BULLETIN
of the
UNIVERSITY OF SOUTH CAROLINA
THE CASE FOR COTTON
The Case For Cotton

A Paper Read Before the Kosmos Club and Published by Request

BY GEORGE MCCUTCHEON

ISSUED QUARTERLY BY THE UNIVERSITY

No. 43
Part V
October, 1915

COLUMBIA, S. C.
Second-Class Mail Matter
THE CASE FOR COTTON

It is not necessary to recount here the numerous criticisms that have been made of the type of farming followed in the South. Since the outbreak of the war in Europe many estimates have been made of the loss the South sustains annually through its failure to produce enough food crops and animal products for its own needs. The assumption underlying all these estimates is that it is bad business to buy what can be produced at home. Our farmers, according to their critics, have an incurable case of "economic insanity." The attitude of the average farmer is shown in an interview reported by Mr. Bradford Knapp with a farmer in East Texas:

"I see you have a splendid field of oats," said Mr. Knapp.

"Yep," replied the farmer.

"Ever plant any before?"

"No. Wouldn't have planted an acre of them this time if it wasn't for this European war."

"You'll get a good price for them and you won't have to buy any winter feed, will you?"

"No. But say, have you seen what cotton's doing? Nearly nine cents this morning! And I tell you right now that if she holds at that figure very long I'm going to plow up every foot of that oat field and plant it to cotton."

This mania for cotton makes necessary the importation of many things which could be produced in the South, which are paid for with cotton money. In taking this position the farmer is not a peculiar being. Run through the list of articles imported into the United States and note the number that could be produced in this country. Labor in America is as efficient in producing hemp, flax fibre, linens and coarse wool as labor in the countries from which these articles are steadily imported. Does it follow
that these things should be produced in America in order to keep cotton and corn and hog money at home? Again, in the case of the individual, does it follow that the bricklayer should carry bricks as well as lay them, or that the business man should be his own clerk and bookkeeper, because the bricklayer is able to carry more bricks than the hod-carrier or the business man is a better clerk or bookkeeper than those whom he employs?

About one hundred ago David Ricardo, one of the wisest of the old political economists, published this statement: "Two men can both make shoes and hats, and one is superior to the other in both employments; but in making hats he can only exceed his competitor by one-fifth or 20 per cent, and in making shoes he can excel him by one-third or 33\(\frac{1}{3}\) per cent. Will it not be for the interest of both that the superior man should employ himself exclusively in making shoes, and the inferior man in making hats?" Paradoxical as it may seem, it may be to the interest of a country or a section to import a commodity which it could produce at less cost than the exporting country for the reason that this commodity cannot compete with some other commodity in the production of which the labor of the importing country may be more profitably applied. The reason for the exchange is still stronger when by reason of climate, soil, or the character of the labor available, a section has an absolute advantage in the production of the commodity which it sells and is at a disadvantage in the production of the commodity it buys.

The law of comparative advantage is responsible for the type of farming which prevails in a section and it will continue to operate in the South as elsewhere. The only way to prevent its operation is to erect a Chinese wall in the shape of a high protective tariff and compel by law a return to the self-sufficing agriculture of the dark ages.

When a certain type of farming has prevailed in a section for generations the presumption is always in favor of its continuance and the burden of proof is on those who advocate a change. In New England, for example, the area in hay in 1909 was five times the total area of all other
crops combined. In Vermont, which is perhaps typical of the rural area, the value of the hay was 60 per cent of the value of all crops. Although small grain and corn can be raised there are many townships in which there is not a single threshing machine. It is a common practice to keep nearly all the farm in grass. Vegetables and truck are raised as by-products of hay farming. When a patch gets too poor to grow good hay it is plowed up and planted for a year or two in vegetables and then reseeded to hay. Taking the farm prices of hay, corn, and oats in Massachusetts and comparing them with the Iowa prices for the same products it is not difficult to see why the New England farmer is a slave to the one crop system. The local supply of hay is not sufficient to supply the demand and hay has to be shipped in, but the farm price of oats in Massachusetts is 157 per cent of the Iowa price, of corn 166 per cent of the Iowa price, and of hay 226 per cent ($8.58 and $19.40 per ton in Iowa and Massachusetts, respectively). The difference is due to the relative cost of shipment of oats, corn and hay in proportion to value.

