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PROCEEDINGS

OF THE THIRD

**Sugar Cane and Cassava
Convention**

HELD AT

BRUNSWICK, GEORGIA

ON THE

TWELFTH DAY OF APRIL, 1902.

PROCEEDINGS
OF THE
THIRD SUGAR CANE AND CASAVA CONVENTION
HELD AT BRUNSWICK, GEORGIA, APRIL 12, 1902.

The convention was called to order by the president, Hon. C. P. Goodyear, at 10:00 a. m.. The exercises were opened with prayer from Rev. W. C. Austin.

The Chair: We have, gentlemen of the convention, in this community a gentleman who is always abreast of every movement in favor of the progress of his State and of this section, and who is frequently in advance of his time, the president of our Board of Trade, who will deliver the address of welcome, Capt. Frank D. Aiken.

Mr. Aiken: Ladies and Gentlemen—It is my pleasure to extend to you a most hearty welcome to our city, not only on behalf of the Brunswick Board of Trade, but for the people of Brunswick and for the people of Glynn county. It is a great pleasure and gratification to me to look into the faces of such a gathering, and doubly so when I think of the good cause for which you have assembled.

While we have made great strides in the past twelve months in the direction of successfully introducing the cultivation of cassava in this locality, we want your help, and we feel from your presence here today that you are with us, and with that assurance we are satisfied that there can be no such thing as fail. All of us are deeply interested and must work together.

The general tendency of business for some years past has been toward us. We have prospered, and are prospering today, but as our forests are being depleted, the rosin, turpentine and lumber business all being fed by it, we must look to the future, for our children's sake if not for our own. The present generation seems amply provided for, but we owe it to the next to leave a prosperous country, and not a devastated one. We must be greater producers from the soil, and the opportunity is now before us in the cultivation and production of sugarcane and cassava, and also the velvet bean, about all of which you will hear today from men of not only great practical experience, but great ability, such as Professor Stockbridge, Mr. Gaitskill, Mr. Wade and others, most of whom have been with us before and given us inestimable help in this great movement. They will tell you all about the practical side so that you can take advantage of the opportunity, and with the advice of such men practically carried out you cannot help but succeed. I only wish I had such information and experience but as our worthy congressman, Brantley, said one day from this very platform: "Frank Aiken cannot tell a cabbage from a potato," and there is more truth than poetry in what he said. However, since the commencement of this movement, I have learned enough to tell you that the seed from an acre of cassava

will net you more money today than an acre of cabbages, potatoes, or anything else that I know of that is being grown in this section. Of course that is saying nothing about the roots, from which you would certainly get twenty to thirty dollars per acre for stock feed.

As a Brunswickian, I think there is just reason for us to feel proud of the part we have taken in this movement and the good results that have been the outcome of the two conventions that we held here last year. We intend to keep Brunswick in the front rank of just such movements until all the farmers in this section join hands with us and make it the success that we know it will eventually be, and if the outcome of this meeting is as satisfactory and as productive of good results in proportion to the ones we had last year, it will not be a great while before we reach the desired end. I am sure every one of you will be fully satisfied that your presence here has done good, and that you have gotten information that will give you new life in your industry, and make you feel fully repaid for the expense and time the trip has cost you.

We not only want you to reap the benefits that will naturally arise from being present at this meeting, but we want you to enjoy your visit to our city, and we extend to you the fullest freedom within its borders.

I have some letters here from some of our public men that we hoped to have with us here today that I will read. The first one is from Senator Bacon. All of the letters are addressed jointly to Col. C. P. Goodyear, our president, and to me:

U. S. Senate Chamber, Washington, D. C., April 2, 1902.

Gentlemen—Your very kind letter of the 29th ultimo was duly received, inviting me to attend the Third Cane and Cassava Convention to be held at Brunswick, Ga., April 12th, 1902. I thank you very much for the invitation, but I regret very much that I will be unable to accept the same for the reason that my public duties on account of the importance of matters pending will prevent my being absent from the Senate at that time. I am in sympathy with the object of this convention, as it will tend to diversify the farming industries in Georgia, which will no doubt ultimately benefit the State. Again thanking you for your very kind invitation, I am, with best wishes,

A. O. BACON.

Then we have one from Senator Clay, which I will also read:

United States Senate, Washington, D. C., April 9th, 1902.

Gentlemen—I take pleasure in acknowledging the receipt of your favor inviting me to attend a Cane and Cassava Convention to be held in the city of Brunswick on April 12th. I have been endeavoring to shape my business so as to accept, but find that my official duties will deny me the pleasure. The River and Harbor Bill, in which Brunswick is greatly interested, has been before the Committee on Commerce, of which I am a member, for the last two weeks and I have felt it my duty to attend every meeting of the committee and to watch zealously, not only the interests of Brunswick, but the entire State. I believe the results will demonstrate that such attendance will greatly advance the commercial interests of the city of Brunswick. The bill has not yet been completed, and it will be necessary for me to watch this legislation

for weeks to come. I appreciate most highly this invitation and would be delighted to attend, but my official duties demand my attention here. I sincerely hope that you may have a large attendance from all over South Georgia, and do not doubt that much good will result from the discussions had in the convention.

I have co-operated heretofore, and shall continue to do so, with your able and efficient representative, Hon. W. G. Brantley, in advancing in every way I could every material interest in South Georgia. Both of us have frequently conferred with the Secretary of Agriculture in regard to the cultivation of cane and cassava, and we have found him ready to listen and co-operate with us in developing this industry. The bill providing appropriations for the Agricultural Department has not yet reached the Senate. When it passes the House I sincerely hope that it will contain an appropriation for a syrup experimental station in South Georgia. I know that both Mr. Brantley and Secretary Wilson favor such a station. Such a station would enable the people of South Georgia to determine the soil best adapted to cane, which would be of great benefit to the people. A syrup refinery would teach the best way of making syrup. What the people of South Georgia desire to know is the soil adapted to raising cane, the best variety of cane to be used, and the proper way of cultivating it, and the most scientific way of making syrup. An experiment station would be of great utility on the line suggested, and has been recommended by the Agricultural Department. I hope the bill will contain this appropriation when it comes from the House, but if it does not, I shall feel it my duty to go before the Committee on Agriculture in the Senate and urge that such a station be established in South Georgia. The cultivation of cassava is of equal importance with that of cane. The future raising of stock all over Georgia and the South should be encouraged in every way possible; it means the enrichment and preservation of our lands. However, time will not permit me to discuss in this letter the advantages to accrue to the people of South Georgia from the cultivation of sugar cane and cassava. These questions will be discussed by those attending the convention, and, doubtless, many of the delegates that are in attendance will be able to speak intelligently and from experience on this important subject. I am always greatly interested in the discussion of any question which has in view the development of any interest in Georgia. I would very much enjoy attending this convention, and I am sure that I should be benefitted by the discussion to take place. Nothing but official duties prevent me from accepting your kind invitation.

With best wishes for the success of the convention, and with assurance of high regards for each of you personally, I am,

Most sincerely yours,

A. S. CLAY.

And here is one from our own W. G. Brantley:

House of Representatives, U. S.,
Washington, D. C., April 8th, 1902.

Gentlemen—I beg to acknowledge your recent letter, inviting me to attend a Cane and Cassava Convention to be held in the city of Brunswick on April 12th, and to express my sincere regret that

I am unable to accept same. My official duties will deny me the pleasure of attending your convention, notwithstanding an earnest personal desire upon my part to do so.

I hope that you may have a large attendance from all over South Georgia, and that much and lasting good may result from the discussions had in the convention. I believe that there are great possibilities for South Georgia in the cultivation of both sugar cane and cassava, and the efforts of the Board of Trade of Brunswick to bring these possibilities to the attention of the people, deserve to be most highly commended.

The purest, best and most wholesome table syrup in the world is the Georgia cane syrup; and when our people learn to make it of a uniform grade of the best quality, the profits to come from its manufacture will greatly increase the revenues of our people. Aside from the difficulty of making a quality of syrup that will maintain its sweetness and purity in warm weather, the great difficulty in marketing it grows out of the want of uniformity. Commerce cannot rely upon it. A dealer building up a trade on one shipment of our syrup received by him has no assurance of satisfying his trade with the next shipment he receives, for he is more than apt to receive an entirely different quality of syrup.

Such questions as these are profitable ones for discussion by your convention, and their discussion by those competent to deal with them must result in greatly increasing the store of knowledge of our people.

In this connection, it may not be amiss for me to advise you that those of us in Washington interested in this question hope that when the agricultural appropriation bill is reported to the House, it will contain appropriation for a syrup experimental station in South Georgia. Should we obtain the appropriation, it will be used for the purpose of determining the soil best adapted to cane, the best variety of cane for our uses, and the most economical way of cultivating it. A syrup refinery will also be established for the purpose of illustrating by scientific methods the best way of making syrup, and a way that all our farmers can adopt, and, by adopting, can all make the same grade and quality of syrup, and in this way obtain the uniformity that is so much to be desired.

I beg to call your attention also to the deep interest that has been and is being manifested in this subject in our behalf by Secretary Wilson, of the Department of Agriculture, and Dr. Wiley, the Chief of the Bureau of Chemistry in the Department of Agriculture. Both these gentlemen thoroughly appreciate and understand our situation, and are sincerely desirous of aiding us to the fullest extent in bringing about the highest possible development of our great cane syrup resources.

The cultivation of cassava is none the less important to our people than the cultivation of sugar cane, and it is in fact regarded by many, and perhaps justly so, as being even more important than the cultivation of cane. If it be true, as we have been advised by those who ought to know, that our soil and climate are well adapted to the growth of the cassava plant, then its cultivation by our people will add a new and distinct source of income to

our part of the State, and one that must ultimately be of large proportions.

The cultivation of cassava, as I understand it, means, to begin with, the utilization of vast areas of now unoccupied or waste lands, and the bringing into use of these lands is only one of the beneficial results to be obtained. It means also the cultivation of a profitable money crop, and, in addition, makes possible the great development of our stock raising industry. The future of stock raising in South Georgia must be watched with interest by all who are interested in our material welfare. With fresh beef selling today at an almost fabulous price, who can estimate the changed condition of our people if they are selling this beef instead of buying it? Besides these results to come from the cultivation of cassava, we also have the prospect of starch factories, which mean large investments of capital and large employment of labor. Cassava thus appears to possess the possibilities of building up both town and country. Its cultivation suggests too much of good to our people for them to neglect the opportunity of demonstrating for themselves what they can do with it. I should regard its cultivation in Georgia as marking a new step in our progress and development, and perhaps the greatest that we have ever made.

These questions, as I understand, will all be fully discussed in your convention, and discussed by men who can speak from scientific knowledge and from personal investigation and experience. I truly hope that they may have as listeners very many of our people, and that great enthusiasm for the development, upbuilding and uplifting of South Georgia on the lines discussed may result.

I would personally very much enjoy the discussions, and only my sense of official responsibility, perhaps more keen just now on account of our local interests here than it may be later, keeps me from accepting your very courteous invitation.

Thanking you for same, and with assurances of high regard to each of you personally, and with the best wishes for the success of your convention, I am

Very truly yours,

W. G. BRANTLEY.

I thank you sincerely, ladies and gentlemen, for your presence, and again assure you that Brunswick extends you a most hearty welcome. By authority of our worthy mayor, the keys of the city are willingly and gladly turned over to this grand meeting, the third Sugar Cane and Cassava Convention.
The President's Address—Col. Goodyear:

Ladies and Gentlemen: It is always expected that the presiding officer of an association at its public meetings shall have something to say to those present, and fulfilling that time honored custom, I will detain you for only a very short time.

The dictionary definition of a pessimist is: "One who complains of everything as being for the worst—who habitually exaggerates evil." This definition is not broad enough, for he lives on an island of egotism in an ocean of woe. He wraps the cloak of his misery around him and shuts out the sunlight with blue forebodings of evil. He rails at all prosperity, all efforts to attain it.

He will do no work for himself or others, and ridicules and misrepresents all who do. He resents God's sunshine, turns his back on the bow of promise, and is never so happy as when he has chased smiles from a human face or hope from a human heart.

He has lived in all ages, and been a curse to all. No great and prosperous city or section is a monument to his worth or work. He is worse than the sluggard, for he works evil with his mouth. Two blades of grass have never grown where one grew before at his instance, and never will. Dying he leaves no beneficent record on the times in which he has lived, no loving memories in the hearts of his kind.

The dictionary definition of the optimist is: "One who believes all things are ordered for the best—hopes for the best." That is not broad enough; for he enjoys the sunshine, and radiates it into the hearts and lives of all with whom he comes in contact. He enjoys the beauties of nature, fellowship with his kind, work for their welfare. He has high courage for the present, hope for the future. He joins hands with any who are making earnest effort for their section, city or State. He knows no such word as failure, and is inspired to renewed energy by every fresh obstacle; works as well in the ranks as in the position of leader; makes two blades of grass, two ears of corn, two stalks of sugar cane, two cassava plants grow where one grew before; works for lasting prosperity, is a benefactor to his race; derides nothing because it is new, tries all things, holds fast to those which are good.

It was not in the atmosphere of pessimism that this movement was born—a movement, I undertake to say, however modist its name, as important to South Georgia as any since General Oglethorpe established his garrison town at Frederica in this harbor.

Its originators believed that the people of South Georgia, who had written into the census of 1900 a record of increased wealth and population unequaled in any other section of Georgia, would not weary in well doing.

Col. I. C. Wade, the industrial and industrious agent of the Southern Railway Company, visited Florida with a representative of our Board of Trade and studied cassava where it is raised with profit as a food for and fattener of stock, and in the manufacture of starch. He came back and reported, and urged our Board of Trade to call a Sugar Cane and Cassava Convention. It was called and held, addressed by able speakers, fifteen thousand cassava seed distributed, a permanent Sugar Cane and Cassava Association organized, and adjourned.

In October last we had another convention. A magnificent display of cassava plants and roots and sugar cane was made. All trials of cassava had been successful. An address by Professor Stockbridge, of Florida, was made, stored with practical information, which has been distributed in your seats in this convention, and which every South Georgian should read.

What has been accomplished? In one year we have aroused enough interest in cassava planting to increase the acreage fully fifteen fold. The demand for cassava seed in Florida and Georgia far exceeds any supply for this year. Better methods of making

syrup are being adopted, and there is a large increase of the acreage in sugar cane.

We have with us today a gentleman who is a complete answer to the charge often made that our climate is enervating. His brain and body are reservoirs of energy, constantly and unselfishly used for the good of his city, section and State, with an unselfishness which must command the respect, and should command the love of our people. It has been thought a fitting prelude to the address of our distinguished guest from Washington that he should address us upon a subject, part of which he is: "The New Development of the South." I introduce Capt. D. G. Purse, of Savannah.

Mr. Purse:

Mr. President, Ladies and Gentlemen: We are too prone to make the mistake of qualifying the development in the South that confronts us today as illustrating a New South. It is only necessary to recall the history of the South as it presents itself in all its records, to show that the South of today is but the continuance of the South that we have always known.

Prior to 1865 our development was almost exclusively of an agricultural character, farming was more profitable than manufacturing, although to the extent that manufacturing had been tried, manufacturing was profitable; but when a section or a country or a nation gets into a groove in any line of industry, it seems to take the mightiest to turn the stream from the bed it has worn into through others, or even to divide that stream so that we can follow enterprises, other ideas from its source to its destination to bring about the success of the section. It is only necessary for the purpose of illustrating this with clearness to refer to the prostration that confronted the South in the middle of the year 1866. We thought that we were not only at the end of our row as a people, but also that our agriculture was in its last throes. From every direction came the prediction that the largest cotton crop that the South had ever grown had been grown, and that the supply was far beyond the demand, and yet we are today growing crops four and five times as large as the crops prior to 1865.

It shows that those energies that had brought about that first period were simply reasserting themselves with redoubled force under the trying conditions of those subsequent years, showing that in the people of the South, the people of the original South, there still existed those elements that had made them so successful in their early history. In restoring her agricultural prosperity and commanding position under the changed conditions that presented themselves to the South, we became impressed with the necessity of diversity of production, and the South has seen more clearly each year since the necessity of having more than one crop to depend upon. Year by year from the agricultural periodicals, from the rostrums and from the conventions of agricultural bodies, and from the most practical writers upon agricultural subjects, has been preached the necessity of diversity to our agricultural prosperity—diversity has been the foremost theme—and we are here today in obedience to that demand for diversity to find companion crops for that king of crops in the South, cotton.

