

Ag 8357
1.908

1911 (2 copies)

FIFTH ANNUAL REPORT

OF THE

Commissioner of Agriculture
Commerce and Immigration

OF THE

State of South Carolina



S. C. STATE LIBRARY

1908

FEB 23 1981

STATE DOCUMENTS

COLUMBIA, S. C.
GONZALES AND BRYAN, STATE PRINTERS.
1909.

FIFTH ANNUAL REPORT

OF THE

Commissioner of Agriculture,
Commerce and Immigration

OF THE

State of South Carolina

1908

COLUMBIA, S. C.
GONZALES AND BRYAN, STATE PRINTERS.
1909.

LETTER OF TRANSMITTAL.

To His Excellency the Hon. Martin F. Ansel, Governor of South Carolina.

Sir: In accordance with the provisions of Section 5 of "An Act to establish a department of Agriculture, Commerce and Immigration, and to provide for the appointment and compensation of a Commissioner," approved the 23d day of February, A. D. 1904, I have the honor herewith to hand you my fifth annual report, covering the work of the department for the year 1908, for transmission to the General Assembly, in accordance with the provisions of the section of the Act aforesaid.

Respectfully,

E. J. WATSON,
Commissioner.

ANNUAL REPORT.

GENERAL.

Though practically three months must yet pass before this Department, charged with the upbuilding of the agriculture and the commerce of the State, attains the age of five years, I trust its fifth annual report may be presented with a degree of pride that may be considered pardonable. The record of the past year has been one of substantial achievement, the foundation for which was laid in the earlier stages. Not the least of these has been, as a result of vigorous work and continued agitation, an increase of over \$3,500,000 in value of the corn crop of 1908, following directly upon the increase of over \$6,000,000 in 1907 over 1906, making a total increase of nearly \$10,000,000 in two years when the entire crop of 1906 was worth only \$17,236,200. The Department has only during this year reached that stage of development of its mission that has enabled it to be of genuine value to the Commonwealth. In reaching this stage through tortuous and dangerous channels, beset with stumbling-blocks beyond and within the State, indeed in the Nation's Congress and in the councils of other nations, an eye single has been kept to the honor and good name of our beloved State. It is a source of gratification that the Department's every step, under most searching investigation, has ever and always resulted in additional lustre to the splendid history of the State, and in no instance has there been anything to occur which has had the opposite effect in the eyes of this or other nations.

I am glad to be enabled to report that the Department no longer considers it necessary to give attention to the active inducement of foreign immigration, but deems it of vital concern to the future of the State to keep the present Act unchanged upon the statute books as a measure of protection against the evils of American immigration, which this Department was the pioneer in pointing out, and which are daily increasing. That the Act should remain unchanged in so far as immigration is concerned is vital for the reason that the Federal government has construed its provisions, making clear and distinct the rights of the State. There was at first essential necessity for experimentation with this problem of immigration as affecting this State, for it was essentially a new problem involving the possibility of a race problem within a race problem, and no step had been

taken by the State for more than 20 years, certainly never under the conditions of American immigration confronting your Commissioner in the spring of 1904. Close study of conditions at home and abroad, always considering the needs and problems of the State, carefully conducted and guarded experiments, and hard, earnest work have combined to "lay a foundation" in this State of good, substantial white people, already absorbed without upheaval into the body politic, and the automatic process that inevitably follows—these people sending for relatives and friends most often better than themselves—has not only begun, but is well under way, and from now on this desirable tide, without care to the State, is as sure to steadily grow as a loose car on the down grade gathers momentum. The same thing is true as to the foundation of good people from other portions of this country—the Northwest and the East. So it is that the Department in the latter part of 1907 found it unnecessary to longer avail itself of its right, established with so much difficulty, to work in the foreign field for an increase of white population—something so badly needed in view of the proportion of negroes in our population. During this year the only foreign work done has been a few experiments with the most desirable of English families from the best agricultural sections of England. At this time very little of the Department's attention is given to this branch of the work, and consists chiefly of advising with and aiding new purchasing settlers to get started to the best advantage to the Commonwealth. The United States Immigration Commission appointed by Congress visited the State during the summer, and your attention is particularly directed to what is said in regard thereto elsewhere in this report.