The $19.40 hay is not fed to steers and bulls but the $8.40 hay is marketed to a considerable extent in this way as the following table shows:

On April 1, 1910, there were in

<table>
<thead>
<tr>
<th>State</th>
<th>Steers and Bulls Born in 1909 per 100 Cows</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nebraska</td>
<td>26</td>
</tr>
<tr>
<td>Iowa</td>
<td>28</td>
</tr>
<tr>
<td>Illinois</td>
<td>15</td>
</tr>
<tr>
<td>Indiana</td>
<td>15</td>
</tr>
<tr>
<td>Ohio</td>
<td>14</td>
</tr>
<tr>
<td>New York</td>
<td>4</td>
</tr>
<tr>
<td>Massachu-</td>
<td>3</td>
</tr>
<tr>
<td>setts</td>
<td>3</td>
</tr>
</tbody>
</table>

...before...
There are many surprises in the study of this subject in the census reports. The state of Illinois is ahead of all the other states in the value of its farm crops. It is the greatest corn producing state in the Union. In 1909 Illinois produced 390,218,676 bushels of corn and Iowa, its nearest competitor, produced 341,750,460 bushels. In this same year Illinois had only half as many hogs and half as many cattle as Iowa. East central Illinois is one of the best farmed sections in the world. The corn map of the state on which one dot represents 100,000 bushels, shows up solid black for this section, but the hog map, on which one dot represents 2500 hogs, is only slightly shaded. If the experience of the excellent farmers of East Illinois is any guide it does not necessarily follow that because a man raises a lot of corn he should feed it to hogs. How long would that state continue in the hog business if corn were $1.00 a bushel and hogs 8¢ per pound? The hog map of Iowa is black for almost the entire state. On account of the distance from the central markets, although there is a difference of only a few cents in the farm price of corn in favor of Illinois, farmers in Iowa have found that it pays best to market the corn in the concentrated form through hogs. Whatever the explanation, the advantage of feeding the corn is not so undeniable in Illinois, hence the difference in the farm practice.

What is the advantage that the South has in the production of cotton? The cotton crop is the most valuable per acre of all the general field crops grown in the United States. Dr. C. G. Hopkins, of the University of Illinois, in his book, “Soil Fertility and Permanent Agriculture,” states the case for cotton in this way: “As an average, seed cotton is about one-third lint and two-thirds seed, and a hundred bushel crop of corn is more difficult to produce than three thousand pounds per acre of seed cotton, which would yield one thousand pounds (or two bales) of cotton lint. At 10¢ a pound for cotton lint and 70¢ per hundred pounds for cotton seed, such a crop would be worth $114 per acre, or about three times as much as one hundred bushels of corn at the ten year average price in the corn
belt.” If the South were a corn selling section, the price of corn would certainly be no higher than in Illinois.

The average value per acre, according to the last census, for the combined cereals in South Carolina was $13.01, corn being slightly over ($13.21) and oats and wheat below this figure ($11.75 and $8.97 respectively.) The average for cotton (one-half bale to the acre) was, for the seed and lint, $31.43 or about two and one-half times as much as the figure for the cereals. In South Carolina 41.9% of the improved land was in cotton and 67.9% of the value of all crops came from the land in cotton. In Illinois the figures for corn were 36.3% and 53.3% respectively. The value of land and the rent of land are determined by the most profitable use to which the land may be put and those who pay the price cannot afford to put the land to a less profitable use.

It has been determined, for example, from many feeding experiments, that it takes a bushel of corn to produce ten pounds of hog. It will take, therefore, thirty bushels of corn to produce a three hundred pound hog. Assuming that the hog gets one-half his living from pasture which costs nothing, the cost of producing the hog would be at prevailing prices $15.00. This three hundred pound hog would sell for 8¢ a pound, giving a profit of $9.00. However, if it took one acre of land to produce the fifteen bushels of corn, worth $15.00, when the same acre would have produced half a bale of cotton worth $31.00, the farmer is the loser on his live stock venture to the amount of $7.00. This is hog raising from the commercial standpoint. This same hog would dress about two hundred and twenty-five pounds, for which the farmer would have to pay about 15¢ a pound if he bought it from the merchant—a total of $33.75. In other words, instead of a loss of $7.00 there is a gain of $2.75 which the farmer saves in this case by raising the hog for home consumption.