We have this to do, and each one of us has got to assist in developing that diversity, and the Federal government to the extent that it can assist us in that development will assist us. Secretary Wilson has come here today for the purpose of mingling with you and hearing from your own lips—you who are practically fresh from the farms—and to study all of these various questions to their last analysis, and to carry back with him to Washington the impressions you make upon him, with a view to giving you that aid; that continual and substantial aid that a man can give who is at the head of the Agricultural Department of your country.

But he, of course, cannot do it all. You have got to do your part. He is not here to do for you, but to co-operate with you to the extent that his official position will admit.

The agriculture of the South is undoubtedly today attracting more attention in Washington and at the hands of the Federal government than at any time in the past. The general interest that the South is attracting all over the country has naturally attracted their attention to it, and in the broad ideas of our present Secretary of Agriculture there is no such thing as the South in the disposition of the advantages of the department from which proceeds the knowledge represented by this great agricultural interest in the President's cabinet.

In the development of our agriculture and the inducement of diversity, it has been a most needed thing for the South to take hold of this thought. We make the raw material and we export it to establishments that manufacture it in our own country and others and then ship it back to us. We have diversity in crops now, and we have time and the necessary capital, have had it ever since we began to diversify in 1865, to put into other directions, now why should we not take the raw material that we produce and develop it ourselves? That idea of development is a picture presented to you in the industrial development of the South.

Now, this idea that has come to have life and substance about there being a new South. The people who have formulated that idea are among those who were in the South prior to 1865, and you have here within a stone's throw you might almost say of this hall one of the most practical illustrations of this idea. In 1869 James Hamilton Couper, a resident of this county, a man foremost in his day as a scientist and agriculturist carried the manufacture of syrup to the very highest extent that it had been carried up to that time, and even up to the period of within two decades past. The old mill out here at Hopeton represented ideas in the manufacture of syrup that were foremost up to 1880. Mr. Couper also suggested the idea of boiling with steam, and that is even now the process by which syrup is produced in the most economical manner from the juices of the cane. I might cite a number of instances of the same kind to show you that while we were a pastoral people, an agricultural people, the seeds of manufacturing enterprise were being sown and germinating long before the date of the picture that is presented to us here of a new development of the South. But these illustrations will occur to all of you. These illustrations are all around you.

I might go and tell you the number of spindles in the south today as compared with what there was here twenty, thirty, forty years ago; I might go on and tell of other manufacturing enterprises that have grown here, and in their growth have startled the world, showing the enterprise, energy, thrift, economy and management of the southern people. They show this, and this has been the object of my appearing before you.

It shows that we are not living in a new south, but that we are living in a south that has developed, and is still continuing to develop, ideas that found existence in this country and this section before 1865, and are just now reaching their full development. There is reason for the utmost pride on our part as southerners in recurring to these things, but I do not mean for one instant to exclude from the brawn and energy and muscle which have given such impetus to this development of those who have come into our midst from other sections and are today in this work. We owe to them a debt that we can only repay by extending to them the right hand of fellowship and citizenship, and making them as much a part of the new south as we are now a part of one and an inseparable Union.

I do not mean to refer invidiously to any of those who have come here and helped us with our development; I do not mean to refer to the nationalities of the men or to the sections from which they have come, but all who have come in our midst, all who have become a part of this south country since 1865, are as much entitled to credit for what has been done as any of us who have been born and reared upon this soil. They have shown us good citizenship, they have shown us good work, and I give them for that the fullest meed of praise.

But it is the development that belongs to this section that they have come and participated in. They have brought new ideas here that, in operation with our own, have brought to a successful conclusion some of the greatest problems that face us today. No man living can tell what is going to be the end of this development, and no man can tell down the years when this section shall be as great and prosperous, agriculturally, as great and prosperous in manufactures, and as great and prosperous financially as any section of this our common country; and no man can tell, with the flow of population into this section, and the changes that are going on, the political conventions that this country may hold, or the political power we may wield in effecting the future of this great continental world power that we have created in the course of a few years out of the wilderness.

Now, Mr. Chairman, ladies and gentlemen: I am to be followed by a gentleman in turn who will specifically attract your attention to lines of development, either one in itself meaning untold wealth for our section. I can safely now leave you, having attracted your attention to the general subject, to those who are learned in the development of the specific and various lines to be brought before this convention.

The Chair: Ladies and Gentlemen: There is no department of this great national government which touches the people so

closely (with the exception perhaps of the post-office department of the government) as the agricultural department. It has been from the day of its organization of vast benefit not only to the agricultural interests of the country, but to the entire interests of the country; and it is not too much to say—because it is the verdict of the people of this country—that the present head of that department has done more than any other incumbent of that office for the benefit of the people of this entire country. He has taken a deep interest in South Georgia and Florida, and he has sent representatives of that department through this section to examine your soils. He has recommended an appropriation for the purpose of an experimental station for the development of improved lines of agriculture. When the promise came to us that he would be here and participate in the proceedings of this convention, we were glad; and when the mournful news came that his son was stricken down and was dangerously ill, and that he might be prevented from coming, mingled with our disappointment was intense sympathy for this representative of this department. He is here with us today and we are proud to welcome him, and I am proud of the opportunity to introduce him to this audience—Hon. James Wilson, our Secretary of the Department of Agriculture.

Mr. Wilson: Mr. President, Ladies and Gentlemen: I came here to learn something about your interests. I think I should not have been called upon to say a single word, because you all know so much more than I do about it. I would have been pleased to sit still and listen and take notes with regard to where you are, and then to do what little might lie in my power to help you along these lines, but you want me to say something to you no doubt about what we are willing to do up there at Washington.

After I made up my estimates last October for the Congress of the United States with regard to what moneys would be necessary to carry on the work of the Department of Agriculture and help the people in all sections of the country, word came to me that the people of South Georgia and Florida, South Alabama, and the regions round about, had a new industry regarding which they needed a little help. I at once made inquiry as to what it was possible for the Agricultural Department to do.

I had known that you made here a fine article of syrup, and I know very well the deep prejudice that exists in the minds of the American people against what is adulterated. I knew that the world would be much more pleased to be able to get your syrup than the ordinary syrups of commerce, of doubtful origin. And the question came up whether the Agricultural Department could help with regard to making a uniform product, so that when the people of the world sent orders here for syrup, they would know about the article that they would get.

I didn't need any more talking to. I at once sent an estimate to the chairman of the committee in the House stating that I wanted twenty thousand dollars to help the people of this section make uniform syrup; and I also told Mr. Purse and some other gentlemen that we never lobbied for a bill in working for the people, for if our work wouldn't speak for itself, then it would have to go. And so the matter has gone along to where we find it now.

I heard the letters read from your senators and from your home congressman, Mr. Brantley, and I was pleased to hear them. Mr. Brantley has called upon me repeatedly, and I am well satisfied that these people are at work in congress. The means whereby will be able to help you are coming through your own friends, not mine. I never go before congress to lobby for anything. The people can call upon their representatives, because the representatives are under some obligations to the people. So your matter is in as good condition as we can hope to have it.

Just how this work is to be done, I don't know. Whatever it is thought best to do, we will do. The House of Representatives has agreed to give so much money, if it is not enough, we will ask the Senate for more; but we have enough to make a good beginning. How long it will take to do this work, I don't know. We will make a beginning as soon as the bill is passed. I will then sit down with the scientists of the Department and find out what is the best thing to do. If it is best to continue through the experiment stations already established in the South we will do that, or if it is best to establish a station of our own, we will do that. We will have your interests in view beyond the dollars, and will do whatever is best for you to have done. And I will say for the scientists of the Department that they are right in the front rank in their specialties.

I will say a word about the men there. We have two thousand scientists, practically agriculturists. We have fifteen other people, but they don't count. It is the scientist, the man who studies the special features, in certain special directions, that is doing good work, and you will be surprised to learn that it is not the universities and colleges of the land that are furnishing us the men that we need to do this work. This is an educational line that is today somewhat new. We take men there from Harvard, Princeton, Yale, John Hopkins, and other universities, and find that they cannot do the work, and we educate them so that they can do the work that we want done. We teach them many things. No man admires a classically educated man more than I do, but I cannot use him in my business. A man came to me who had been educated for the Senate and wanted a place in my work, and I asked him if he knew anything about the biology, chemistry and physiology of the plants we were growing there, and he said he did not know; then I asked him if he could analyze the juices of a growing plant, and he said he never heard of such a thing; so you see we have to take them there and educate them for our work. And the men we have there love their work, and take an interest in it. One man I have who is getting \$1800.00 a year, was offered \$7,000.00 a year to teach in a college and he wouldn't take it. We have many men there getting \$1800.00 a year that could easily get more, but they stay there. A New York man trying to get for one of the universities a man who could teach plant physiology and pathology, but he couldn't find one! There hadn't been any educated: all there were, we had in the Agricultural Department, where we had educated them ourselves. There was one man came there determined to get one of our men, and he offered two of them \$10,000.00 a year, and they were only getting \$3,000.00, and neither of them

would go. There are 260 young men in the department studying science now. That is where we get our scientists. We train them. We have forty picked young men studying forestry. It is only a question of time when your forests down here will be denuded of their trees. When that time comes let me know, and if I haven't gone back to my own country then, I will send you down some men who know something about forestry. We have forty young men studying soils. There is no college or university that teaches anybody anything about soils. It simply has not up to the present time occurred to anybody that there was anything in the study of the soil that people walked on, but this is coming to be a question with you. Why, it was mentioned today by one of the gentlemen who spoke, this question of soil, and proposing to diversify crops in Georgia. It is the best conclusion you have ever reached, and when you talk about growing valuable sugar, and this cassava you talk about, you want to know what soil conditions suit them best. We are training forty young men to know that soil, and we have just sent out men to investigate the soils of twenty-five States in the Union for the purpose of telling the people what quality is this soil and of that. When I tell you of these achievements in the department, you will remember that they are being done by the 2,000 scientists of the department, not by me. The department can only act as fast as these 2,000 men educate me. Do you know why one sugar sells for one price and one for another? No, you do not, and you are well read. Has anybody ever inquired into the matter of the aroma of tobacco? The tobacco industry is a great industry. We sell \$30,000,000 worth of tobacco every year, which is cheap stuff, and we buy \$14,000,000 of valuable wrappers. What is the difference between the tobacco we sell and the tobacco we buy? There is not a scientist in the department that knows, but they have done some studying on it. You can go to these tobacco growers that we have imported from Cuba, down in Florida; or the tobacco growers in Cuba, and ask one of them what flavors the tobacco. He will tell you he doesn't know. Ask him what is the characteristic of the soil to make the best tobacco, and he doesn't know. Ask him what he knows about tobacco, and he will tell you he knows what his father taught him. What did he know? What his grandfather taught him. We have taken up this question of the flavor of tobacco to find out what it is, and we have first undertaken to see whether bacteria has anything to do with the flavor, and we have found that it has nothing to do with the flavoring of tobacco, while it has everything to do with the flavoring of butter products. We had one man who could analyze the juices of a living plant, and this man began experimenting, and he found there was a ferment in the tobacco leaf. One kind of tobacco has one ferment, and you get a certain result; another kind has another, and you get a different result; and so far as we have gone, we suspect strongly that these ferments have everything to do with the production of the several brands of tobacco. The Japanese came and gave that man \$7,000 a year and took him away to Japan, and I cannot get anybody now to take up that work. I have sent around to all the best graduates of the agricultural colleges in Chemistry, and I went to John Hopkins', where a man had got a doctor's de-

gree. I sent for him and he could not analyze the juices of a living plant. Said he had never heard of such a thing. But I never was so interested in anything in my life, and I kept at work until I got two good men together, and they went to work, and we are now getting to where we can see through the question, and we propose to find out how to produce that \$8,000,000 worth of tobacco which we have every year to buy. We know something about the producing of the Sumatra wrapper, and by bringing about here similar conditions to those under which the tobacco is grown in Sumatra, we can cut off that source of outflow. We propose, when we get these men fully educated, to go on with that progress which we have already made. My object is to ascertain what is necessary to be done by us here, so it can be produced here, and give work to people to produce it; and it won't be long, with the help we can give you in developing it, before right in this country you will be able to produce the best syrup in the world. And the Department will bring to bear all the power we have got to help such a people as this.

Now brother, you are somewhere along in the neighborhood of developments that I have seen in other parts of this country in my younger days. I have been forty-six or forty-seven years in the State of Iowa. We went there in 1855 and began growing wheat. We grew it and grew it until the land would grow wheat no more. The farmers said, well here we are with a soil that refuses to grow wheat any more, what are we going to do? You heard the word that was spoken by Mr. Purse. We found that we must diversify our crops. We found that we must do something else, and what did we do? We went into the dairy business. Where there are common cows, a dairyman said there the other day, that all you have got to do is to get a lot of common cows, and after awhile some of the cows will give splendid milk and some will get fat; send the fat ones to the butcher and get milk from the others, and you have a profitable business. That is the way, and you have got to that point. Throughout the great corn belt last year there was a drought, and the corn was cut off about one-third, in some cases more; and these people having stock to feed in the ranches out west there, sent to Georgia and Alabama and other cotton growing States and took your cotton seed meal to fatten their steers, and then sent them to Chicago and had the meat butchered and sent down here to you to buy. That won't do. I am a Georgian today, and I am going to talk from the standpoint of a Georgian. You have more cotton seed meal than would fatten all the cows that we send to foreign countries, and we send something over \$40,000,000 worth every year.

I will tell you what the Danes are doing also, and you can do that and more here. I tell you the old grit is still in the south, gentlemen: The people of Denmark live from a very poor, rocky soil, but they raise pretty good men. They come to Iowa and get our corn and feed it to the Danish cow, and they get your cotton seed meal and feed it to the Danish cow, and they get the by-product that follows, and every year they sell in the British market from \$33,000,000 to \$35,000,000 worth of butter and cheese. Now, brother of the south, I think you can be in better business than

raising cow feed for the Danes. I really think you can do a little better than that. There is not a country on earth reached by rail or water, but wants your cotton seed meal. You can sell the fibre to the world, that is all right. You sent abroad \$315,000,000 worth from the ports of the Southern States last year, and got from nine to ten cents for it on an average, and you did not send any of the strength of your soil with it hardly when you sent it away. It is nearly all a combination of wind and weather and sunshine. It is all right to go on selling the oil from your cotton seed because that too comes from the wind and weather and sunshine, and the South has sunshine to spare. But it is a great mistake to sell the cotton seed meal and rob the ground. You will exhaust your soil, and sooner or later you will learn that you must not do this. You have another great advantage that I have been impressed with year by year, and that is the great value to you of the South in your sunshine in the winter. Up North we have to take domestic animals and put them in stalls and warm shelters for a long time during the winter, four or five months. Now you don't have that to do here, but you can by growing proper forage, plants that naturally grow in your climate, you can let your cattle out all winter, and do work in the winter time that we cannot do North. The Northern market never has enough of early spring lamb. You can grow spring lambs ready for market, just as you can grow strawberries and other things ready for the market before the frost is out of the ground in our country in the spring. Very often the markets at the North have to import spring lambs from foreign countries. They have to have them and they are something very expensive. Another thing that I saw that I was very much interested in. They were a couple of very thin hogs. And I asked an agriculturalist what these were. He told me that these were the hogs from which were made the Smithfield hams, that sell from two to five cents a pound more than the hams we raise that are corn fed. Yes sir, you can do that right here. You can make that kind of product. We make lots of hogs but we cannot make that kind of meat. There is no other in the world that equals it. Another thing, and that is horses. Fine horses. London wants 125,000 horses every year. They want hunting horses. The Englishman likes to get on a horse which he is proud of, and he will pay any price for them. And they want that kind of horses for the interior of Europe. We can raise draft horses and once in a while a good carriage horse. But we do not know how to produce the kind of horses that you know so well down here how to produce, the thoroughbred horse, That is the foundation of the best cavalry horse, and hunting horse, and high stepping horse. Thoroughbred horses. Raise them, that is something you Southern men can do. And another thing you have that we have not. You have means of communication by water with the ports of the world, you have the broad ocean and numerous deep rivers that can carry your products. We have no rivers there. The Mississippi itself goes so dry in the summer time that the boys wade it. You have twice the rainfall that we have in the northwest, and because of that we have a different soil. The soil of the northwest does not wash away because it does not get rainfall enough.