This subject is mentioned at the outset in this report because of the widespread misconception among our own people of the purposes of the experiments that have been made, and of the object, scope and purpose of this Department of the State government. In the Department's very name—the word "Agriculture," the bedrock of all prosperity, comes first and foremost and is naturally followed by the word "Commerce." I have considered "Immigration"—as its relative position indicates—merely a means for the securing of the fullest development of our agricultural industry, our commercial and industrial resources, and our commerce itself, and have sought by every means in my power to add some white population gradually, without making the State a dumping ground for the class of immigrants that are pouring into this country. In the conduct of the necessary

steps to make the resources of the State known throughout the world in such manner as to leave something better for the new-comer to discover on arrival there have been vexatious incidents, but the brunt of them has fallen upon the shoulders of your Commissioner and the good name of the State has not yet been successfully assailed by any man or set of men in any quarter of the globe.

Upon my reappointment to the office of Commissioner by your Excellency on March 15, 1908, for a second term of four years, having already directed the Department's attention to the more vital purposes of its mission, I set about to push to the fullest possible extent all matters that could be brought to bear upon the development of the agriculture of the State, at the same time not neglecting to steadily peg away at everything tending to develop our commerce.

In the prosecution of this work, however, there has been no neglect of the all-important matter of properly, systematically and eternally advertising our matchless resources to the other sections of this country from sea to sea, and in other countries beyond the seas. In this respect our campaign has been and is continuing to be as thorough as any ever conducted by any State and upon as high a plane. The Department's "Handbook," which publication has won the most laudatory comments in all parts of the world and is now authoritatively used by financiers, university and public libraries and investors everywhere, as letters on file show, and as the character of the demand for it demonstrates, has been an important factor in the advertising campaign. The second edition, revised to date and with additional matter, was delivered this fall, and a new 1908 map and a 1908 list of valuable properties were also issued. The established policy of welcoming all kinds of investigations, whether official or unofficial, has been steadfastly pursued, and as in 1907 every such investigation of South Carolina conditions has resulted in splendid advertising—advertising that money could not have bought. The series of articles by the distinguished correspondent, Wm. E. Curtis, who visited the State to study our conditions, were alone worth more than I can estimate.

When the Department put its shoulder to the wheel to improve the agricultural condition of the State, make the farm more remunerative and attractive, and increase the wealth of the State, two chief objects characterized the effort—the harmonizing of all interests in South Carolina laboring in the cause of agriculture, bringing all to work in close co-operation and perfect harmony for a common pur-

pose, and the persistent solicitation of Federal aid on all agricultural lines upon the assurance of the full co-operation and assistance of the State Department. This seemed a difficult task, but I am happy to state that so far as I am aware, at present this perfect harmony between the authorities at Clemson College, the State Experiment Stations, this Department, the State Farmers' Union, and the individual farmers of the State exists. During the year several valuable gatherings in which all took active part have been held. Having in the summer of 1907 gotten Dr. Knapp to come over into South Carolina and start the United States Government's Farm Demonstration Work, the Department has lent its active aid to the work, with a result that it is now being conducted on some 1,500 farms in the State, with results in 1908 that give promise of an impetus to our practical agriculture that fondest dreams could not picture. One branch after another of the Federal Department of Agriculture has been persuaded to come into the State with practical lines of work, and in each case the full co-operation given by the State Department has resulted in prospective increase of this work. In two branches alone this Department got the Government at Washington to spend in 1907 \$8,000 and \$12,000, respectively, being followed in 1908 by \$13,000 and \$24,000.