If the terms of credit the farmer gets and the prices he has to pay for what he buys offset the advantage he has in the production of cotton, the best thing for him to do is to raise everything he needs on his farm. For this situa-
tion lay the blame where it belongs—on the ruinous credit system, not on the crop. The farmer who has sufficient working capital or good credit so that he can buy what he needs on favorable terms is not to be blamed for planting cotton as he does, if he is farming for profit and not for pleasure.

The case may be stated in another way. Suppose that there are two farmers in South Carolina in this situation: Each has the same amount of labor, his own and that of two sons, but one has fifty acres of arable land, no more, and the other two hundred acres. No more labor is obtainable in either case and the land in both cases has to be worked by this labor with no help from the outside. Assuming that they are both general farmers and assuming that the relative prices of the different crops remain as they have been, what should each of these farmers plant in order to get the most for his labor? The fifty acre man, if he is to obtain maximum profits, must plant all the cotton that his force can gather. The two hundred acre man should buy the modern farm machinery and the animals necessary to pull the machinery and forget that there is such a crop as cotton. Now what is the application? In Champaign County, Illinois, one of the best counties in that section of the state previously mentioned, there are twenty-nine people per square mile in the country; in Anderson County, S. C., there are seventy-nine per square mile—nearly three times as many. There are twice as many per square mile in Marlboro County. In only one county in Iowa, out of ninety-nine, are there as many as forty-five people per square mile living in the country. In South Carolina there are nineteen counties in which the country population is more than forty-five to the square mile. If, as Dr. Hopkins states, the cotton crop is three times as valuable per acre as the corn crop and if the lands of Anderson county were as productive as those of Champaign County, Illinois, the average citizen of Anderson could be about as well off as the average citizen of Champaign. The difference in the productivity of the land in the two counties would measure the difference in
the possible standard of living of the farming population of the two sections, if the proportion of improved land in farms were the same. In Anderson 58.6% of the land in farms was improved, while in Champaign the same percentage of the land in the country was in farms (91.1%) but 98.1% of this land was improved. Stating the difference in another way, the average farm in Champaign contained 161.9 acres of which 158.8 acres were improved. In Anderson the average farm contained 54.5 acres of which 31.9 acres were improved. Cotton is responsible for the population statistics of Anderson and the law of comparative advantage is responsible for cotton. A difference of only $1.00 per acre in the value of different crops would mean a loss or gain of $260,000 in the farm income of the people of Anderson County.

Diversification may be best for 1915, but if by diversification is meant the permanent substitution to any great extent of lower yielding crops for cotton, it will be diversification and starvation for a large proportion of the farming population of South Carolina. Of course, the writer understands that general diversification throughout the South would cut down the amount of cotton produced and thus raise prices to a point where the smaller crop might sell for more than the crop that is now raised. For that matter the same would be true for the corn crop or the wheat crop. Except under conditions of monopoly, such a desirable situation is impossible and the farmer has to adjust his practice to the world as he finds it.

Most of the ills from which our agriculture suffers are attributed to the lack of diversification. Good farming and diversification are thought to be synonymous terms; soil exhaustion and one-crop farming as one and the same thing. In one of the census reports, the statement was made that if all the land of the South were farmed as well as that in Marlboro County, the South could make 80,000,000 bales of cotton. A plausible explanation of the wonderful showing was thought necessary, so the author of the bulletin attributed it to rotation with legumes, along with other practices that had been followed in Marlboro
the possible standard of living of the farming population of the two sections, if the proportion of improved land in farms were the same. In Anderson 58.6% of the land in farms was improved, while in Champaign the same percentage of the land in the country was in farms (91.1%) but 98.1% of this land was improved. Stating the difference in another way, the average farm in Champaign contained 161.9 acres of which 158.8 acres were improved. In Anderson the average farm contained 54.5 acres of which 31.9 acres were improved. Cotton is responsible for the population statistics of Anderson and the law of comparative advantage is responsible for cotton. A difference of only $1.00 per acre in the value of different crops would mean a loss or gain of $260,000 in the farm income of the people of Anderson County.