You are in danger of having your hills wash away simply because you have so much more rainfall. You have the heat and the moisture here which are the prime factors in the growth of any plant. You have both here, and one studying agriculture must not take pattern too much after a people who live in different conditions. But you must study the questions from your own standpoint, and there is abundant promise and abundant results. I would not allow the cattle of the South to come out to the grass in the spring as they have come out this spring and as they have usually come out, but I would feed them during the winter a little of your cotton seed meal, and then in the spring when the grass comes out you can have them ready for the market in two months with your cotton seed meal, and the benefit of it is never taken away from the soil. Let the dairy cow be the center of the farm system. There is nothing more profitable that you can have for yourself, and for marketing the milk, and butter and beef. And poultry and sheep and hogs. All along these lines the South must, and can, and will prosper. Now with regard to the matters specially of cassava and sugar cane. This cassava has been grown to some considerable extent in Florida and to some extent in Georgia, and you are here now proposing to grow that cassava. Now, cotton seed meal is not a complete ration by itself. It requires a carbonaceous nutrient in addition. Will Professor Stockbridge tell us the per cent. of nutrient ration there is in cassava? [Mr. Stockbridge: 112.] That is a little higher than corn. You cannot raise a young animal on corn or on cassava. There is not enough nitrogen in either of them. Now it is proposed to grow this velvet bean in connection with the cassava to give the nutrient that is necessary in connection with it for feeding. You cannot compete with the man in the Northwest in growing corn or meal. But you can grow cassava. I am not prepared to say which is cheaper, but there is room for both. Cassava can have its place on the farm just as corn has in Iowa. We find it necessary in feeding the dairy cow to give her something besides corn, and you will find that it is necessary to feed something besides cassava, because a growing animal requires a richer ration than cassava is. The milk of the dam is the perfect ration for the young animal; that as a nutrient ration runs about 103 to 105 or 106 or in some animals a little more than that. We must observe these rations. Of course the velvet bean is an excellent thing to balance the cassava—excellent. The peculiar value, it occurs to me, that you will find in the velvet bean will be to reach down in the earth and bring up and put back in the soil the organic matter that has washed down there out of the soil. The roots of the leguminous plants reach down and bring up into the soil the organic matter. Many of the plants do not go down that far. You will find it an excellent thing I think to plant the velvet beans and then put the plants all but the bean back on the soil. We had an excellent illustration of that last year in the Northwest when the corn fields were suffering from the drought. Where the crop had been grown year after year it had retained no moisture apparently, but where the field had been put in pasture occasionally instead of being cultivated steadily the corn prospered much better. The soil that had the most organic matter in it

retained the moisture best. We found that to be true there and it is true everywhere, and these conditions obtain in the South just as in the North. So you can plant your cassava which brings the nitrogen from the atmosphere and fixes it in the soil, and which is a fattener, and plant your velvet bean or other leguminous crop which goes deep down into the soil and brings up the organic matter to the surface. In addition to the cassava you will find that you will need a certain amount of roughage in connection with the cassava whether it is for feeding the dairy animals or animals doing hard work. You will need both the carbonaceous and the nitrogeous plant to make a proper ration. And I should think that you would find the byproduct of your starch mills a very valuable product along the line of roughage, and perhaps the byproduct of the sugar mills. I had an inquiry from a gentleman in Louisiana in the cotton business last year as to what he should feed with his cotton seed meal, and I told him whatever was most immediately available; and he mentioned several things. He told me that he wanted to experiment with the byproduct of his cane mill, that is carbonaceous in the extreme. There has never been any very successful effort to make any use of the byproduct of your cane mills, although in one part of Texas they make paper out of it, and if you can find a way to feed it to your domestic animals to balance the ration that is more nitrogenous you will find it very valuable. You must keep your cotton seed meal in the South to cultivate your fields, but the way in which you will get most money out of it, is to feed it to your domestic animals, and in that way the soil loses no part of its value. If you keep selling it off, you will keep taking the organic matter away from your soils and if you keep up that repetition long enough your soil will not make a profitable crop. Keep as many animals as you can keep and until they use all of the cotton seed meal you have got. Don't let anybody have any of it. Don't let the Danes have any of it. The farmers in Iowa do not need money to move our crops when they are harvested. We are lending money to New York; and you can do the same because nature has done more for you than she has for Iowa.

I note a few things that may be of interest to you about what the Agricultural Department is doing along through the Southern territory. It is pleasant to be associated, even in a limited way, with the growth of this Southern section. A few years ago the Department was working on the cotton of the South, particularly the sea island cotton in South Carolina; and I will tell you what one of our scientists did. There was a fungus growth coming on the cotton just a little above the surface, and destroying the cotton. We sent a scientist down there to look into it. The first year he reported the condition, and that he had found nothing to remedy it. Then we commenced to cross fertilize and hybridize the cotton so that we would get a plant proof against this trouble. We kept plant pathologists on those lands for four years, and then we found relief from those conditions. We buy six and a half million dollars worth of Egyptian cotton every year. We have been at work to find if there is any place in the United States where this cotton will grow, and there is a good prospect of success along

these lines, and we have begun hybridizing the sea island cotton with the upland cotton, so that if there is anywhere that the sea island cotton will not grow, the hybrid will. So you see that we are going to be of some advantage to the cotton grower along these lines. It is not many years ago since the calla lily had to be imported from foreign countries, mostly from Holland. The Department at Washington sent these lilies about until today we produce all we need. But we do not produce the easter lily successfully, and we are trying in four States of this Union today to find where we can grow that bulb successfully. We selected North Carolina and Louisiana to begin with. It costs our people many tens of thousands of dollars to buy these lilies to please the ladies—and the ladies deserve them—but we want them grown at home. There is nothing unpatriotic about the American women that I have ever seen, only they do want the lilies. Several years ago the people of Florida had a frost. The north wind came down on them and not only killed the fruit, but killed the very trees. The Department then set to work to see if we could not produce a hardier orange tree. We hybridized the Florida orange with the Japanese variety, and we have five thousand young hybrid plants growing, now awaiting for the results. The Japanese is a variety of orange that will grow as high as Philadelphia, but the fruit is sour. And from the growing of these hybrids, we have found several things. For one thing, we have several bright hedge plants that will keep green through the winter. And if we get one sweet orange from that five thousand young hybrids, it will revolutionize the growing of oranges in the South, because when the frost comes it will kill the blossom or fruit, but it will not kill the tree. We may not get one from this five thousand plants, and if so, then we can hybridize again with the Florida orange and leave a smaller per cent of the Japanese variety.

As I have said before, I have been looking the question over, and I have come to the conclusion that you people in the South must get to the dairy cow, and you will come to it by and by. It is the successful center of the farming system. You may start now with raising your dairy cows with your cotton seed meal, and thereby keeping the valuable part of the cotton seed meal for your soil, to go back to it. And you must quit selling your cotton seed meal, and raise beef and dairy products and sell them on the market instead.

Looking the problem of labor over here, I find that you have as cheap labor as there is in the world. In South Carolina there is an experiment going on between a private citizen and the Federal government. The United States is prepared to furnish the money for several years to help along that experiment. Your colored people, from seven to twelve and fourteen years, work there, and they are engaged in the growing of tea. They don't get big wages, of course, but they get something, enough to help the old folks along. I consider that it is only a question of time when you Southern people grow all of the tea that is wanted in the United States. I was reading a story by Carpenter telling how they packed tea in Ceylon. They don't pack it with machinery, but a

fellow goes into it with his feet and tramps it down—and it is warm weather up there.

And right along that same line, I have been thinking that you have labor here that could be detached from the mills—your colored people—to pick mulberry leaves for the cultivation of the silk worm. We pay some fifty millions of dollars per year to foreign countries for silk, and you have just as cheap labor here, and more effective, I think, than the world has. There is no reason why you should not grow mulberry trees, and I am glad to tell you that there is today a colony of Italians living in South Carolina and making silk, and I propose to encourage them. They needed five thousand mulberry trees to plant this year for the purpose, and I promptly furnished them with the five thousand trees. We produce hardly any silk at all. We buy the raw material and manufacture it here, and I propose that we shall produce that raw material. We are manufacturing it now. And the Department has found that the growing of rice can be profitably increased and helped in the South, and our Department is doing all it can to help out the rice industry. Our Department is now helping people in Louisiana and Texas to grow rice that is suitable to their conditions there, and that can be prepared with modern machinery. Four years ago we produced twenty-five per cent of our own rice. Next year we will begin to export rice, and it will give these people a market for their rice, so that they will not be compelled to perpetually raise one crop. A senator told me one day that they were sending out hay at an immense cost to the military in the Phillipines to feed the horses and mules there. I am going to send one of our men out there to show them what they can do in the way of raising hay there for the horses and mules. He will easily be able to furnish some kind of hay that can be readily and successfully grown by the people there, without the extra expense of importing it. He is going out there to solve that problem for the War Department.

And there is a danger which is threatening the cotton in the South. It is the Mexican Boll evil. We have got an appropriation from congress, and we are going to come down here and try to exterminate. It is a very serious evil that is threatening, and it shows the danger of the farmers putting all of their eggs into one basket.

Such a thing as an insect pest can change the character of a whole country by taking everything away that it attacks, before the scientists can learn how to resist it. A few years back a pest of some kind attacked the coffee trees of Java. There was no scientist there that knew anything about it, and they only got rid of them when every coffee tree in Java was destroyed. Sometimes it is necessary to entirely stop growing a crop in order to altogether get rid of a pest. This danger is threatening the South now. I have asked congress to give me the money, and they have given me the money, and we will do all that we can to stop it. And there is another thing that is threatening the South, and that is that magnificent range of mountains known as the Appalachian range, from Georgia to West Virginia, is being denuded of its trees. Most of your streams rise in these mountains, and if the

destruction goes on you will have no streams in the summer time, as it is the trees and the tree roots that hold the rains. I visited them last summer and saw the danger, and I asked cengress to appropriate five million dollars to begin with to put trees back on these mountain tops. Let the people that live there now stay there and manage these forests. They have lived there where they are for nearly two hundred years, and they are a bright, manly, hospitable people. I have gone to these people and asked for a dipper to go the spring—all the houses are near a spring—and they would invariably offer me a glass of milk. It was not very much, but the effect on me was the same as if a man had offered me a diamond.

And there is a great deal in believing in your country. I went to California two or three years ago. A great many of them asked me if I didn't think it was the greatest State in the Union. I told them it was a great State. They said, "Don't you think it is the greatest? We think it is the best." And everybody there insisted on our saying it was the best. I have got the profoundest faith in your climatic conditions and the soil of your country, and I am now looking for a man who has got as much faith in Brunswick as I have. Have you got it?

Now, I have been saying something of our work in the South, but our scientists are active also in the North, and all over the United States. They are helping the Northwest in the raising of corn, and in the prairies of the West the trees are springing up. They are studying these desert lands with the greatest care and under all conditions, so as to make them no more desert but fertile fields. And we are watching all the time for these things that we have to import from foreign countries to see if we cannot as well or better grow them at home; and thus we are in fact a financial branch of the Government, for on whatever agricultural product we find that the balance of trade is against us, we at once determine that this product which is imported from foreign countries shall be grown at home. And this is being accomplished by these men that we are educating as scientists in order that they do this work. The President instructs me to watch the advance lines of that struggle of commerce, and build up at home the growth of those things that are against us; and from those two thousand scientists that we have in the Department, and the men we are educating there to do this work, we are getting wonderful financial work in the way of improving the balance of trade with foreign countries.

Dr. Burroughs: It is seldom that Brunswick has been visited by so prominent an officer as Secretary Wilson, or has had the opportunity of listening to so thoroughly wise a talk, and I offer a resolution, Mr. President and gentlemen, that the thanks of the Convention be extended to the Commissioner of Agriculture for his visit here, and for his able, interesting and instructive address.

Upon the resolution offered by Dr. Burroughs being put before the meeting, the same was adopted unanimously by a rising vote.

I. C. Wade, Industrial Agent Southern Railway, was introduced, and spoke as follows:

In the discussion of this question the first query that comes to our mind is present condition; second, Can we better it? If so, how? Third, results. With these three problems given us let us see as to their solution.

First—as to our present condition: Let me give you as the result of my investigation in the city where I live—Atlanta—compiled from most reliable resources, the following articles, shipped in annually from the North and West, at wholesale prices:

ARTICLE	QUANTITY	VALUE
Butter.....	500,000 lbs. at 13 cents.....	\$ 65,000
Eggs.....	558,000 doz. at 16 cents.....	89,280
Poultry.....	325 ton.....	71,500
Beef, fresh.....	3,900,000 lbs. at 6½ cents.....	253,500
Pork, fresh.....	1,040,000 lbs. at 9 cents.....	\$ 93,600
Pork, smoked.....	1,560,000 lbs. at 11 cents.....	171,600
Pork, salted.....	5,200,000 lbs. at 7 cents.....	364,000
Pork, products.....	3,120,000 lbs. at 9 cents.....	280,000
		910,000
Mutton, lambs.....	15,500 animals at \$3.....	46,500
		\$1,436,080

Thus you will see that the Gate City pays \$1,436.080 for cattle, hogs, sheep and poultry, and their products, per year, not to mention the importation of horses and mules, of themselves values that reach into the millions. Now multiply this vast sum in the amount used by the cities of Macon, Brunswick, Columbus, Rome, Augusta, Savannah, and the cities of our sister state, Alabama, and you will find that they make a total aggregate of over fifteen million of dollars for these two states. Now, add to this—a fortune for several states if kept at home—all the grains and hay that are shipped in for domestic use, and that which should be used for the feeding and fattening of the cattle at least ten million dollars more, and the amount is simply appalling. If we were not naturally—i. e., climate, location as to market and ease of cultivation—the wealthiest section in the United States we would be bankrupted. We have so long blindly followed the negro and the mule that we let slip away yearly not only the above vast sum; but by this same process—improper cultivation, terracing, lack of care of home fertilizers, we allow the rains to wash millions of wealth in the humus of our soils into the Atlantic ocean and Gulf of Mexico, which we vainly try to replace by buying commercial fertilizers, when by the proper use of this, “the highest type of agriculture”—stock raising—we not only save this great expenditure, but we can slowly and surely add a vast increment to our agricultural lands in the shape of humus from digested food of stock that is now wasted on Western plains or utilized by Western farmers. So I say, take all of these go-with-its into consideration and we can safely say that these two states are losing over fifty millions or dollars annually. Now, what country can stand such a drain on her material resources?

Second—Can we better our condition; and if so, how?

