designed will plow 33 acres per day. He has already contracted for 2,700 acres at \$3 per acre for plowing, and expects to close arrangements for a much larger area.

HOW TO HOLD A POSITION.

Courtesy, Promptness, Loyalty and Hard Work Are Keys to Success in Business.

By H. J. HAPGOOD,
President of Hapgoods.

How to hold a position? Do just as little work as you possibly can; take no interest in the business; curse the injustice of your employers when you see younger men advanced over your head. By following these rules you may hold a position ten years, but the salary paid you and the responsibility placed upon you will be little if any greater than when you started.

But by holding a position we mean something broader and better than this. We mean constantly increasing your employer's satisfaction, steadily developing higher ability and surely advancing to larger and greater responsibility.

My subject is then really "success in business," and this, like success of any kind, is "untaught and unteachable." There are, however, certain valuable hints to be gained by studying the careers of men who have succeeded. Although the paths by which these men have won success are widely different, there are certain features which stand out prominently in all of them. These I believe to be the essentials for business success—promptness, courtesy, loyalty, hard work.

Promptness is the key note in this age of haste. Opportunity waits for nobody, and the man who is always a little behind time is playing a losing game. "Always there with the goods" is one of the highest tributes that can be paid a modern business man. "Having the goods" is the first consideration, but this will avail little if you are not always there with them when wanted.

In this connection a good story is told of Philip D. Armour and a young man who had just begun work for him. When on the first morning the young man reached the office at 9 o'clock, he found his employer already there at work. The next morning at 8:30 and the following morning at 8 o'clock it was the same. At last, determined for once to be there first, the new clerk was there at 7 o'clock. When he walked into the office Mr. Armour looked up from his desk and grimly inquired: "Young man, where do you spend your forenoons?"

Business hours are not usually as long as Mr. Armour made them, but whatever they are they are rigidly observed. Five or ten minutes in the morning, trivial as it may be itself, is a pretty sure indication of the degree of promptness you will show in more important matters.

"I know of no investment more certain to pay large dividends than courtesy," said a successful business man the other day, and he spoke the truth. In the nerve-racking, endless rush of affairs there is nothing which leaves a stronger impression than a pleasant word or a kind act, especially if it be something most men overlook. Business courtesy is largely a matter of habit and is one of the habits we can afford to cultivate.

In the army and navy loyalty is an essential for success and it is no less so in the business world. Enthusiasm and loyalty go hand in hand; a man cannot be really interested in his work unless he has an employer to whom he is loyal. There are many brighter

men than he in the service, but he stuck to them through thick and thin and they appreciate it." The frequency with which men state this as a reason for success is significant. It shows that the man of the hour is the faithful man, the man who makes his employer's interests his own and whose loyalty never wavers.

Associated more or less with all these requisites and overshadowing them all is hard work. "For this," said President James J. Hill of the Great Northern Railroad Company, "there is no substitute." You may be lacking in ability, in personality or some other way and still succeed; but if you have not the capacity for hard work you are doomed to failure.

Study the lives of great men and you will see in ninety-nine cases out of a hundred, their achievements are due to the possession of this capacity. William E. Corey, the president of the United States Steel Corporation, attributes his first success to "not being afraid to do \$2 worth of work for \$1." When a laborer he wheeled so much more iron than the other workmen that he was soon made foreman over them. The words "hard work" come nearer to holding the key to success than volumes of advice.

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