Diversification may be best for 1915, but if by diversification is meant the permanent substitution to any great extent of lower yielding crops for cotton, it will be diversification and starvation for a large proportion of the farming population of South Carolina. Of course, the writer understands that general diversification throughout the South would cut down the amount of cotton produced and thus raise prices to a point where the smaller crop might sell for more than the crop that is now raised. For that matter the same would be true for the corn crop or the wheat crop. Except under conditions of monopoly, such a desirable situation is impossible and the farmer has to adjust his practice to the world as he finds it.

Most of the ills from which our agriculture suffers are attributed to the lack of diversification. Good farming and diversification are thought to be synonymous terms; soil exhaustion and one-crop farming as one and the same thing. In one of the census reports, the statement was made that if all the land of the South were farmed as well as that in Marlboro County, the South could make 80,000-000 bales of cotton. A plausible explanation of the wonderful showing was thought necessary, so the author of the bulletin attributed it to rotation with legumes, along with other practices that had been followed in Marlboro
County for many years. The writer knows of one field in Marlboro County that has been planted in cotton continuously since 1866 and the last time he saw it the crop of cotton was magnificent—good for at least a bale and a half to the acre. There are thousands of acres in the county with a similar history.

The cotton crop is in a class by itself in this respect. When the farmer sells cotton lint, he sells carbon, hydrogen and oxygen, elements derived from the air and water. The amount of fertilizer in a bale of cotton lint is worth about forty cents. The oil in the seed has no fertilizing value, so that if the meal and the hulls from the seed made are returned to the land, as much plant food is returned to the land as was taken out. Where the farmer can make an exchange with the oil mill on the ton for ton basis, he can put back twice as much plant food as was taken out, as the meal contains practically all of the fertilizer of the seed and there are only 800 pounds of meal in a ton of seed. The farmer can exchange half of his seed for meal, sell the other half and buy phosphoric acid and potash and keep up the fertility of his land. Not only can he keep it up, but in sections like Marlboro, he can actually increase it. An enormous and easily avoidable waste of soil fertility was the result of ignorance of the value of the seed as a fertilizer. For many years before the Civil War, the seed crop was regarded as a nuisance and was burned, hauled to a distance or thrown into a stream. The gin houses were frequently built on the edges of streams so that the seed could be easily disposed of. The success of the farmers of Marlboro is due to the practice, begun many years ago, of putting back into the soil the plant food taken out.

It has been demonstrated beyond doubt that this practice pays on cotton. The results at the experiment stations where careful records have been kept are conclusive on this point. At the Louisiana Station, for example, from nineteen years’ records the value of the increase due to fertilization was $34.32 for cotton, $5.00 for corn and $8.48 for oats. Cotton is like the cabbage which Peter Hender-
son called the glutton of the vegetable family. It is not very particular about what you feed it, if you feed it. At the Alabama station for all the fertilizer ingredients used, both singly and in combination, the increase more than paid the cost, and, as a rule, every addition increased the profit per acre, the largest increase being secured from the most heavily fertilized land. There is of course a limit to profitable fertilization and the limit is reached much sooner with 8¢ cotton than with 12¢ cotton, as the following tables show:

### TABLE I, 8¢ COTTON

<table>
<thead>
<tr>
<th>PLOT</th>
<th>YIELD</th>
<th>INCREASE</th>
<th>VALUE OF INCREASE</th>
<th>COST OF INCREASE</th>
<th>PROFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250</td>
<td>(check)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>300</td>
<td>50</td>
<td>4.00</td>
<td>2.50</td>
<td>1.50</td>
</tr>
<tr>
<td>3</td>
<td>350</td>
<td>100</td>
<td>8.00</td>
<td>5.00</td>
<td>3.00</td>
</tr>
<tr>
<td>4</td>
<td>375</td>
<td>125</td>
<td>10.00</td>
<td>7.50</td>
<td>2.50</td>
</tr>
</tbody>
</table>