It is an attempt to show, at least, the answer to this great agricultural problem that I have been working for nearly three years, collating my evidence from the standpoint of a stockman (for that has been my business nearly all of my life), and I am now ready to give you the net results of my investigations and conclusions. First I will assume that we can better our condition in this particular, and this is based on self-evident facts, viz: Our climate, the adaptability of our lands for the purpose, the crops we can grow if we try, as evidenced by a few successful progressive farmers. As to our climate, that we do not have to feed. Nature has given us mild winters and summers where grass grows abundantly, and comparatively free from flies, the pest of the Northern stockman. In at least the southern half of our section very little if any feed is needed during winter, and in the northern half. It is for only three months, and very mild at that, as compared to six months in the North and the thermometer in the region of zero a large part of the time. Nearly all of our country will grow, so says the cotton raiser, that king of pasture grass—the bermuda. All sections will raise corn, and nearly all that king of forage plants—alfalfa; whilst the well known cowpea, sorghums, vetches, rapes, millets and beggarweed grow everywhere from the mountain tops of the north to the sand ridges of the gulf. Whilst in the southern section we find that great revolutionizer of the stock growing business, the cassava and velvet bean, growing luxuriantly. Now, with these great meat producers given let us examine a little more critically their values:

The better way, it seems to me, to get at this question would be to give a comparative table, as it is only by comparisons we can arrive at the truth of a matter on such a subject. The following table is taken from Farmers' Bulletin No. 2 of the Department of Agriculture, so it can be relied upon. Corn, oats and rye being common to both sections are not shown in the first table. The same may be said of alfalfa, which is positively one of the most important if not the most important forage plant, both in its green and dry state. In its green state it ranks ahead of any other food in the matter of protein, having in 100 pounds of feeding stuff 3.89 pounds protein, 11.40 carbohydrates, 1.38 fat. Probably red clover, Kentucky blue grass, and timothy stands the highest in the North. In the green state they have the following digestible ingredients in 100 pounds of feeding stuff:

NORTH: AS GRASS		PROTEIN	CARBO- HYDRATES	FAT
Red clover	.....	3.07	14.82	.69
Kentucky blue grass	.....	3.01	19.83	.83
Timothy	.....	2.28	23.71	.77
Hungarian grass	.....	1.92	15.63	.32
Redtop, in bloom	.....	2.06	21.24	.58
Orchard grass	.....	1.91	15.91	.58
South: as grass—				
Soja Bean	.....	2.79	11.82	.63
Crimson clover	.....	2.16	9.31	.44
Cow pea	.....	1.68	8.08	.25
Bermuda grass, dry matter 33.0	.....	2.6	14.8	.3
Now these, in their dry state, or hay, yield as follows:				
Red clover	.....	6.58	35.35	1.66
Kentucky blue grass	.....	4.76	37.33	1.95
Timothy	.....	8.89	43.72	1.43
Hungarian grass	.....	4.50	51.67	1.34
Redtop, in bloom	.....	4.82	46.83	.95
Orchard grass	.....	4.78	41.99	1.40

Six of the leading grasses of the South in their dry state, as follows:

	PROTEIN	CARBO- HYDRATES	FAT
Common vetch	25.14	35.26	4.53
Bermuda grass	11.50	45.09	1.34
Johnson grass	10.11	44.77	2.43
Crimson clover	10.49	38.13	1.29
Cow pea	10.79	30.40	1.51
Soja beans	10.78	38.72	1.54
Bermuda, dry matter, 36.0	6.9	39.0	0.8

Roots and all matters of silage can be produced in one section as well as another, hence no particular difference. During the dry season Bermuda grass is away ahead of any grass I ever saw to stand a hot climate. Of course it does not do so well, and, in fact, is of no account during the winter months. But bluegrass and cane helps out in some sections.

Now, let us look for a moment at this table which contains the grains, or feed for fattening. Corn is produced equally well in both sections. Corn, barley and linseed meal being the three principal fattening products for stock in the North. The following is the table of digestible ingredients:

FOR THE NORTH		PROTEIN	CARBO- HYDRATES	FAT
Corn meal	.....	7.01	65.2	3.25
Barley meal	.....	7.36	62.88	1.36
Linseed meal	.....	28.76	32.81	7.05

Now, the three best feeding grain products for fattening in the South are corn, cotton seed meal and peanut meal. We use cotton seed hulls as a dilutant being bulky, and whilst of itself having only .3 protein, 33.1 carbo-hydrates, 1.7 fat mixed with cotton seed meal makes nearly a balanced ration in the proportion of 5 pounds of meal to 20 pounds of hulls and 10 pounds cow pea hay for a day's ration:

FOR THE SOUTH		PROTEIN	CARBO- HYDRATES	FAT
Corn	.....	7.01	65.20	3.25
Cotton seed meal	.....	37.01	16.82	12.58
Peanut meal	.....	42.94	22.82	6.86

By a comparison of these tables you will see that while we fall behind a little in green forage we so far excel in hay two and a half times and about the same in the fattening product. Let me say here in regard to cotton seed meal, it is, as a rule, 30 per cent. cheaper than corn meal and these being the two great fattening staples, we have this great advantage, hence by comparison we have a data to be relied upon and a comparison perfectly plain to be seen, so that the merest tyro can figure out for himself what it will cost for him to feed his animals. Now, with

these three essentials, forage, climate and the necessary food for fattening, with Bermuda grass and Johnson grass to back up the proposition farther, can anyone for a moment dispute the proposition that the South is far ahead in the necessities of life for cattle raising? The average hay per acre, see U. S. census, and I take the two best Northern states: Iowa 1,350, Illinois 1,230, North Carolina 1,420 and I believe other states show the same as North Carolina, and also note value according to digestible nutrients. Now then, if these are facts, what is necessary? And that they are facts, I wish to quote the following, taken from the Texas Cattle Raisers' Association, who wanted to know the exact results:

"The Experiment Station had six pens of seven steers each, in which they weighed exactly each amount of feed that was given per day, deducting at night every atom that was left in excess of any feeding. It is not necessary for the purpose of this article to give more than the results from pen No. 1, the others being similar, differentiated in a small degree, adding to or deducting from other feeds. This was given in the proportionate ratio of one pound of cotton seed meal to 5.5 pounds of hulls. In 100 days the cattle fed showed a gain of 271 pounds, at a cost of \$6.38½. In other words, you make the meat on the animal at about 2 cents a pound, besides the gain in the weight of the animal's original carcass, which would sell for double its first cost per pound, as well as the gain of nearly three pounds a day for about 2 cents a pound. (Of course for feeding dairy cows, I would feed only one-half as much meal, supplemented with some corn meal or oat meal)."

We have a similar illustration of this same matter in Atlanta, where the feeding by Mr. T. R. Sawtell of several hundred steers, taken all the way from the wiregrass section to good Tennessee grade shorthorns, resulted in about the same proportion. One steer did so remarkably well that I quote the whole object lesson: The steer was bought on January 26th, last year, and fed ninety days. He weighed 1,410 pounds, and being a remarkably well made animal cost 4¼ cents per pound, say \$60.10; at the end of the ninety days he weighed 1,780 pounds, and at the present market price would fetch \$106.80, a gain in flesh of 370 pounds. Owing to the remarkable and unusual high cost of feed that winter, which was about double for hulls, cost 12 cents a day, or \$10.80 for the ninety days to feed him, which would leave a net profit of \$35.90 on one steer. Mr. Sawtell has done this in proportion by the hundred, so that there is absolutely no question about it. But let me say just here, do not gather from the above that every one can do the same. It requires the same amount of brains to feed a steer profitably as it does to do any other kind of business. Unless he is bought right, that is, an animal that will take on beef instead of running to dairy points, it would be useless to try to make even a fair profit out of him. He must be in a healthy condition, and fed properly or he could not make these gains. As I may here remark, cotton seed meal will kill some animals, especially hogs, and is a detriment to any animal if fed in excess. They should start in at not over a pound or two per day, and never feed a steer over four or six pounds per animal, according to size and growth of animal. I know a man who decided last fall to feed cattle, and sent out his agent to buy in steers for him, or anything to feed. The agent was to have 50 cents a head for doing the business. He bought everything he came to, all the way from billy goats to ten-year-old steers and cows. The result of it was that the animals were taken to the pen and the man, supposing that they would want so much a head, gave them cotton seed meal with the result that 85 per cent. of them died in less than sixty days. I only speak of this as showing how absolutely foolish some people can be on a plain proposition like feeding and caring for beef cattle.

Along this line it would be difficult to put too much stress on cassava root and its coadjutor, velvet bean. As far as the data I have at my command cassava shows that it stands something as sugar beets do in the North, but having many times the beet's nutrient value according to Bulletin No. 55 of Professor Stockbridge of the Florida Agricultural Station, he proves that it is far better food for fattening animals than anything else we have in the South, and can be raised and harvested per acre for much less than corn; but probably could not be depended on North of 32° 30'; but in southern Georgia and Alabama there seems to be no food known that can be raised as economically, and fed with as great advantage to all kinds of stock. And with velvet bean ground and spread on the root makes it a perfect ration. It is also of great value in the manufacture of starch and a variety of foods for the human family.

Now, with the foregoing statement of facts, what is the necessity of the hour for the furthering of the stock business in the South? I answer, it is a man with some brains and capital sufficient to buy pure bred bulls to use on the common stock of the country to grade them up into a fair degree of beef cattle, and use the feeds so abundantly to his hand. At present a majority of the southern cattle are of a very small type, and while they take on flesh rapidly at certain seasons of the year,

are rather small for good beef cattle. Hence, I say, eliminate the "scrub"—man and beast! To do this it is necessary to be cautious for it is well known that aged cattle brought in from the North, north of the quarantine line, will not do well in the South. Hence, I would make the suggestion, if the purchaser would go to Texas, in that section south of the quarantine line, being on the same line as ourselves, buying the calf crop of some of the large ranches, bring them to our southern localities, use the bulls on our common best type of beef heifers, and bring as many beef type of heifers as he can afford to buy. This latter will soon give him a herd of good growing beef cattle. Where he has not as much money, he can buy, using proper judgment in making his selections, all the beef she-kind of cattle he is able to, and then buy him a pure-bred bull of the best Hereford, Shorthorn or Polled Angus type. Personally, I think the Herefords would be a little the better on account of their grazing makeup, but either will do. He can thus soon build him up a beef herd. I have, however, taken up the question of inoculation with our several state experimental stations, and they offer to inoculate pure-bred cattle free of charge.

In order to show something of the net profits in the cattle feeding business, taking the present prices today, I will give two tables to show the difference between our average steer that we have here, and what we could have in two crosses from a pure-bred Hereford or Shorthorn sire. Take, for example, the first table.

An ordinary country steer at two and one-half years old will weigh about 500 pounds, the highest price for which would be two cents per pound. A good ration for him would be, per day:

COST OF SCRUB STEER—TO BUY	
Steer, 500 lbs. at 2 cents	\$10
20 lbs. cotton seed hulls, 100 days, 1 ton	5
5 lbs. cotton seed meal, 100 days, $\frac{1}{4}$ ton at \$20	5
Original cost	\$20
Allowing for 300 lbs. gain, making a gross weight of 800 lbs., worth 4 cents per lb.	32
Or net profit of	\$12

So that its value on the market today, at 4 cents a pound you have a profit on the original carcass of the difference between \$20.00 and \$32.00, or \$12.00 profit.

Now take a comparative table with two crosses of pure-bred stock on our native heifers. They will weigh at two years old, 1,000 pounds and over, and it will not cost any more to raise them up to this point than the "scrub," say a cost of \$8.00:

COST OF GRADE STEER—TO RAISE INSTEAD OF BUYING		For 100 days
Steer, 1000 lbs. 2 years old		\$ 8
Feed, cost of feeding, same as scrub		10
Original cost		\$18
Weight of steer at 2 years	1000 lbs.	
Gain in weight during feeding ..	300 lbs.	
Total weight	1300 lbs. at 5 cents	\$65
Less original cost		18
Giving net profit on grade steer of		\$47
Net profit of scrub		12
Making a difference between the scrub and grade steer of		\$35

Or, a difference in favor of the grade or cross-bred steer of \$47.00 as against \$12.00 or \$35.00 a head for the better steer. I do not take into account the cost of labor of hauling hulls, or of anything of the kind, or of feeding the animals after they go to the feeding pens, because it has been proven a great many times that after cotton seed hulls and meal go through an animal, dried, and used as a fertilizer with other ingredients, will much more than pay all cost of care of stock. Also note, bulls are probably now double their future price owing to failure of forage in the West. While there is a fair profit even at present prices of seed and hulls with the "scrub" if properly fed, with the practically pure-bred steer there is four times the profit: which is the point I wish to make as to their total value. When you feed, feed something good. The above estimate is made for steers above the cassava growing section. If you have that in abundance you can reduce the cost of the food of the fattening animal about \$4.00 per head, and probably \$2.00 growing, or

\$6.00 less per head. Or from Professor Stockbridge's figures you can make beef for \$2.00 per 100 pounds as against \$5.00 in the North.

Here is an illustration of what can be done with \$1,000.00 and pure-bred bulls on common stock. It is taken for granted you have your farm, and well watered. Get the best type of beef heifers you can:

	Original Stock	Bull Purchase	Original Cost	STEERS				HEIFERS		
				Net Inc. Yearlings	Sellers 2½ Years Old	Weight 1200 Each	Price	Net Increase	Original Stock	Total Number
1st year	100	3	\$1,200	40				40	100	140
2nd year				40				40	140	180
3rd year		1		40	40	48,000	\$ 2,400	40	180	220
4th year		2		56	40	48,000	2,400	56	220	276
5th year		5		110	40	48,000	2,400	110	276	386
6th year		5		154	56	67,200	3,360	154	386	540
7th year		4		216	110	132,000	6,600	216	540	756
8th year		7		302	154	184,000	9,240	302	756	1058
9th year		10		423	216	259,200	12,960	423	1058	1481
10th year		12		592	302	362,400	18,120	592	1481	2073
Total		43		290			\$57,480			

Cost of original stock \$ 1,000

Cost of bulls, 43 at \$50 2,150

Cost of keeping steers 19,160

Total expenditure \$22,310

Amount received from sales \$57,480

Less total expenditure 22,310

Net profit \$35,170

And the several thousand heifers.

Also, the next two years 11 and 12 yields over \$60,000 gross and a heavy return in the shape of fertilizer to the farm, quadrupling its value at least.

And now that the Twentieth century has run its course may we not hope for the Southern farmer to lift himself out of the rut he has been following so long and so detrimental to himself and state, and plant his feet firmly on the foundation of stock raising, which is as firm for the future as our red hills, thus more nearly rounding out his complete manhood, and above that of the common clod-hopper. In a word, to be what Nature intended him to be, to take every advantage of his environments and follow his best interest till he wins what all of us are looking for: Success.

Now, a few words in conclusion. And I want to say that these figures are not in the least exaggerated, but all easily proven. Any man of ordinary intelligence who has a farm and is willing to work, and who will buy and care for a pure-blooded beef bull—take not only his own state farmers' papers, but that prince of stock papers, the Breeders' Gazette, that has more information of value to him, yearly, than some whole libraries. Then work with every member of his legislature till he gets a small fund for a Farmers' Institute, and then push that for all of its capabilities, which are simply immense. For example, test the question of digested cotton seed meal and other foods as compared to commercial fertilizers. Some of our experiment stations place it as high as 90 per cent. of its cost. Say you only get 50 per cent. returned to your farm, see what a valuable yearly increment you get. Note what other people are doing, as for example the Southern Cattle and Improvement Company of Chicago and Joliet, Ill., have recently bought 51,000 acres and secured options on much more; The British and Southern States Cattle Abattoir and Produce Company, Ltd., of London, have secured options on nearly 200,000 acres, and you can rest assured they will have no scrub bulls. William Lyle, of Bartow County, Fla., fed a common scrub cow on cassava for sixty days and gained 205 pounds, making fine beef, and netting him a profit, over first cost and feed, of \$15.00. Many of you can do that much at least. Also, John Rankin, of Tarkio, Mo., the largest individual feeder in the world, of live stock, has just bought and shipped to his farm, from Texas, 10,000 tons of cotton seed meal for feeding purposes. Also, look at the following figures which show the average prices made at the auction sales of pure-bred breeding stock in 1901, all in the North. Let us try to raise some of this at home:

GENERAL AVERAGES

BREED	NO. SOLD	TOTAL	AVERAGE
Shorthorns	4,045	\$1,136,290.95	\$280.91
Angus	894	248,025 00	277.43
Herefords	1,885	458,305 00	240.80
Red Polls	79	18,210. 00	230.50
Polled Durhams	243	52,625. 00	216.56
Galloways	68	14,115.00	207.57
	7,214	\$1,927,570.95	\$267.20

HIGHEST PRICES

SHORTHORNS—Bull—Imp. Lord Banff, roan, calved Jan. 10, 1899; sire, Cap-a-Pie	\$5,100
Cow—Imp. Missie 153d, red, calved Feb. 20, 1869; sire, Wanderer	6,000
HEREFORDS—Bull—Beau Donald 33d, 109867; sire, Beau Donald	2,000
Cow—Dolly 2d, 61799, calved Dec. 20, 1892; sire, Grover Moreton	5,000
ANGUS—Bull—Orrin of Longbranch 26617, calved Jan. 24, 1897; sire, Heather Lad of Emerson 2d	1,300
Cow—Imp. Krivinia 28475, calved Jan. 25, 1900; sire, Bion	1,700
POLLED DURHAMS—Bull—Cambridge Lad 3d, red, calved Dec. 28, 1897; sire, Ottawa Star	1,000
Cow—Bracelet of Stillwater, red, calved Oct. 14, 1900; sire, Cambridge Lad 3d	1,005
GALLOWAYS—Bull—Imp. McDougall 4th of Tarbreoch, calved Feb. 15, 1897; sire, Scottish Standard	2,000
Cow—Imp. Lady Harden 4th, 16448, calved Jan. 3, 1900; sire, Scottish Standard	560
RED POLLS—Bull—Grawicke, calved Aug. 13, 1898; sire, The Ensign	565
Cow—Prairie Blossom, 12803, 1-9, calved Feb. 19, 1897; sire, Adonis	1,005

Look at some of the prices paid for fancy Christmas steers: D. W. Black, of Lyndon, Ohio, sold fifteen steers, average weight, 1,497 pounds at \$12.00 per 100; Charles Escher, a carload, average weight 1,500 pounds, at \$21.50 per 100. Why, our Atlanta butcher sold his prize steers, best roasts, at 25 cents per pound. I know they were fine. I saw them at the Atlanta fair, and bought some for my Christmas dinner. It is not generally understood, but it is true nevertheless, that the live stock industry of the United States contributes more than anything else to American agricultural prosperity, which is the basis of our national progress. Few persons outside of those who study comprehensive totals pertaining to the production and distribution of the necessities of life, realize the magnitude and importance of this great business. It is a great factor to be taken into consideration is the fact that our population is increasing in the United States faster than our beef cattle. Hence the market will probably never be lower.