But as to what class of work we now have under way by the United States Government's Department of Agriculture I prefer to let the section of this report in which are incorporated reports of the officials in charge, specifically prepared for your information at my request, speak for itself. Some of the things attempted by the United States bureaus may lead, and that quickly, to the establishment of most profitable new industries in the State, such as matting factories, starch factories and factories for the utilization of drug plants. Indeed, the Federal Government, because of the aid given in South Carolina by the Department, is conducting as much work in this State as in any other in the Union, perhaps.

The Department has done much for the stimulation of agriculture by the distribution of carefully selected seed, and by the holding of monthly practical demonstration meetings conducted by United States experts at which improved methods and modern machinery have been shown and explained in detail.

Crop reports have been issued from time to time, made up with exceeding care. It is with pardonable pride that when the 1907 cotton crop was all accounted for this year the Department's November, 1907, estimate was found to be only 13,498 bales less than

the actual crop of the State, and that the estimate for the entire South's crop was only 109,957 bales less than the actual crop, this report being issued at the same time for the Southern States Association of Commissioners of Agriculture.

This Southern crop estimate was the closest one made by any one. The statistics of agriculture in the State have been carefully gathered and are always furnished to the Federal Government, and accuracy has been the chief aim. The statistical clerkship allowed by the General Assembly at its last session has proven most valuable in this work. Agricultural information of all kinds has been furnished to hundreds of inquirers in all parts of the State throughout the year.

The Department assisted by invitation in the Farmers' Institute work of Clemson College in the summer, not infringing in any way, but merely for the purpose of arousing our people to the truth as to their own condition and their necessities, leaving it to the institute speakers to give the necessary instructions as to the remedies for the evils pointed out. The effect has been uniformly stimulating. Assistance was also rendered in the meetings conducted by the Federal experts.

As a vital stimulus to better agriculture assistance has been given as far as possible to all good road undertakings.

The Department has rendered to those advocating the Appalachian Forestry Reserve measure all the assistance in its power, furnishing to Congress detailed information as to the effects of deforestation upon agricultural lands in this State. The experience of the past summer with unprecedented floods causes me to again earnestly urge the creation by the General Assembly of at least a State Forestry Commission which shall investigate forestry conditions in the State and recommend some permanent measure that will best meet existing conditions.

Much time and attention has been given to the conduct of the State Corn Contest which has resulted in greatly stimulating corn growing in all parts of the State. The Department has also encouraged and assisted as far as possible in inaugurating county contests and several were conducted this year with marked effect on corn growing. Notwithstanding there has been a great advance in corn growing, due to these new conditions, and the introduction and practice of the Williamson plan, the Bureau of Statistics of the United States Department of Agriculture in its November estimate does not give South Carolina as high a yield per acre as in 1907, ad-

mitting in a letter to me that these new conditions and the effects of Dr. Knapp's work were given no consideration. I have challenged the figures and called the injustice to the attention of the Secretary of Agriculture of the United States and to the South Carolina member of the Committee on Agriculture of the National House of Representatives.



VIEW OF ONE OF THE 1908 CORN CONTEST FIELDS.

Much time has been devoted to the preparation of special information for the United States Conservation Commission, and data upon many subjects has been furnished accurately and in detail. In the collection of this data the fact was developed that in South Carolina at this time the revival of agriculture has been such that there are practically no "abandoned" farms, though there are many thousands of acres of fine lands suitable for agricultural purposes now lying idle awaiting the coming of the intelligent tiller of the soil.

The importance of the work of the National Conservation Commission became so manifest late in the summer that your excellency deemed it wise to appoint a State Conservation Committee, which consists of the Commissioner of Agriculture, Prof. A. C. Moore, acting President of the South Carolina University; Mr. Earle Sloan, State Geologist, and Mr. J. E. Serrine, of Greenville. This com-

mittee is working in full co-operation with the Federal Commission.

The Department has assisted likewise in every possible way the Country Life Commission, appointed by President Roosevelt, and in addition to getting up and furnishing special data and reports, arranged for a special session of the commission at Spartanburg, where representative farmers and citizens, and those conducting any kind of work relating to life in the rural districts, by invitation met the members of the commission and imparted their views.