### TABLE II, 12¢ COTTON

<table>
<thead>
<tr>
<th>PLOT</th>
<th>YIELD</th>
<th>INCREASE</th>
<th>VALUE OF INCREASE</th>
<th>COST OF INCREASE</th>
<th>PROFIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>300</td>
<td>50</td>
<td>6.00</td>
<td>2.50</td>
<td>3.50</td>
</tr>
<tr>
<td>3</td>
<td>350</td>
<td>100</td>
<td>12.00</td>
<td>5.00</td>
<td>7.00</td>
</tr>
<tr>
<td>4</td>
<td>375</td>
<td>125</td>
<td>15.00</td>
<td>7.50</td>
<td>7.50</td>
</tr>
</tbody>
</table>

The four plots in the two tables are the same; but in the first table the value of the increase due to fertilization with different amounts of fertilizer over the check plot are figured at 8¢ and in the second at 12¢. Assuming that plot No. 2 has an application of 200 pounds of a $25 fertilizer, plot No. 3, 400 pounds and plot No. 4, 600 pounds the cost and the profit would be as indicated. The most profitable application at 8¢ would be 400 pounds and at 12¢ 600 pounds. If an acre of land like that in the table has a “dose” of 200 pounds of fertilizer, the increase in yield would pay the cost and give a profit of $1.50 at 8¢ and $3.50 at 12¢. A second “dose” would add fifty pounds
more than the first dose and the profit at 8¢, due to this second application, would be $1.50 and at 12¢, $3.50. A third application of 200 pounds would add only 25 pounds to what was obtained from the first and second applications, which at 8¢ is worth 50¢ less than the 200 pounds of fertilizer but at 12¢ is worth 50¢ more. The figures for the yield are not intended to give any idea of what may be expected in actual practice. For the sake of simplicity the value of the seed is not included. Since the rediscovery of a practice twenty centuries old of turning under green cover crops which are grown in the fall and winter it is possible to prevent leaching and to cut down the cost of the most expensive element, nitrogen. Either leguminous crops or rye may be used for this purpose. The rye, while it does not add to the nitrogen content of the soil, takes up and conserves that already in the soil and adds humus. Where cotton is to follow cotton Abruzzi rye is best for this purpose. Diversification and rotation of the kind which has been the rule rather than the exception in this state, is much worse for the soil than continuous cropping with cotton.

It may seem from what has preceded that the farmer should confine himself to cotton. England still grows wheat, however, and Germany much more than England. Where the farmer has the option of growing several crops which compete with each other for his land and labor, he should and will select those which pay best. Herein is the explanation of the cotton situation. Cotton is a crop which is very exacting in its demands on the farmer's time because of the long growing and harvesting season. It is therefore difficult to find a non-competing crop to go with it. But the labor necessary to pick the crop is more than that which is necessary to grow it. The man and the mule of the typical family farm of the South for example, can grow more cotton than the labor force can pick. Therefore to reduce the labor cost and, what is as important in many cases, the mule cost of growing cotton, other crops should be grown. If the labor force can pick the cotton on only fifteen acres and it is possible to
cultivate thirty acres with the mule, it is evident that the mule cost on the cotton would be reduced one-half by cultivating the additional fifteen acres, assuming that it took the same number of mule days in cultivating the other crops planted. The invention of a cotton picker, the cost and upkeep of which would make it practicable, would revolutionize Southern agriculture. There would be an exodus from the country like that which occurred in the grain growing states with the advent of improved farm machinery. Machinery would displace human labor in the work of preparation and cultivation as well as in harvesting.