For the first time the census of the United States has attempted to complete enumeration of the domestic animals of the country. The general result of this live stock census was announced Dec. 3 by Hon. L. G. Powers, Chief Statistician of Agriculture, Washington, D. C., in an address before the National Live Stock Association during its fifth annual convention at Chicago. Taking the figures revealed by this census, showing the number of head of each kind of animals in the United States on June 1, 1900, and applying the same general valuations per head (Jan. 1, 1900) used by the United States Bureau of Statistics in its annual report for 1900, we have the following interesting result:

NUMBER	KIND	AV. PRICE PER HEAD	VALUE
21,365,250	Horses	\$44.61	\$ 953,103,802
3,459,582	Mules	53.56	185,295,212
18,172,914	Milch Cows	31.60	574,264,082
51,349,820	Other Cattle	24.97	1,282,205,005
61,645,825	Sheep	2.93	180,620,802
65,115,363	Hogs	4.58	298,228,383
1,893,491	Goats	2.95	5,537,928
119,992	Asses	53.56	6,426,771
223,121,737	Animals, total		\$3,485,691,965

This stupendous sum, showing less than the actual aggregate value of the domestic animals of the United States on June 1, 1900, exceeds the total combined value of the products of all the fields, forests and mines of the nation for the preceding year. Astounding as that proposition may seem, it is nevertheless susceptible of easy demonstration by official figures. In reality, the total value of the nation's live stock is considerably greater than the aggregate above shown, owing to the advance in prices and the fact that the prices given are the estimated values on farms of farm animals only, the animals in cities and towns being considered much higher in value. It is safe to say that the present value of the live stock of the United States is, approximately, \$4,000,000,000—a sum almost too vast for comprehension, calculated not only to arrest the attention of the general reader, but to arouse the admiration of the world for such a splendid development that has taken place almost wholly within a single ordinary lifetime. The percentage of this vast sum that are raised in these South Atlantic and Gulf states is almost two

small to mention. Or, a comparison, in the dairy product, would be, for example: The little country of Firesland, in size about as large as a good sized county of one of our states, produces and exports to England more butter and cheese from her Holstein cattle than all of the states market south of Mason and Dixon's line to the Mississippi river.

A word about the value of manures. According to U. S. Bulletin No. 21, it shows us that there is made yearly by farm animals over \$2,000,000,000 worth of fertilizers. These estimates are based upon values usually assigned to phosphoric acid, potash and nitrogen in commercial fertilizers, and are probably high from a practical standpoint.

	Value Nitrogen in 1 Ton	Value Phosphoric Acid in 1 Ton	Value Potash in 1 Ton	Total Fertilizers. Value Per Ton
Corn meal.....	\$ 4.53	\$0.83	\$0.31	\$ 5.66
Corn silage.....	0.78	0.14	0.32	1.24
Crimson clover.....	1.29	0.16	0.44	1.89
Green			As Hay	
Bermuda grass.....	3.05	.....	.....	5.40
Crimson clover hay ...	6.63	0.82	2.26	9.71
Red clover hay	5.70	0.54	1.31	7.55
Gluten meal	15.09	0.39	0.05	15.53
Cotton seed meal.....	20.85	3.66	1.65	26.16
Linseed meal	16.08	2.28	0.99	19.36
Meat scrap	29.01	6.01	0.67	35.69
Wheat.....	7.08	0.96	0.45	8.49
Oats	5.36	0.90	0.45	6.70
Skim milk	1.74	0.26	1.08	2.11
Timothy hay.....	3.00	0.43	1.17	4.60
Wheat bran	7.56	3.40	1.34	12.30
Wheat straw.....	0.81	0.30	1.02	2.18
Turnips.....	0.48	0.14	0.34	0.96

I quote the figures to show the vast loss we subject our farms to when we remove from our farms the gross proceeds, and which we might largely save by "The Stock proposition." Of course the excrement from fattening animals is more valuable than working animals that use up such a large percentage of nitrogen.

Why, do you know, the far away state of Montana has thirty sheep to one in Alabama, thanks to your dogs and legislatures that love them. We are rich in our possibilities. Alas, a field of richness to those who take advantage of our neglected opportunities.

Note this little example. Again a case of good stock vs. the scrub. For \$500.00 you can buy two first class pure-bred registered bulls—Hereford, Shorthorn or Angus—

These, at maturity, are safe for 200 calves yearly, worth at six months \$20.00 each, or \$4,000. Now, 200 scrub calves, same age, are worth \$2.50 each, or, \$500; or a difference of \$3,500.

Try it and see how far wrong I am. Why, 27 per cent. of the weight of the steer is 66 per cent. of his value, and get the wide back necessary—no scrub has them. Or say fifty farmers chip in \$10 each and buy these two bulls; and then be sure and have the best man care for them and give him free use to a limited number of his cows. See how soon the proposition works itself out. In ten years each man will double his personal property and his tillable land. Now, these are the results we all are after. Why, the South lets rot on her corn fields, stalks every year, that if shredded and cared for properly and fed, would yield enough to buy a pure-bred bull for each school district in the State. And you sell your cotton seed meal for \$17.50 and then buy it back at 1,000 per cent. advanced profit, or \$35.00 to \$200.00 per ton in meat and fertilizers. Furthermore, the farmer's business is the only one of the great industries that capital cannot corner. As long as the world stands man must depend on the farmer for food. It is also a fact that farmers will never combine. It might be better for them as it is in some of the great industries if they should, but they don't. Possibly the good Lord has given them the habit of disintegrating instead of combining that the poor of the world may have their food at a price nearly its proper value. Two-thirds of Georgia's broad lands are still untilled—mostly given to waste, and nearly that proportion of farmers' boys, during the past quarter of a century, have left their homes to seek the bauble: reputation and ease in some other vocation. One-half that number, it may safely be said, have not made much of a success in life, but have left an aching void hard to fill on the farm. Most of our great men, from Washington and Jefferson down, have either been farmers or born on a farm, showing where the nation gets its constantly recuperating strength to supply the wornout tissues of the business life. The city cannot live without the country, but the country can and did for generations without the city. We lag in many of the best things that should make a farmer's life happy. Improved machinery and improved stock, improved schools and libraries should all be forthcoming, and can be if the farmer will diversify his crops with

the stock proposition. All the professions except that of farming, the proudest and most independent of them all, is really lacking competent men.

Now for results. Suppose the South reverses action on this stupendous loss of fifty million dollars yearly, or for the whole South at least \$200,000, and save it as an added increment of wealth to our fair land; where would our fathers be in ten years? The South increased her agricultural wealth during the decade of 1880 and 1890 fifty per cent. During the present decade she can double this, increasing 100 per cent. if she adopts the stock proposition. But remember: First educate your men by means of farmers' meetings and institutes; then eliminate the scrub; plant half as much cotton, at the same time making nearly as many bales and getting fully as much money for it. Save half your fertilizer bills, thus having money to build better homes, your wives more household comforts, putting more roses on her cheeks; more education for your children, more love of home, better manhood and womanhood; more love of God, better conditions in farms, state and nation, and a surer prospect of a better home for eternity.

At this point in its deliberations, the convention took a recess for dinner until 2:30 p. m.

AFTERNOON SESSION.

The convention was called to order at 2:30 p. m., President C. P. Goodyear being in the chair.

The Chair: Gentlemen—Dr. Wyly, the chief chemist of the Agricultural Department of the United States, was to have delivered an address here today, but was compelled to remain in Washington on important business, and he has instead sent a paper to be read to the convention which is in Capt. Purse's hands, and I will ask Capt. Purse to read it.

Mr. Purse: Mr. President and Gentlemen—Dr. Wyly has requested that I read this paper to the convention, and he also requests that I express to the convention the keen disappointment that he feels at not being able to be with you in person; that he certainly is with you in spirit, and feels that this convention is organized for the purpose of, and will accomplish a great development.

Capt. Purse then read the address of Dr. Wyly as follows:

Gentlemen—Permit me, first of all, to express my high appreciation of the honor which you have conferred upon me by inviting me to be present at this convention, and also my deep regret that official business of the utmost importance has prevented me from accepting the honor in person and of renewing the personal acquaintance of last summer, when I had the pleasure of meeting so many of you during my brief inspection of the sugar cane syrup-producing localities in this vicinity.

You will be glad to know that some of the fruits of this inspection have already been secured in the way of having the attention of the House Committee on Agriculture attracted to the industry in a general way. This committee has recommended a grant of a sum of money to enable the Secretary of Agriculture to investigate some of the most important questions which should receive consideration in a scientific investigation of this industry.

First of all, a study of the soil on which the cane grows is of chief importance, from a scientific point of view. You know a great deal more than I of the character of your soil. From the brief inspection which I made of it, and from the numerous samples which have been submitted for analysis, I am able to say that it is of a character which is described as sandy or silicious soil. In other words, it is a soil deficient in clay, and, to a certain extent, in humus. Soils of this character are well known to be the best suited, perhaps of all, to the growth of certain root crops, such as the sweet potato, the yam and cassava. They do not, however, have that abundance of plant food which is necessary to produce large and profitable crops of cereals, cotton and sugar cane.

It is thus evident from the outset that, from an agricultural point of view, the problem of fertilization is of paramount importance. To produce large crops on a soil of this kind, a judicious system of plant feeding must be pursued, and to this end the very first step in our study should be to investigate first, from the purely scientific point of view, to determine the deficiencies in the soil which should be remedied: and second, from a practical point of view, in applying different fertilizers, under careful control and in varying quantities to contiguous plots, to determine the character and quantity of the crop produced.

I will say that this part of the work has already been undertaken and, to a certain extent, prosecuted. Numerous samples of soil, collected under directions from the Bureau of Chemistry by Captain D. G. Purse, have been analyzed—over a hundred in all. Arrangements were also made in the early spring for a comparative test of fertilizers on contiguous plots. The fertilizers used have been analyzed in the Bureau of Chemistry, and directions for their application were transmitted in ample time to secure the planting of the crop in harmony with the indications which analysis had given. This preliminary test, you will understand, is only a beginning, and was only intended to point the way for more elaborate tests in the future.

Commercial fertilizers are expensive, and the farmer should seek in every way to secure the highest results in the way of crop from the least outlay. These analytical researches, together with the practical tests indicated above, will point the way whereby the most profitable returns may be secured from a given outlay.

In this connection it is only proper to say that in the continuation of this study, an effort will be made to collaborate with nature in storing in the soil those elements of plant nutrition which are costly and essential. It seems to me that these soils might all be greatly improved by the introduction of organic matter which, by its decay, would supply a larger content of humus, thus helping to improve the condition of the soil from a physical point of view, and also to retain and utilize more fully added fertilizing principles.

I regard this, viz., the study of the soil and the methods of fertilization, as the first problem which should be worked out to a successful issue, in the manner which has been commenced and which I have indicated above.

The second problem in this industry of syrup-making is found in a study of the best methods of cultivating, harvesting and

handling the cane. This is a question where science, in the proper sense of the word, does not come in. It is a matter of mechanical ingenuity and intelligent supervision of labor. I, of course, only suggest this problem without adding anything in the way of a practical solution of it. It is a matter which is left, properly, altogether in your hands. I will say, however, that every step which is being taken looking to economy and efficiency in cultivating, harvesting and handling the cane—and by this I mean the crushing of the cane also in order to secure the largest return of juice—will bear directly and fundamentally upon the prosperity of the business. I need not spend any time to illustrate a proposition so self-evident as the above. I will, however, give a single illustration:

The quantity of syrup made per ton of cane depends, first, upon the richness in sugar of the cane, and second, in the efficiency of its expression. Assuming that the cane contains the same amount of sugar, it is evident that a method of extraction which secures eighty per cent of the juice contained therein will give far more sugar than one which secures only sixty per cent. During my brief tour in November I made no weighings whatever to determine the degree of extraction. Being familiar, however, as I am, with the large mills of sugar-producing districts, I was struck with the fact that in the smaller mills which were in operation in the localities which I visited, the degree of extraction was far less perfect than it should be. So much was I impressed with this idea, that I suggested to some of the manufacturers the advisability of introducing a second mill and of saturating the bagasse as it passed from the first to the second mill with hot water, in order to secure a higher degree of extraction. This process, of course, will produce a more dilute juice and require a greater amount of fuel in evaporation, but in localities where fuel is so abundant and so cheap as those I visited, this additional expense would not be a matter of any great consequence.

In the third place, a matter of great significance is presented in the method of securing a product of uniform density, brightness and color. This object can be attained by attention to the juice after it is expressed, by judicious bleaching with the fumes of burning sulphur, by a scientific and careful defecation of the juice, and by a rapid and uniform concentration of the clarified juice to the consistency of syrup, and by care in cooling and storing the syrup produced. I will not take up your time now by entering into details of the methods which should be adopted to secure the object mentioned above. I will only say that in case Congress authorizes the study of this industry, which is probable, this part of the problem will receive careful attention. To this end it will be our purpose to solicit the collaboration of the manufacturers, so that the principles involved in the study may be widely understood and applied in a successful way in actual manufacture. It is evident that a product which can be placed upon the market with a uniform color, with satisfactory brightness and limpidity, and of a standard density, will have a better standing than goods offered with variations in the qualities above described.

In the fourth place, an important study of the crop will be

found in securing a syrup which will not crystalize on standing. In other words, the value of a syrup is improved by its failure to crystalize. If the object in view were to make sugar, of course just the opposite effort would be made, viz: to secure as high a degree of crystalization as possible.

Analyses have shown that the canes grown in the syrup-making regions of our country are extremely rich in sugar, richer, indeed, than those used in Louisiana for sugar-making purposes. Unless some method be adopted by means of which this sugar may be partially inverted in the course of manufacture, there will be always a tendency to crystalize. In the boiling of the cane juices in the open air, that is without a vacuum, a large part of the sugar present is inverted by the action of the heat and of the natural acids of the juice. Still in some cases, this inversion is not sufficient to secure freedom from crystalization. In those cases, either some harmless substance must be added to secure the inversion, or the juices of the cane must be treated before crushing so as to secure a partial inversion of the sugar in the cane. It is well known that if canes are cut for a considerable time before crushing, there is a tendency for a portion of the sugar to become inverted, and thus diminish the danger of crystalization. This method of procedure would be entirely satisfactory if we could guard against the fermentative process which often sets in, as well as the inverting process, thus destroying a portion of the sugar.

During the boiling, a similar effect can be produced by adding some harmless inverting agent, like cream of tartar or vinegar, to the syrup. I cannot now give any details of how these matters can be applied, but can only say that they will be a subject of experiment, in case authority is given to continue these investigations.

In the fifth place, the final problem which demands study from a scientific point of view, is the method of preserving the syrup from fermentation during the hot months. I will say at the outset, that I shouldn't favor the addition to the syrup of any kind of a preservative for this purpose. The merit of the product of the sugar cane in the form of syrup must be established and maintained, and the addition of any substance of this kind would undoubtedly discredit the product in the eyes of the people, and possibly introduce an element which in some cases might be injurious to the health. It seems to me, therefore, that if we can maintain by careful control the condition of perfect sterilization of the syrup which is found when the boiling is completed, the purpose will have been secured. At the time the syrup is finished in the evaporator, there is absolutely no sign of germ life therein. Every fermentative germ has been absolutely destroyed by the high temperature. If now this sterile and hot syrup can be protected into a cooling and bottling room, from which fermentative germs are excluded, and placed in packages from which the air is excluded also, fermentation will be impossible. It seems that the erection of such a practically sterilized room might be secured without much expense, and thus the great danger and annoyance of fermentation in hot weather be avoided.