Assistance is also being given railway lines in their efforts to develop trucking for the Eastern markets and also the poultry industry.

During the year the vital necessity for a more rigid law relating to purity of mixed commercial foodstuffs or grain was made apparent and I urgently direct your attention to what is said elsewhere in this report in regard thereto.

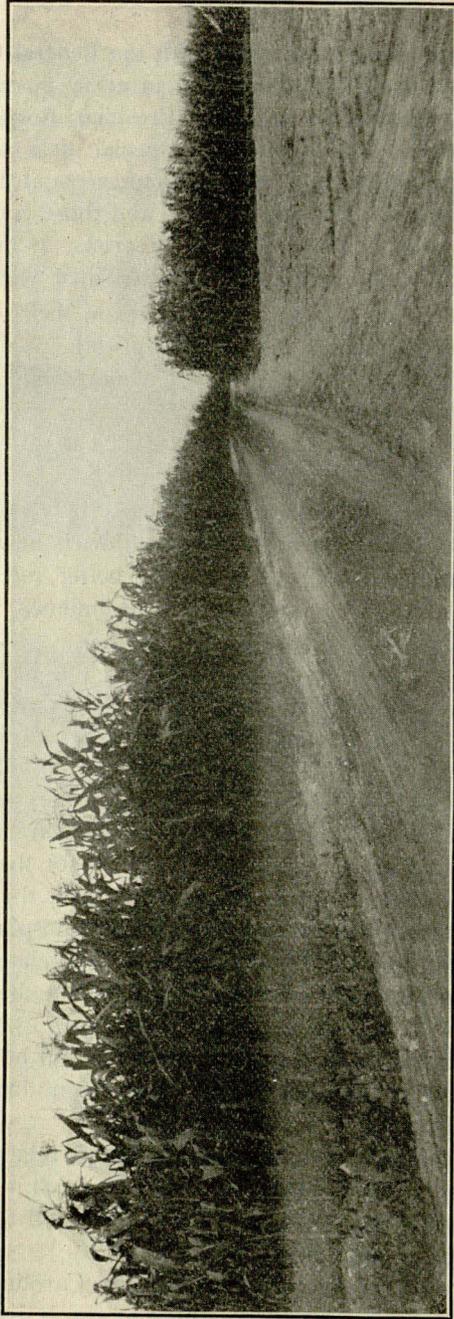
The consumption of commercial fertilizers by the farmers has increased to an alarming extent and every effort is now being made to reduce this annual drain by means of better methods of soil preparation and the introduction of the leguminous winter cover crops.

The statistical information constantly asked for, both within and without the State, enters in no small degree in the day's routine, and some of it requires careful attention. The agricultural side of the Department's work is daily broadening, and is of totally a different class from that done at Clemson College and the experimental station, with both of which the cordial and co-operative relations that have always existed are maintained. There is not the merest suggestion of encroachment by this Department upon the functions of any other department or institution, not even in transportation, for in this matter the work of the Department does not relate to railroads, but to waterways and transportation beyond the borders of the State.

The new agricultural labor contract law seems to be working satisfactorily and no serious difficulties have arisen during the year from that source.

There is considerable diversity of opinion in regard to the lien law. It seems to have served the purpose for which it was designed and its repeal would doubtless soon prove beneficial to the mass of the agricultural population of the State.

There is a pressing need throughout South Carolina for at least three agricultural high schools, serving the respective agricultural



ONE OF THE FIELDS OF CORN IN THE 1908 CONTEST.

sections, upon the same plan that the State of Iowa is now establishing them. Our State is sadly in need of agricultural education in the common schools from the eighth grade upward. I have given great study and much investigation to the subject of agricultural education abroad and in Canada and have consulted with many patriotic men interested, and, as a result, herewith I present a tentative plan which I trust will receive most careful consideration. The effort has been made to evolve a plan carrying a minimum of cost, yet giving a substantial education to the boy unable to go on to college, or if he be able to do so, fitting him properly for our splendid Clemson College. I offer to the proper committee any information I possess, and can have appear before the committee several men of wide experience with agricultural high schools.