In any specialized business there is likely to be irregularity in earnings due to changes in prices. Andrew Carnegie made the statement, "Steel is either a prince or a pauper." There are two courses that business men in other callings follow to secure regularity of dividends in spite of irregularity of earnings. In both cases the excess earnings of the fat years are laid aside in order that the deficiency of the lean years may be made up. But in the disposition of these earnings the practice differs. The savings may be put back into the business to increase the cash or other working capital or in betterments which will increase the earnings in the future. Or, the savings may be invested in securities entirely outside the business which bear a lower rate than could be earned in the business. These securities are of such a character that they are always marketable. The first is the practice common in America and the chief exponents of the second are the great English and German shipping companies, particularly the Cunard Co. and the Hamburg-American line. The Cunard Co. has nearly one-third of its total assets invested in securities which have no direct connection with its shipping business.

The analogy is easily drawn. If the farmer of the South cannot or will not save in the first way described, the only safe thing for him to do is to invest a large part of his effort in the production of corn and hogs and chickens, which, though less profitable than cotton in normal times
are, in times like these, much more edible. These and the other things like them are the "rainy day fund" of the Southern commercial farmer. The extent to which the cotton farmers realize the necessity of providing such a "fund" is shown in a recent bulletin of the United States Department of Agriculture, No. 635. The title of the bulletin is "What the Farm Contributes Directly to the Farmer's living". A much larger percentage of groceries, animal products, fruits, and vegetables were furnished by the farm in North Carolina and Georgia than in any of the other states in which the survey was made. The states selected were North Carolina, Georgia, Texas, Kansas, Iowa, Wisconsin, Ohio, Pennsylvania, New York, and Vermont. It is to be supposed that the areas selected for the survey were representative.

In the fact that cotton is the most profitable crop lies the danger against which the farmer should guard himself in this way. The danger of over-production of the one crop, cotton, is much greater than the danger of over-production of one crop such as wheat or corn, because the prices of food stuffs usually move in the same direction, while there is no connection between the price of cotton and the price of the other things which the farmer raises.

If there is a place for food crops, there is a place for livestock. On most farms there are many by-products which may be converted by chickens, hogs, and cows into eggs, bacon, and milk. To the extent that the animals get their living from such things, the cost of keeping them is reduced. Chickens when allowed the range of the farm require very little supplementary feed. Crops like sorghum, rape, peanuts, and potatoes can be converted into pork and the land devoted to these may be made to pay in this way as well as the land devoted to corn. The proper utilization of waste land is a problem our farmers should solve. Many of them are now solving it successfully. The number of animals that can be properly kept is for the intelligent farmer to determine. In the case of hogs some farmers can afford to keep one, others can keep hundreds economically. The practice which is common in
Anderson county, for example, of keeping one or two brood sows and selling most of the pigs at weaning time to the neighbors at $3.00 each is to be commended. It is the most profitable disposition that could be made of them. It costs no more to keep well-bred livestock than it does to keep scrubs, and every effort should be made to improve the quality of that which is raised.

Farmer Smith plants a certain acreage in cotton and corn and makes enough corn for his own use and some to spare. Farmer Jones, his neighbor, plants the same acreage in the two crops and buys corn from June to October. Evidently the sense in which farmer Smith diversifies and farmer Jones does not is nonsense. The great Dr. Knapp saw clearly what was needed when he inaugurated the work by which it is sought to make of farmer Jones a farmer Smith. The quality of the farming rather than the type of farming is at fault. The farmer who is so obsessed with cotton that he has no place in his mind for anything else is to be pitied. Of all crops grown in this section, cotton is the most nearly "fool proof". It takes more intelligence to grow corn successfully in the South. It requires still more intelligence and skill to grow livestock successfully. There is no rhyme or reason in urging a man to go into livestock who has not sense enough to grow the crops that livestock calls for.

A certain variety in the enterprises of the farm adds to the pleasure of living in the country. It is also good for the farmer. The man who studies how to do several things well is likely to be a better farmer and a better citizen than his co-laborer, who, without much study, does only one thing well. The difference between the two is like that between the old watchmaker who made the whole watch and his successor, the modern automaton, who make only the hundredth part of the watch. As our population increases our lands must be made to produce more of the crops that are now grown and resort must be had more and more to higher yielding crops than cotton. Alfalfa, tobacco potatoes, truck, and orchard crops come in this class; corn, oats, wheat, grass hay, and beef cattle do not.