There are other ways in which sterilization can be secured, viz: by re-heating the packages after they have once been put up, but this would require some considerable expense, and if the same end could be secured in the first place, it would be more desirable.

The above, gentlemen, are some of the problems which we hope to be able to study and, in collaboration with you, to solve. I need not call your further attention to the fact that the solution of these problems will do much towards establishing your industries, establishing the markets for your products, and increasing the prosperity of all agricultural interests involved in the production of this most excellent and most palatable article. You know already, without any assurance from me, that the Secretary of Agriculture has taken the greatest interest in this matter, and has authorized me to use every possible means which Congress may place in my hands, or science devise, to promote this industry and place it upon a firm scientific basis. He has urged upon Congress the advisability of giving the necessary funds, and realizes most keenly the necessity of protecting your product against adulterations of all kinds, which are flooding the markets of the country with cheap syrups, sold often under false names and false brands as to the localities where made. The object of the Secretary is not only to aid in the establishment of this and similar industries, but also to protect them from unjust competition with adulterated, mis-branded or debased products.

The Chair: We have with us here a gentleman from McIntosh, Florida, who was with us at the birth of this movement, and who at that time made us a magnificent and practical talk. I introduce to you, gentlemen, Mr. Gaitskill, of McIntosh, Florida.

Mr. Gaitskill: Gentlemen of the Convention—You have heard from Mr. Wade as to the possibilities of this country, and he has given you clearly the outlines of what I consider possible and what is possible, daily possible, and not only possible, and not only possible, but what most any good farmer ought to be able to accomplish. It would be entirely useless to show theoretically that a thing could be done, if after demonstration you find that it is impossible to make it a practical business success. I can say that I have followed along these lines, and can give you the successes that I have made on farms. First of all, you want to find the place, country or community, where the average farmer of small means can make a success of farming. For if your small farmer cannot make a success at it, it is not a successful farming country; and where the small farmer does succeed, that is a country that will be prosperous. He is the man that must succeed before you can have a successful farming country. I don't understand that our Secretary in his efforts is thinking of the man with large means and abundant capital, but that it is the men of small means all over the country—the man between the plow handles—that he is trying to help. He wants to help if possible the man between the plow handles, and teach him how to ride.

You can succeed I believe, but you must try it upon special lines. You can go into general farming, as you might term it, combining the farming of other products and stock raising with cotton as a surplus money crop, and what he says about cotton

seed meal is true. There is no question about the value of cotton seed meal as a food for stock if it is properly combined. I find some people that are very much inclined to feed cotton seed hulls. I have never found any real value in the cotton seed hulls as a feed. It seems to me that it is nothing but a filler, and I do not see why you cannot use hay as the filler and answer all of the purposes and get a better food stuff besides. I can make good hay, as I think Col. Wade told us this morning, far better, more nutritious hay, than you can get that comes from the West. We can do it in Florida, and I believe that you can do it here. And speaking of the possibilities of making hay: I believe I shipped to my neighboring county in Florida this year twenty-two tons of hay, and a man from there paid me fifteen dollars per ton for it, when there is no reason in the world why he shouldn't just as well have made his own hay. And I would rather have it—Crab grass hay—than Timothy. Now, if you ever attempt to make any Crab grass hay, don't cut it while it is in bloom. Wait until it is ripe, and cut it about along in October. There seems to be a great deal of water in Crab grass stems, and it must be ripe or you cannot cure it properly. That with the velvet bean, which all of you can grow, I reckon, and you have a food product that will enable you to produce more bacon and more beef than almost any State in the Union at the same cost. I was grown up on a farm in Kentucky, and I well know the farming there. I don't believe that there is any better State to make a success of farming than is Kentucky—and I believe that I can make beef of the same sort in Florida that will cost me one-third less than it would cost in Kentucky; and I believe if I can say that of Kentucky, I can say it of any other State. That may sound to you a little strange, but in the last six weeks I have purchased sixteen hundred acres of land, and that whole farm shall be nothing but a stock farm. But, as Mr. Secretary told you, the only proper stock-raising country in the world must be a grazing country—you must have grass—but on your low-lying lands here, it seems to me that it is beyond question, you can make grass, Bermuda grass, and I am sure that there is nothing better. Some of the farmers in the South are mightily afraid of Bermuda grass. I say that it is a mighty poor farmer that cannot kill any grass that grows. There is no grass, no green thing that grows out of the ground, that if you prevent its making mature leaves, you will kill it. It must make mature leaves, or it dies. I have never seen anything yet that can stand it in the way of plant life. It must mature its leaves. I am sorry to say that most of the Florida farmers, and the Georgia farmers, and Alabama and South Carolina and North Carolina too, are about the same, but I will say it only of the Florida farmers, so that none of you can get hurt. I will use my own home as an illustration. You don't cultivate your crops. You start in to farm by shares. You half way break the ground; instead of plowing it thoroughly and fitting it for the crop to grow there, you sorter half way break it up. And then after that, you cannot make the crop that you ought to make, no matter what you do. If you broadcast your ground, break it up broadcast as deep as ever there is soil—six inches if you can—and if you cut a little deeper every year, you will deepen

your soil. Then prepare it and plant it, and you can expect a crop. More than that, after you plant your crops, you don't cultivate the crops at all. You simply go there to kill the grass. You wait until long after the crop needs working, and then you go there to kill the weeds and grass. You cannot make a crop that way. I don't think there is any crop ever planted, or that I ever had anything to do with, that should not be cultivated once a week or once in ten days anyway; but you can keep the weeds and grass down by going over it once in two weeks. I see that all along the railroads that I travel over, and many of my neighbors at home do just that sort of farming. As the Secretary told us this morning, soil preservation is one of the most important things in this land. You cannot make a success of farming unless you keep up your soil, and not sell everything away from it. I don't think there is any country that can compete with us here in the making of beef. And besides that, when we sell it, we only sell the beef, and all the best part of what is taken out of the soil is put back. And you were told this morning how one-crop growing will run the soil down. If you keep raising the same crop on it, any land will go down. I am not an advocate of raising cassava for the starch factories. You can make money by that, but you can make a great deal more out of your cassava by making meat out of it. I told you that when I was here a year ago, and I am more convinced of it now, because I have had more experience. There is no better food that you can give chickens than cassava, and it is good feed, some of it, for milk cows—a little of it, but not too little. For hogs, you must have something along with it. Hogs get tired of it, and cattle get tired of it, as you yourself would get tired of pie or anything else that you were forced to eat all the time. Animals are like humans in that way, and they get tired of anything when you keep it up. By itself they will get tired of eating it, and won't do well. You had better mix your feed for your cattle, and they want grass. It don't take much fertilizer to make good grass, especially where you can grow Bermuda grass, and I speak of that because that is one of the grasses that you all can grow. But you are afraid of it. I killed the Bermuda grass in a cassava patch last year, and there is none there now. I will say this though, that where that Bermuda did grow, there I had the best cassava. There is a patch of Bermuda grass there now about as big as this room, not half killed down, in a place where I have got some beans planted, and the beans there where the Bermuda grass is are very much larger and finer than elsewhere. There you have got a fertilizer without paying for it. You can grow leguminous crops here too, and make your crops without buying any fertilizer. There are combined foods that will go with your farming for feeding any kind of stock; also in connection with that, you want to combine the food differently for the different kinds of stock. And you want to have different kinds of stock. You don't want cattle alone, and you don't want horses alone, you don't want sheep alone. You want some of all of them if you can handle them, and I think you can, because one generally eats what the other does not. There is an old rule in Kentucky that cattle won't do well with sheep, but my cattle do well with sheep. My cattle always did do well with sheep if I

had plenty of grass for them both. Most people put enough cattle in a field to eat all the grass, and then if you put sheep in there too, of course neither the cattle nor the sheep will do well—there is more demand for grass than there is grass to fill the demand. If there is grass enough, I think the cattle and sheep go together all right. Then don't try to raise your cattle on the range to live the best way they can. Have your fenced lands and raise grass for them. You can do it—the grass will grow, if it is not fed off by everybody's cattle. You have got to fence your land if you expect to make much money out of your cattle. Also it is a good trick to grow hogs. But I can't impress too much on you the importance of having your lands fenced, and not letting your stock just run out with the general herds. You will make enough money by it to more than pay for the fence. I don't think Col. Wade was very far wrong when he gave his estimate. He spoke of having a steer not exceeding thirty months old weighing thirteen or fourteen hundred pounds. I expect to raise calves in Florida that will go to the Liverpool market. There is no trouble about the market. The market don't want wiregrass beef, but if you make the right kind of beef, there is no trouble about the market. An Englishman wants beef to his taste, and if you will raise it, he will pay you for it—so will the New Yorker, and so will the men elsewhere. There is abundance of money at the large centers of population in the United States today with owners that don't care what they pay for a thing, but if they can get what they want, they are willing to pay. If you make good stock, they will pay you for it. You can get to the market from here as cheaply as you can from the West—not Chicago, I reckon, but New York. You can get there just as cheap as Kentucky can. I had a neighbor in Florida last week to butcher seven hogs that were a little over six months old, and they netted about one hundred and forty pounds each, and that gave him a little over eight dollars—about nine dollars apiece for six months old pigs, and it cost very little to make them. You do not have to feed them like you do in the North: they have no difficulty about wintering, and you don't have to feed them down here against the cold. And I believe you can do just as well as that. I am not afraid of your making too much meat, you cannot make more than the market demands at a good profit. I don't believe that you can name any one single product that is grown today, and is grown for quality, that is of high quality, that there is not a greater demand than the supply. If you make sorry syrup they won't take it, but if you make a high grade syrup, they will take it, more than you can supply. It is not alone syrup, but everything else. I will just make one statement: We have a man at De Funiak Springs, Florida, who has been making syrup for twelve years. He says he has demands for syrup from one man for five thousand gallons, and that he could safely undertake to sell ten thousand gallons, if it was the same kind of syrup as his, at fifty cents per gallon. He makes his of fine quality. He says there is only one thing in it, and his theory is straining and actually filtering the cane juice, and he does that with moss, Florida moss. But that filtering must be thoroughly done, almost as if you had run it through litmus paper. He has no trouble at all in

selling all of his syrup. Two or three hundred dollars will cover all the machinery that is necessary to make that syrup fit for any market.

As I said a few minutes ago, the important quality for a farming country to possess is, that it is where the man of small means can make a success. Then, as the Secretary tells us today, educate the people. Calculate what you people of Georgia are doing for the education of every child in the land. That is as much important as making good syrup or making good beef for the market. To give skill and education is of as much importance to the people of the country as making meat and bread for them, because the country's true farmer is most properly a scientific man. There is no man in any business who needs to be more scientific than the farmer. He has got to be almost an expert, and to know a good many lines. He must know how to diversify his crops, know how to get a variety of stock, know the growing of stock and feeding of stock, know the cultivation of the crops and how to handle the crops. And whether he knows that it is science or not, it is science to know these things. That is the kind of man you want, and in the common school is the place to get that kind of man.

I was very much interested in what Col. Wade had to say this morning, but one thing struck me as rather funny. He tells us about doing this, that and the other, and about getting pure bred stock. That is all right. We need pure bred stock, but while we need pure bred stock, we need first to take care of what stock we have. But we must have this pure bred stock. we must have pure bred hogs, must have pure bred beef cattle, and we must have blooded horses. But Col. Wade knows that you cannot get a full bred bull without paying about two hundred dollars for him, and he knows that after you bring him down here, he may live a month, or two months, or a year, and maybe get through all right. Col. Wade didn't mean that we are all partners in these interests he represents. We are all partners in this railroad business. They run the railroad for us and we get what we can. for they get their freights out of that full bred bull without taking any of the risk. I mean to say that the people at De Funiak Springs, and in that section of country, have pure bred Short Horns, and I understand that it has not cost them one cent of freight to get these bulls there. The L. & N. Railroad said to them that if they would buy the pure bred stock for breeding that they would bring them there, and now down in my country, we can get one. We have got the people there who would get the bulls for breeding, but while the people at De Funiak Springs could get them there for nothing, it costs money and lots of money to get them to McIntosh. Last summer I was in Kentucky and my brother had a bull that he had had for three years, as long as he could use him profitably, and he offered to sell that bull for forty-five dollars. Possibly the bull, if I bought him and brought him down here would not last a month, and possibly he would die off in one to three months. I could well have afforded to pay that amount easily if he had got a dozen calves and then died. But the railroads wanted to divide with me. They would get the hauling of the beef that I made, and I think they should take a part of the risk in these things, at least in the

way of freights. but they wanted more in freight for bringing the bull there than the risk of bringing him was worth. Now, I believe in railroads. Florida would not be worth anything without railroads, and I don't blame them for getting all they can. I am not kicking at the railroads at all. We would all do the same thing if we had the chance. The only monopolies that any man kicks against are the other fellow's monopolies. Every one of us is perfectly willing to have a good monopoly. We gave it to them and they are not exceeding their privileges, and if they are, we are at perfect liberty to make them toe the mark, but it seems to me that it would be a good business idea for them to help us out in improving the breed of our cattle in this country.

Col. Wade: Just one word. I would like to inform the gentleman that the Southern Railway Company has had that matter up since the first of January, and they made the proposition to the Association to take as much interest in it as you do, and that they would take the freight off if they would. That is, that all pure bred stock brought into the South over our system and another system, our road would carry them free if the other system would, and we don't like to hurt our neighbor's feelings and bring them free anyway.

Mr. Gaitskill: The farmer is the man you want to benefit.

Mr. Wade: Certainly.

The Chair: Gentlemen of the Convention—I fixed the value on one speech made here last winter at one million dollars. The gentleman who made that speech is going to make another, and I fix its value in advance at one million dollars more. I introduce to you Prof. H. E. Stockbridge, of Florida.

Mr. Stockbridge: Mr. Chairman, Ladies and Gentlemen—The subject that I was announced to present to you this afternoon for a short time is that of the velvet bean, and I shall start in by saying that that is the crop that has attracted so much attention for the last few years in the wiregrass region of Georgia and Florida, and at the same time I shall caution you in the beginning that I expect to take up the matter of the adaptation of the velvet bean, the methods of cultivation of the crop, and the influence of the velvet bean upon our economical conditions. I have chosen the velvet bean as a subject because I believe that it is one of the crops which, if properly utilized, will enable us to revolutionize the conditions which we recognize as existing over south Georgian and north Florida, or in other words, the long leaf pine belt, or as it is frequently called, the wiregrass country. That there should be a change, we all admit; and we are in our inmost consciences somewhat ashamed in spite of the great progress made in the reflection that often aspersions are cast upon our section by people who are not familiar with the conditions. We hear, for instance, such statements made as I know a Northern lady addressed to me traveling from the North to the South over the railroad. Looking out of the window of the train going through this section, she was constantly reiterating this remark: "What do the people live on here? What can they live on?" And she kept up that until I could not stand it any longer, and I said: "If you really want to know what they live on, I will tell you. We live on fish in the summer

time and on sick Yankees in the winter." Some of us are anxious to be able to stem the tide of such expressions as proceeded from this sick Yankee. And we believe that the conditions of our country are such that a transformation can and must very rapidly be brought about when it will be impossible for such aspersions to be cast upon us. And I recognize this velvet bean as being one of the leading powers bringing about this transformation. The velvet bean furnishes us with a crop that in conjunction with other crops is not so much a market crop, but if utilized in diversification with other crops and properly handled, certainly will be recreative in its action in this section of country. I will present a few reasons, as it seems to me:

The first reason why I consider that the velvet bean is worthy of our consideration is, that it furnishes us unquestionably with a new crop. Various means of utilizing the vast areas of our country, outlying, waste, and from which the primeval forests have been removed, and for which we have looked for a crop that will furnish us with returns, have been suggested, but they are not sufficient. All of the area lying waste in Florida cannot be utilized for sugar cane, and we have no question about using them for cotton. There is no profit in cultivating these lands in corn under existing conditions. The problem that has confronted us is how can these lands be utilized to return a profitable, cash crop, and at the same time so utilized that a minimum expense of maintenance is required. We have in a measure pointed to the solution of this problem in the growing of cattle. Now, the velvet bean will not only successfully grow, thrive and mature upon these lands, but it is in addition unquestionably a crop that is more economically grown than any other cultivated crop with which I am familiar. It is distinctly the lazy man's crop. It is grown so successfully and with such economy of labor and expense, that it furnishes us with the means for the utilization of the vast areas where crops with which we have been heretofore familiar could not be utilized simply because of the initial expense involved in bringing these lands under cultivation.