In the matter of the commerce of the State, there has been no abatement in the efforts that were early begun to open up the port of Charleston to regular trans-Atlantic passenger and freight service. Negotiations that were pending to this end when my last report was filed failed chiefly because of the financial panic that swept the country. There is an effort now on foot, however, carrying with it the opportunity for the cotton producer and the European spinner to deal directly with one another, which promises success. It is fully set forth in the section of this report dealing with the commerce of the State.

The coming of the Carolina, Clinchfield & Ohio Railroad across the mountains from the coal fields to Spartanburg on easy grades promises to put cheap coal on the South Atlantic seaboard and make Charleston a great coaling station, thus removing one of the chief barriers heretofore encountered and realizing the repeated efforts in this direction made by our own illustrious Hayne.

The condition of our coastwise and river transportation facilities, which have been carefully watched, is fully stated elsewhere.

Improvements on the rivers and harbors have been continued by the Federal Government. Great interest in water transportation has been aroused throughout the State and at each Georgetown and Columbia a waterway congress has held sessions. Mr. John A. Fox, of the National Rivers and Harbors Association, visited during the year all the points in South Carolina interested in water transportation, and this State is lending its full support to the effort to secure suitable appropriations from Congress.

Through the efforts of this Department two General Good Roads Congresses in the South, this fall, have passed resolutions calling

upon Congress, under the post roads clause of the Federal Constitution, to make substantial appropriations towards the construction and maintenance of good roads in the Southern States. In the meantime, good road building has been going forward steadily in many of the counties of South Carolina, with marked beneficial results.

As directed by the General Assembly by resolution, I have investigated the practicability of connecting eastern South Carolina with Columbia and the upper portion of the State by means of the reopening of formerly used ferries or by bridges, an end much to be desired, and the special report in regard thereto, with recommendations, is appended. There is also appended a special report on the Great August Floods of this year, as they relate to this matter as well as to our agriculture.

The condition of manufacturing has greatly improved during 1908. Cotton manufacturing continues to grow in the State, the number of the spindles and looms is greater, and the general condition far more satisfactory than it was a year ago.

There is a demand for a proper factory inspection by the State, and for a law charging some one specifically with the enforcement of laws that are already upon the statute books. In order to be fully posted in regard to modern factory inspection systems, your Commissioner attended the sessions of the International Association of Factory Inspectors at Toronto, Canada, in June, and obtained much valuable data at first hand from those of long experience. Our Act creating this Department seems to give the Commissioner power to secure information from factories and stops there. An additional new Act increasing his powers and providing for an assistant who should be Field Inspector of Factories, might afford a solution of the matter at a minimum of cost. The Commissioner should be enabled through such an assistant also to make a proper report as to factory conditions, annually.

In the mineral field during the year a large and exceedingly valuable deposit of shale particularly adapted to the manufacture of vitrified brick of unusual strength has been discovered, and a company has been formed for the fullest development of the property.

The Department is assisting at present in a systematic effort to bring about the development of a new industry in the State by the utilization of South Carolina kaolin clays for artistic ceramic purposes.

Mining operations on various lines have been gradually developing and several new enterprises have been launched during the year.

For support of the Department for the year 1909 my recommendations, as is seen elsewhere, ask for the maintenance of the clerical force of the Department as at present constituted, for the placing of the chief clerk, in the matter of salary, on a parity with other departmental clerks, for the same contingent fund as this year (the 1908 appropriation being \$6,000 less than for 1907, at the end of which year \$2,500 was left in the treasury unused), and omit altogether the \$3,000 item for publication of the "Handbook." In other words, considerably over \$2,000 less than was allowed in 1908 is recommended for 1909.

If my suggestions as to an assistant who shall be a factory inspector be adopted, that will, of course, be an extra for salary and traveling expenses alone, and even then not increase the total appropriation to as much as, or certainly not more than, for the year 1908.

The Department is badly in need of a display of the resources of the State. This need in 1907 led to the Department getting up the ground work display material for the State exhibit at the Jamestown Exposition. Since the exposition all this material which was taken from the control of the Department has been locked up, pending the completion of the State Building at the State Fair Grounds, in the old dispensary buildings, where it still is. This building has been completed, but the exhibit is still inaccessible. The need for its use by this Department, particularly with prospective investors in mineral properties, is daily felt, as it contains specimens of minerals listed with the Department. The Commissioner should be given power of supervision over this property.

This report, read in connection with matter contained in the 1908 "Permanent Handbook of the Resources of the State," I hope will give some idea of the wide scope of the work in this Department, and convince many of those who have been pleased to think of the Department as having nothing to do but handle immigrants, that it is attempting to and is in a measure at least filling perhaps the broadest field of public endeavor of any one similar department of any State in this country, with what result to the welfare of the Commonwealth time alone can show.

In the brief four and one-half years' existence of the Department, considering the exactions, obstacles to be overcome, losses of practically two months of the most valuable period of each year—an aggregate of eight months—by reasons of bills to "abolish," only acted upon late in legislative sessions, your Commissioner feels that

he has done his full duty to the State and posterity in the time allotted, and believes that a harvest will be reaped in the next decade from the high plane manner in which South Carolina and her resources have been brought to the attention of the world, that will make her a far greater State than the fondest dreams ever pictured her. The Department has given to the State that which it is hoped will be of enduring value—the large reference handbook of the State—the merits of which I leave to your estimation. If it has done only this, and advertised the State in the manner in which it has attempted to do, and upon the plane set as its standard, it has perhaps been worth the paltry sum that has been expended upon it.

The need for the maintenance and enlargement of the Department upon the identical lines upon which it was constructed, which embraced the best features of all existing laws, is of more vital importance to the welfare of the State at this time than ever.

RECOMMENDATIONS.

The General Assembly, since establishment of this Department, has almost invariably given consideration to the recommendations of this Department, and it has been in appreciation of this fact, and with the view to the maintenance of the Department with the smallest possible expense, that expenditure has been carefully safe-guarded and amounts returned to the treasury when possible. It is with some hesitancy that I at any time venture to make recommendations, but as a public duty I present such matters as I deem of greatest importance to the material interests of the commonwealth, in the light of experience and knowledge of existing conditions.

With this in mind, I recommend:

1. That the office force be maintained as during 1908, except that in the matter of salary the chief clerk be placed on a parity with other departmental clerks.
2. That the contingent fund be the same as in 1908.
3. That the usual appropriation of \$500 for the State cereal growing contest be made for 1909.
4. That some permanent quarters, preferably in the State Capitol, be provided for the Department, the moving of the effects of the Department twice a year, owing to the continued accumulation of records, having become dangerous; that provision be made for rent during the two months of the year that the General Assembly is in session.

5. That the provision of the present Act creating this Department, as affecting the question of immigration, be continued without change for the reason that they have been passed upon by the authorities in Washington, and while they may never be used again for the purpose of inducing immigration, the powers given your Department should be maintained as a measure of protection against a possible influx of undesirable immigration.

6. That, as I recommended in 1907, and again in 1908, the scope and powers of this Department be enlarged by means of an additional Act looking to the question of labor statistics and protection of native labor, devolving this additional duty upon the Department with sufficient help to execute; that to this end, as pointed out in the introductory portion of this report, the Act referred to should give the Commissioner full powers of factory inspection and of the enforcement of existing laws relating to labor and manufacturing, and that a clerk, to be known as Factory Inspector, be attached to the Department, whose operations should be under the direction of the Commissioner.

7. That, as I have earnestly urged in the past reports, such steps as appear feasible be taken looking to provision for primary and secondary agricultural education than which nothing is more important at this period of the State's material development; that at least three agricultural high schools are badly needed covering the different sections of the State to fill a gap existing in our educational system between the rural school and Clemson College. In this connection, I respectfully call attention to the tentative plan embodied in this report.