The next point that I would make in connection with the velvet bean is this: We stand in the South today face to face with a problem of the restoration and fertilization of our lands from which the cotton from year to year has been removed so long. So long as the seed were returned to the soil we have been able to retain their fertility, but since the price of cotton seed meal has increased to such an extent as to almost force us to send the seed to the oil mill, so that the question confronts us now how can we restore the fertility of these lands which have been worn down constantly by taking away from them their life in the cotton seed meal. We recognize several crops which, in a measure, furnish a solution to this problem. We know that there are several crops that possess the wonderful property of extracting considerable amounts of nitrogen from the air. The chief among these crops is the common pea, with which you are familiar; but this crop, in familiar language, has its limitations. Although we recognize that the crop when grown is a very valuable one, and that properly utilized it furnishes the best animal

food stuff, and that if the manure is returned to the land, or if the crop is plowed under, the maintenance of our soils is assured, but the difficulty lies in the fact that it takes a pretty good class of soil to produce a crop of the common pea. It is not adapted to our poorest soils properly, it is not adapted to our pine lands, because an ordinary crop cannot be made without fertilization and careful culture. It does not meet our requirements, and therefore it can be put aside. On the other hand, the velvet bean is adapted to the very poorest lands. There is not an acre of land in Georgia, of those poor pine-excluded soil, that will not produce the velvet bean without any fertilization. That is the quality that is given to it by nature, to supply all of its nitrogen from the air. Not only can it be successfully grown on our soils, but our poorest soils. It is not only almost self-sustaining, but beyond that the velvet bean, of all the plants that are named as containing large quantities of nitrogen, stands first.

An especial point that I want to call attention to, and that is worthy of careful consideration, is that the velvet bean furnishes us the means to keep up the fertility of our soils, while at the same time we can use most of it as a crop to market from the land. The amount of nitrogen that is extracted from the air, if the crop is allowed to return to the soil, is incorporated with the soil and thereafter increases the fertility of that soil just to the extent to which this nitrogen has been added. The amount of nitrogen thus returned to that soil is phenomenal. The amount of crop that any good farmer should not expect to fall below is three tons to the acre. That crop actually takes from the air and contains in itself about one hundred and forty pounds of nitrogen, which is almost exactly the equivalent of the amount of ammonia contained in one ton of cotton seed meal, worth in the market not less than twenty-six dollars. And here is a crop that will grow on any acre of wire-grass Georgia soil, that has been actually so endowed by the Creator that it takes from the air into its leaves one hundred and forty pounds of atmospheric nitrogen, which is the equivalent of a thousand pounds of nitrate of soda, worth today in the market fifteen dollars. This means that by the occasional growth of the velvet bean that where we wish to grow cotton, corn or any other crop we depend upon as a staple, by growing velvet beans on this land and either feeding it to our stock or allowing the crop to die and plowing it under, we actually add to that soil one hundred and forty pounds of nitrogen, the equal of one ton of cotton seed meal, and which is sufficient for the average crop of cotton to be grown upon that land for five years. So the velvet bean is worthy of special consideration as a crop adapted to our lands, and can be more cheaply grown than any crop that I know. Actual experience shows me in Florida that it can be produced for two dollars per acre, and we have at that cost furnished to the land per acre the equivalent of one ton of cotton seed meal, with the fertilizing value of which you are familiar.

So much for the relation we have shown it to have to our system of farming, and so much for maintaining the fertility of our lands. Now I wish to occupy a few minutes of time in consideration of other features of the subject of even greater importance-

There is no question—I believe we all recognize the fact, and it has been reiterated here today over and over—that the basis of all generally successful agricultural prosperity of the world dates from far pre-historic times to stock husbandry. There is no agricultural section of this country where there is prosperity where stock-farming in some form is not incorporated into the system of agriculture. Unfortunately, to-day stock farming is given almost no consideration here, but the time has come, I believe, when the Georgia farmer realizes that there must be a change of some sort, and he is only looking for light. I wish, therefore, only to give you a few facts concerning the use of this velvet bean as related to stock husbandry, particularly when we take into consideration what we all recognize as a fact—that in the feeding of animal or man, variety of food is absolutely indispensable to the highest degree of successful development. We have given considerable attention to the heat or fat-producing elements of food, but to arrive at success in the production and raising of cattle, they must have their proper portion of protein. Protein is the expensive ingredient in all food stuffs. The question that confronts us, that confronts us therefore, is, how can protein be cheaply produced to supply the amount of hydro-carbon ration that is required for our cattle. I hold out the velvet bean as furnishing a solution of that problem, not without being mindful of the value and importance of cotton seed meal that has already been considered. But you understand that cotton seed meal is today extremely costly. I don't know how profitable at present prices the Danish dairyman may find it to purchase cotton seed meal for his cattle, and I don't know how valuable it may prove to the Michigan or New York stock and cattle raiser to purchase it for food, but we are beginning to think in Florida that a cheap protein food is desirable to us at least. I offer you the velvet bean as being the cheapest protein constituents of all food stuffs. It is like red clover, and like every leguminous plant, rich in protein, and it can be compounded with other materials, so that the ration which we can produce will be a cheap hydro-carbon constituent in the form of cassava, and a cheap protein constituent in the form of the velvet bean, and which I believe will furnish the cheapest stock-fattening ration that the stockman in any section of the country has ever been able to utilize. We have the woods steer, an animal with which you are all perfectly familiar. Taken from the range and fed upon a ration made of velvet beans and cassava, with a little cotton seed meal, he will fatten amazingly. I have here today (indicating a piece of beef Prof. Stockbridge had brought with him and placed upon the table,) the actual result of feeding such a ration. This is beef killed from a steer yesterday morning, and it would have been a little better, more tender, if I had allowed it to ripen before cutting. That was a piney woods steer. The animal when I took him from the range was five years old, a little older than he ought to have been, but I couldn't get just what I wanted. This steer weighed 750 pounds when I placed him upon a full ration. I fed him on a ration, as I say, made up of this velvet bean and cassava with a little cotton seed meal, and he weighed yesterday morning when slaughtered (live weight) 1030 pounds, and I

had fed him only seventy days. The average feeding period, I will call your attention, in the corn section that is given to beef to be sold in the Chicago market is from ninety to one hundred and twenty days—probably more often one hundred and twenty than ninety. This one I fed only seventy days, a period a little more than one-half of the length of time a Northern steer would have to be fed. That is one of the great advantages which we have over the Northern beef feeder, the profits come back in half the time. And why? Because a smaller portion of the food is required to furnish heat for the animal and a greater portion of it goes into the fattening of the beef. This animal was fed only seventy days; he was one of a bunch of twelve. The average daily amount of food given to that steer for the seventy-day feeding period was 3.68 pounds. That during the seventy days of feeding put on the carcass of that steer daily a little more than three and a half pounds of weight. From one to two pounds is pretty successful business in the corn country. The cost to feed this animal, the ration that was given him was approximately (allowing for all the materials at their market cost) ten cents per day. The total cost of feeding the steer for the seventy days therefore, allowing the market price of the food to remain the same, was \$7.00, and the actual gain in weight for the period was 263 pounds. The actual profit on the feeding, allowing the full market cost of the material consumed, the actual profit as shown by the book-keeper was \$11.72. The steer cost \$20.00 to start with, which is larger than the average of such animals. The average is about \$13.00 or \$14.00. So you see the per cent of profit on the investment was 58 per cent, and received at the end of seventy days.

A member: What price did you put on the meat?

Mr. Stockbridge: The price we actually sold it at. There is nothing theoretical about this—it is an actual illustration. We sold it and got the money for it—sold it at eight cents a pound.

Now, I wish to say a word as to the question of a market. There are good judges here, and they will have a chance to taste and judge of this meat tonight. Some of us are going to eat that beef. It happened two or three days ago that two gentlemen were down in our country who are very familiar with the stock business, being from Kentucky. Mr. Gaitskill had them take a meal with him, and gave them some of our home-grown beef, and they both pronounced the porter house steak cut from a small animal the best meat they had ever seen in their lives.

Now as to the market. I have been through the mill so far as the market is concerned, and there is nothing hypothetical about what I am going to say. The moment such meat as this is put upon the market and the people become aware of the fact that they can get that meat, there is no trouble to sell it. When I first commenced selling this meat, it was almost impossible to convince the butchers that there was any beef raised in Georgia or Florida that could be sold. And it was only by opening a stall and retailing the meat that we could start a market. But the result was that the people who had been eating the Chicago beef got a taste of the native beef, and from that day to this they have insisted upon having this beef. The demand for it is such that this year the butchers

of Lake City, in their efforts to get our beef, bid against each other, until I sold my meat for half a cent a pound more than the Chicago beef would have cost them laid down in Lake City market; and what is more, after I had closed the deal and sold it to one man, another fellow took me by the coat and led me off behind the door and offered me a quarter of a cent more if I would break the bargain.

But just suppose you cannot sell it. If you can only produce such meat. Have you ever meditated upon the fact that the wire-grass region of Georgia is nearer to Chicago than Motana is, and if the Chicago market is not satisfactory, right here at our door is deep water which will give us onto the English market and the other markets of the world? If you become dissatisfied with supplying the Chicago market, the markets are alive at our door. The demand for it exists, and all that remains is simply to supply that demand.

I didn't intend to occupy so much time as this, but I wanted to present these facts in a plain way, in such a way as I hoped would be a demonstration and an incentive to effort. These things are all of importance to us, and these things are worthy of our careful thought and consideration. Take the statements that I have given you and think them over.

Secretary Wilson: Professor, I would like to ask you a question. What is the nutritive value of this ration?

Mr. Stockbridge: It is about 1.065, but I cannot give it to you exactly.

Mr. Goodyear: You told us a short time ago about a bunch of cattle raised on velvet beans by somebody, I would be glad if you would tell that again.

Mr. Stockbridge: If the people would like to hear the facts, I will be glad to tell it. I don't want to make a speech, but just to give facts. The matter to which our Chairman alludes is one bearing out the demonstration of the practicability of this business. For the last two years in Florida men have been going into this business for the sole purpose that they are convinced that there is money in it. It is no longer an experiment, it has reached a business basis. Mr. Joseph Sumner, of Jasper, Florida, is a hardware dealer, and a man of broad views. He runs his business, all that he goes into, on strict business principles, and therefore the results of his experience are not founded on guess work. He had been watching this business, and became convinced there was money in it. In this, as in everything else, his book-keeper keeps accounts of everything that goes into the business and everything that comes out of it. He had a large bunch of cattle that he had been accustomed to allow to run on the range. He planted a year ago now an old range in velvet beans. It cost him about two dollars per acre to mature the crop. The beans were allowed to ripen, and last November on what he had planted, ninety acres, he turned in 297 steers. For quickness in figuring I will call it three hundred, although it was three short of that. He turned the three hundred steers on the ninety acres and fed them for ninety days. At the end of ninety days he shipped the beeves to market, and the books showed that his actual profit was approximately twelve

dollars per head; the actual profit on the three hundred steers, charging against them all the labor and the entire cost involved in the whole transaction, the actual profit on the enterprise was thirty-six hundred dollars. And in addition to that, after the steers were sold, he turned a carload of hogs in there, and within the past two weeks he has shipped the hogs to market, and I have not yet heard the returns from the hogs, but that will be additional profits to what he made on the steers. I could give you many other instances, but I am more familiar with this than I am with the others. I am more familiar with this because, I might say, I am responsible for this. But there are many other men in Florida who are doing the same thing, and at just about that rate of profit.

Secretary Wilson: How far north will the velvet bean grow?

Mr. Stockbridge: The velvet bean has been grown as far north as Cape Cod, Massachusetts, and North Dakota, but it will not mature satisfactorily north of Augusta, Georgia. It will, therefore, produce a most excellent forage almost everywhere in Georgia, Alabama and also in Carolina. I should perhaps, as a matter of practical detail, also mention some particulars as to the way in which we use it. The method we follow in feeding it, whether we feed it with cassava or other food, is not to cut the vine and make hay of it. Our method is not to harvest the crop; and it is so indestructible that even though you should have a killing frost upon it, you can still forage it, and the cattle will eat it readily. It will make a perfect mat on the ground and will not then be affected by damp or rain and will stay there in that condition, and all classes of live stock, both beef and hogs, are very fond of it even in that condition. The larger part of the feeders simply turn their animals in on these dry beans, although some of us who want to get better results, use a chopper in preparing the ration.

Secretary Wilson: There is no way for the small farmer to improve his soil so fast as not to gather his crop, but just to turn the animals in on the crop in that way. I don't want the impression to go out that the small farmer could do better by harvesting his crop and taking it off the soil.

A member: How much of the beans do you plant per acre?

Mr. Stockbridge: From one to two pecks per acre, and then cultivate them once or twice.

Secretary Wilson: Where do you get the seed?

Mr. Stockbridge: The seedsmen will sell you the seed in small quantities, and charge you from about \$2.00 to \$2.25 per bushel for them, but you can get any quantity of them in Florida at \$1.35. They are just as much a part of farming in Florida as corn is in Georgia. I know one man in Florida last year who had thirteen hundred acres, and there are in places bean hulling mills, like cotton gins, where they do custom hulling, because the beans are so tough that they cannot be hulled like the ordinary beans can be thrashed.

A member: Has there ever been any effort to extract the oil from them?

Mr. Stockbridge: Only in a crude way. It was dependent upon the oil mill, and possibly because they feared competition, or possibly because the bean hulls did actually create an obstruction

to the machinery, but the experiment was not a success. They claimed that the oil mill machinery would not extract it.

A Member: The velvet bean is also a good horse food, but horses are very cranky about their food as a rule, and do not like the bean. I have known horses to enjoy them occasionally but not as a steady ration; and the hulls of the beans as they come from the mills, I am almost willing to take them instead of bran.

Col. Wade: How about grinding up the whole thing together?

Mr. Stockbridge: That is one way to utilize the crop. Last year we used them that way. Any mill that will grind cobs will grind them. We tried feeding them whole, hulls and all, just as they were, but we found that the cattle would digest them better if they were ground up and broken.

A Member: Will you be kind enough to give me an address where I can get some of these beans?

Mr. Stockbridge: Certainly. You can write to J. W. Emerson, Apopka, Florida. There are a good many feeders in Florida who use this same feed stuff as a hog feed with satisfactory results. Most of the men who are feeding the velvet bean to hogs are feeding them to the razor back, the native hog.

The Chair: Now gentlemen, we have a healthy optimist here with us today, a man who is known throughout the State of Georgia wherever anybody cultivates land, and he has chosen a subject that will interest any man who is interested in farming in Georgia—an experiment station for Georgia. I introduce to you Hon. J. Pope Brown.

Mr. Brown: Mr. Chairman, Ladies and Gentlemen of the Convention: Upon receiving your invitation, Mr. Chairman, I was somewhat at a loss to know exactly what subject I should choose to speak upon at this occasion. I decided at once that I would accept the kind invitation; that was not the question. Just one year ago I received an invitation of the same sort. At that time I had the honor to be president of the State Agricultural Society, and I felt that the invitation extended to me then was due to that fact. I appreciated it nevertheless and showed my appreciation by responding to the invitation; but I want to assure you, sir, that on this occasion I feel a more vivid appreciation of your invitation as a private in the ranks of Georgia farmers, and the only question, as I said, that troubled me at all was upon what line I should talk. Upon the question of cassava I know nothing at all. It was something new to me and I doubt whether it would grow successfully in our part of the State. Sugar cane I had grown to a limited extent, but a great many who were here could tell me very much more about growing sugar cane than I knew. But there is a question intimately connected with the growing of cassava and the growing of sugar cane, and that is of interest to us all, and I finally decided that I would talk about that question, which I thought after all if we decided to go into the raising of cassava and sugar cane in South Georgia, would be the most important question of all—the most important subject, or one of the most important, and that was the question of establishing an experiment station in South Georgia.

Mr. Chairman, if you will bear with me for a few minutes—I

know the hour is late, and there are several to follow me, and I feel somewhat impressed by reason of that fact and I want to say what I have to say in as few words as possible, but I feel that this is a really important question, and I would like to say just a few words on the line that leads me up to that. Farming has been my business for twenty-five years, and I have tried to study it just as another man studies a profession as a lawyer or a doctor, to know what was the proper thing for us to do, not only for myself, but for the farmers as a whole, and from my position as president of the State Agricultural Society it was my duty and my pleasure to stir those questions which would do most to promote the material interests of our whole State. I not only did that myself, but I invited others to our conventions to discuss these questions. Upon one occasion I had the question to discuss together with many prominent Georgians, as to what are the needs of the Georgia farmer. The same question was put to each one of the speakers and they discussed it from different standpoints. What are the needs of the Georgia farmer? Some had one idea and some another. Some said they don't work enough, when I know that a good many of them work from before day until noon and from noon until dark. Some of them work in the rain and in the sun and on Sunday and don't accomplish anything. I didn't believe that was the trouble, lack of work. And for twenty-five years I have been trying to solve that question—what do we need? What is necessary for our success? A good many years ago I went to Atlanta to attend a convention called by Gen. John B. Gordon, who was then governor. He called our neighbors into a convention of the cotton growing belt, and I recollect that Henry Grady was called upon to make the address of welcome. I know no reason why he should have been called upon to welcome the farmers, unless it was because he was the only living man who knew less about farming than Gen. Gordon himself. But he said one thing that impressed me there. He was called upon to discuss the depreciation in agriculture and the remedy therefor, and he said: "I don't know what the trouble is, but I do know that the trouble is not in the climate nor in the soil." If that is the case, if the remedy is not in the climate and not in the soil, then the remedy was in men to devise, and if we couldn't find the remedy the trouble was in ourselves and nobody else. I always did hope, I went and got fresh inspiration from that speech that day, and I have kept it up ever since. I thank you, sir, for introducing me as an optimist.

When I was made president of the State Agricultural Society, I said to the convention that the conditions were more favorable than they had been in twenty years. It was the truth, although some of us at that time were talking in a different strain. Some of them said that ain't the kind of talk for a free silver man to talk. It won't do. I have always been glad that I said it. I have always made up my mind never to make a pessimistic speech. I never sing anything but a cheerful song, and I don't like this doleful kind of singing that we hear sometimes in our churches. Cotton got down to 4 cents a pound, and they met in Macon, and had a great many different kinds of conventions at different places. And finally it occurred to them to have a wheat convention, and they had

it in Macon. I went there and they called on me to make a speech, and I told them I was like the Irishman that fell in the well, that I had made up my mind never to make anything but a cheerful speech, and I would not be a pessimist there or anywhere else, but that I was almost like the Irishman that fell in the well. His wife looked down there and asked him if he was dead, and he said: No, he was not dead, but he was speechless. So when cotton was down to 4 cents a pound I was almost speechless, but I felt that there was a future still for us. I had great confidence in our soil and climate, great confidence in our resources, and there has since been a brighter day for us, and I am glad to be able to say here today, that I believe there is more general prosperity in the State of Georgia amongst all classes of people than there has ever been in the history of the State. There are more people wearing shoes, more people wearing hats and good clothes, more people riding in buggies and getting plenty to do, there are more people riding on the railroads and paying their way—we have more railroads and better railroads, we have got more and better farms and better farmers, more school houses and better school houses, and more children going to school with more teachers and better teachers—than ever was true before in the history of our State.

I want to go back to that convention, just a few minutes, over which General Gordon presided. When they went to consider the cause of agricultural depression, every man there seemed loaded with the idea that it was somehow due to the tariff, that the tariff was the great bugaboo, that there was no chance of prosperity for the people of the South until we got the tariff fixed. Well, I don't know. I went there to get information. They kept on talking that way until I decided myself, after awhile, that we were ruined if we did not get the tariff fixed like we wanted it. After awhile old General Mosby got up and said the tariff might be all wrong, he didn't know about that, but there was no tariff on the Western meat that you are buying, there is no tariff on the Western mules you are buying, or the Western corn or the Western hay that you are buying; that there was no tariff on any of these things that we are buying, when we ought just to step out to our barns or smoke houses and get them. He didn't make any speech, but he just knocked that whole thing about the tariff out of my head. I decided that the tariff might be wrong, that they might properly fix it a little different perhaps, but that there were many worse things than the tariff.

Then we got up the idea of a sub-treasury. Some of us thought that was just the salvation. It was the great theme, the popular theme. Congressmen got elected on that idea of a sub-treasury or something better, and when they got to congress, I reckon they found the "something better," because we never heard anything more about the sub-treasury. I was in with them all along, I want to say, though I didn't run for any office on it.

Then they told us, Mr. Chairman, that there was no use talking about the prosperity of the Southern farmer unless we were for free silver—no chance at all. It was a settled fact, if free silver went down, everything went down—there was no question about it. Well, we had nothing to lose, and we were

willing to take the risk of the change, so we were all for it. We were just like an old neighbor of mine just after the war, before they commenced using guano promiscuously. He was using guano on his land, and some one asked him if it would pay to use guano on that land. He said he didn't know, that it was a risk to use it, but he would perish without it. That is the way we were with free silver. We did not know what the outcome would be, but we did know that we were in a terrible fix and wanted to change it, and were willing to take the risk. Well, we didn't get free silver, but cotton went up, and times got better, and now we don't care much whether we did or not. So long as we can get eight to ten cents for our cotton, we will take any currency we can get.

So we have not got to the great trouble yet. We have tried all of these different schemes and isms for twenty-five years back, and have discussed them in the lines and outside the lines, and we never found but one proposition that we all agreed upon, and that was a thing proposed by one of our populist friends a few years ago. We had gone over all these things, and we couldn't decide which was the right one to bring prosperity. There was the question of under-consumption and over-production, and we couldn't exactly decide which one it was that was the matter. Finally one fellow got up and said: "I move that we raise less cotton and more hell," and that was the thing that we kinder united upon. I believe that was the only thing that would ever have brought us together, and from that time to this, we have been getting along all right, but I want to say that I believe it was the "less cotton" proposition that carried it. I want us to get to raising less cotton and a good deal less hell.

Now in regard to this proposition of an experiment station. I have given it the best thought with which I have been endowed, and I have decided that after all, what the Georgia farmer needs above all other things is knowledge. That is what he needs. He needs knowledge about his own business, about his own particular business, and then he can afford to let other people run theirs. He doesn't need any knowledge about somebody else's business—he knows too much about that now. He wants knowledge about his own business. How are we going to give it to him? I had the honor at one time to represent my county in the Georgia legislature, if you will excuse a personal illustration. Some of the farmers said they were going to send me to the legislature, and they wanted me to do something after I got there. The question occurred to me: What can the legislature do for the farmers that will benefit them? And I got to thinking about that, as to what the farmers needed that the legislature could supply. I had been with them in the fields and out of the fields, in the meetings and out of the meetings, and I decided that what they needed above other things was knowledge. I said, why can't the legislature give that to us? establish a school that will teach us something about our business that we didn't know. Most of us were so ignorant at that time that we didn't know what the federal government was doing towards trying to educate the country. I tried

to get up a bill to establish an agricultural college, and it was when that thing was hanging along, and I was studying the question, I got a little light here and a little light there, and I found out that the federal government was sending about forty thousand dollars a year to Georgia to teach the farmers about their business. I didn't know it. There are lots of people in Georgia who don't know it now—ninety per cent. of the people don't know it.

Just before that time they had been charging the farmers of Georgia fifty cents per ton for inspecting fertilizers. The farmers of Georgia were paying one hundred thousand dollars or more a year into the treasury of the State more than other tax payers. So I thought I would get hold of a little of that money to help the thing out. I thought there would be no trouble in the world in doing a thing of that sort, the money belonged to us, and I thought I just had to ask for it—demand it. When that bill was presented a crowd on the other side there said you can't get that money, we are using that for another purpose and you can't get it. And we didn't get it. And I want to say on that line, that there is nobody more to blame for not getting it than the farmers themselves. I want to tell the truth as I go along. We have got to wake up the farmers as to what their needs are. This very last legislature a committee went there and asked for the establishment of an experiment station in South Georgia, but they said they couldn't do it. We wanted to pass a bill to provide farmers' institutes throughout the State. They couldn't do it, didn't have the money. But the same legislature says, we can spend five hundred thousand dollars to build a depot in Atlanta. They said that was a business proposition that would pay six per cent, on the investment. It don't pay, I reckon, to invest anything in the brain of the youth of the country. There is no business in that—no interest coming back, but the other is a six per cent. interest paying proposition, the five hundred thousand dollar depot for Atlanta. When I see the Georgia legislature refuse to grant the necessary money for an experiment station because they didn't have the money, and refuse to provide the farmers' institutes on the plea of poverty, and then vote to build a five hundred thousand dollar depot in the city of Atlanta, I exclaim: In the name of God and common sense what is the matter with the Georgia legislature.

I will tell you, Mr. Chairman, it is time for us to think some on these lines, and I am glad to see and glad to welcome this movement right here in the city of Brunswick, and to bid it God speed; and I will say one other thing about it that is strange to see. It is a peculiar fact that nearly every movement designed for the benefit of the agricultural classes or among them, starts not with the agricultural classes; or among them, but in the towns and cities. What shall we do for this people to enable them to prosper? I answer. Establish these experiment stations and agricultural colleges. A few years ago I noticed that a committee was sent out by the city of New York to inquire into the agricultural depression there, and the report showed that what they needed was more agricultural colleges and experiment stations to give them more science, teach them how to farm, and they would be prosperous. Up here in our county of Spalding is a proof of that.

They had a convention there for the purpose of teaching the farmers. It was held in the city of Griffin. And the result was that next year the county of Spalding took all of the prizes at the State fair, and that was due to the fact that an experiment station was established in Spalding county. As I said, what we want is knowledge, and I believe that one of the best ways in which to give us that knowledge is through these experiment stations.

I am very glad that Secretary Wilson is here with us today, and I am glad that I was here to hear what he has had to say to us. And I want to say right here in your presance, if you will excuse me for saying it, that I never enjoyed a speech more in my life than the one he has delivered here. It is one of the best speeches, and a speech that is calculated to produce the most far reaching good results than any I have heard delivered anywhere in this country. He said it was the business of his department to watch the imports and exports of the country, which is one of the biggest problems our country has to deal with, because we all know that the relation of the imports to the exports of a country is what makes a country rich or poor; and when you diminish the imports and increase the exports—when that work is done through his department, it is the biggest work and the grandest work that is being done by any of the departments of our government.

Strange to say just a few years ago we had no Agricultural Department, and there is no more important Department in all the government than the Agricultural Department and, if you will excuse me further, the good work that that Department is doing has never been so well demonstrated as here to-day. So far as I am concerned I should like to see the present incumbent abide in that position for life.

Now, Mr. Chairman, if we want an experiment station, as I said the federal government is liberal on that line, and its representative has been most liberal, and has promised us all we could ask of him, but we should do something ourselves. I am in favor of that. I am in favor of the people helping themselves. I never had any patience with the plea of poverty of the people of Georgia. Some of you may say they are a poor people, I say they are not. It is not a question of poverty, it is not a question of lack of means, it is just a question of indifference, Mr. Chairman. The people of Georgia are able to do whatever they want to do—whatever is necessary. But they have got to be aroused, they have got to waken up. Right on that line a few years ago a friend of mine tried to start a wheat business and I suggested to him that he buy five hundred bushels of wheat to commence with. He said, the people are not able to pay for five hundred bushels of wheat, though a good many of them are able to buy five hundred gallons of whiskey. But time showed it was not so. They could buy the wheat and they did buy it.

Now, what are we going to do about this experiment station? Do we want it, and if we want it how are we going about to get it? In the first place we should get our own representatives in the legislature from South Georgia in favor of it. When we do that, that is all that is necessary to get all the appropriation that we need from the State government. There is only one thing to fear

from that. A fellow says, I am in favor of it, but why don't they establish it in my county? We don't want anything like that or we will not succeed. And perhaps we will find some that say we do not need it all. What are we going to do with a man like that? He reminds me of the time when they were trying to get up a railroad in Americus. They had one railroad there, but there was a chance of getting another one, and they had a meeting in the town. The first man that got up, one of the largest merchants there, said, do you think we need another railroad? Don't you think that this railroad can haul in all that we can buy? Then another man said let's go. If we can get our own people in a notion that they feel like they want this experiment station, that is all we have got to do. Talk about North Georgia, when it comes to this or that or the other. North Georgia gets anything it wants, because the people make up their minds to have it. I know the people of North Georgia about as well as I know the people of South Georgia. They got a geological department in Georgia. How much benefit does that do anybody here, or anywhere in South Georgia? Not a bit. They got it because they were not divided about it. And it is just the same way about an experiment station for South Georgia, we can easily get it if we are not divided about it.

Mr. Chairman, I want it understood that I am willing to take all we can get along that line from the federal government, and be glad to get it, but that is an installment. We ought not to rest on that. We should do something for ourselves and the federal government will be still more liberal. The federal government has already been more liberal on the question of agricultural education in Georgia than the State of Georgia has when that bill was passed by Mr. Morrill of Vermont fifty years ago. That was a piece of statesmanship made into fact. He realized that the two great industries were manufacturing and agriculture. Take care of them and they will take care of everything else. He said we will distribute the proceeds of these lands for the benefit of agriculture and manufactures in all the States of the Union. I say it was a piece of statesmanship. All we have got to do is to use the funds properly and we will be better off in Georgia right along that very line. That is the one thing and it has been as liberal to the manufacturing interests of our country, has done as much for education along that line for our youth. You cannot start a manufactory of any kind until you have imported the brain to run the machinery. There was no place in Georgia devoted to teaching manufactures until very recently, when the legislature established the technological school.

To get an experiment station the only thing we have got to do is to get our own people in the notion that they need it, and I would suggest appointing a committee to start in as soon as all the members of the legislature have been nominated, and begin conferring with them on that line, and get the members from South Georgia in favor of that proposition, and I am satisfied that there will be no trouble in the world about getting that station.

One other thing. We don't intend to interfere in any way with the experiment station that is already established under Col. Redding. I hope before this meeting closes that a motion will be

made to that effect, and that the chairman of this meeting at his leisure will appoint a committee to work this matter up and get it before the legislature, and see if we cannot get this appropriation from year to year for this Experiment Station.

Now, in conclusion, I want to say this: All we have got to do to be prosperous, is to know what to do, for we are willing to work—we are not such lazy people as we are sometimes accused of being. I don't know that I can say we work too much, but I say we work enough; and if we can learn how to properly direct our work in the proper conduct of agricultural matters, Georgia will not only deserve the name she now has of being the Empire State of the South, but the time will come, and I want to help to make it come, when she will be the Empire State of the Union.

A member (R. J. Redding, Experiment, Ga.): Mr. Chairman—I felt so much interested in this convention that I left a sick bed yesterday to come here. I don't propose to make anything like a talk, but I want to say a few words in connection with what has been said by Colonel Brown. I want to say that there has been in Georgia an experiment station at Griffin for nearly thirteen years, and before the first year, I realized that there ought to be an experiment station or a branch station in South Georgia. I have realized that more and more every year, that in Georgia, especially of all the States in the Union, there ought to be more than one experiment station. The State extends north and south about three hundred miles, and it rises in elevation from the sea level up to twenty-five hundred, and the State you might say is, between the north and the south, divided into two classes of soil and two classes of climate. Although California is some seven hundred miles from north to south, the climate of Georgia from north to south is more varied than that of California. I would not locate the experiment station immediately on the coast, but I would put it somewhere nearly at equal distances from the south coast, from Macon and from Columbus. I should think that it should include other things as well as cane and cassava. I feel that there is room for a full experiment station without intrenching upon the station at Experiment.

I am in entire sympathy with the desire for an experiment station in South Georgia. So far as my influence goes, if I have any at all, I will exert it in that direction. Whatever may be done by the State of Georgia, and whatever added by congress, I am ready and willing to do what I can to help it along. If you can get a full station from congress well and good. But if not, and it only gives a small amount per year, then the State of Georgia is able to supplement it, and I think should do so. I think that we ought to have two experiment stations in Georgia.

Short addresses were made by Maj. W. L. Glessner, J. M. Jardine, John H. Stevens, and others, upon same general lines.

The convention then adjourned.

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