8. That the Commissioner of Agriculture, Commerce and Immigration, by special Act, be endowed with the power of supervision over the State exhibit property.

9. That I again respectfully call attention to the crying necessity for the enactment of a law requiring a registration of births and deaths.

10. That I call your particular attention also to what is said in the Federal reports, incorporated herein, as to State assistance in the matter of farm demonstration work, work of the dairy division and in cattle tick eradication.

FINANCIAL.

The amount appropriated at the last session of the General Assembly for the contingent fund, or general expense account of this Department, was \$4,000, the Department having left in the State treasury unexpended something over \$2,000 of the \$10,000 appropriated during the preceding year. There have been no abnormal expenditures during the year save livery and travel accounts, which have been made necessary in many instances by the visits of such bodies as the Federal Immigration Commission, parties of prospectors and such events as the August floods. The Department ends the year with an even balance of its contingent fund appropriation, the itemized statement of expenses being attached at the end of this report.

The Department has also had in charge the expenditure of the appropriation for the preparation and printing of the Permanent Handbook of the Resources of the State, the expenditure of the 1907 and 1908 appropriations, the latter being \$3,000 for additional copies.

At the last meeting of the General Assembly only some slight expenditures, some \$1,276.29 incident to the cost of preparation of the work had been made. Appended to this report will be found the itemized accounts of the expenditures made during the year 1908, closing the account entirely. In this regard I wish to call to your attention the fact that expenses of preparation, illustration, etc., was somewhat larger than was expected and in the meantime the cost of paper and printers' supplies continued to rise materially, causing the publishers to request me to call to your attention the fact that the publication of the entire two editions has actually cost them an amount exceeding by \$600.00 what has been provided for. I would recommend that this additional sum be provided for in this year's appropriation bill, if the character of the book and of the work seem to the committee to warrant it. I trust I might be pardoned for calling your attention to the fact that the total cost of this 615-page volume, covering the three-year period of its preparation and compilation, printing and binding, has been only \$9,000 for 6,000 copies, with additional reprints of sections, as against a total cost of \$12,583.61 for 5,000 copies of the paper-bound Handbook of the State, issued in 1882.

The appropriation of \$500 made for the conduct of the State cereal contest for 1908 is carried unexpended as the commission has not, up to this date, been able to grade the reports of the contestants and award the prizes.

The \$500 appropriation in 1907 to the cereal contest, during that year was left in the treasury unused as the conditions did not, in the opinion of the commission during that year, warrant the utilization of the appropriation.

QUARTERS.

The Department has, from its very creation, been most severely pressed for sufficient quarters in which to conduct the business of the office, which has steadily grown. It has been necessary each year, prior to the meeting of the General Assembly, to move the entire equipment from the room of the Senate Committee on Agriculture in the Capitol to the National Loan & Exchange Bank building. This move causes much loss of valuable time, affords visitors to the State and to the city, having business with the Department, much inconvenience, and is a continual menace, owing to the accumulation of valuable records of the office. The difficulties and delays encountered most seriously hamper, in fact almost cause an utter abandonment of statistical work of all kinds. I merely wish to direct attention to what I have said elsewhere in this report in this regard.

CLERICAL FORCE.

The clerical force of the office has been, from the establishment of the Department, inadequate to meet the demand made upon the office for information of every description from all parts of this and other States. The office force, as at present constituted, is an exceedingly efficient one, but longer hours are required in the office than in probably any other department of the State government. Mr. J. D. Dial remains with the Department as chief clerk; Capt. W. W. Miller, formerly in the United States service in the Northwest, was appointed during the year to the statistical clerkship, and Miss Sarah J. Cunningham, who served the Department from its foundation with rare fidelity and efficiency, having resigned her position during the summer, on July 1, Miss Emma C. Killian was appointed as her successor. I cannot too highly commend the faithful and excellent services rendered at all times by the office force. With the force during the year, valuable statistical information and information upon many other lines has been gathered, collated and furnished to the people.

TRANSPORTATION.

Under the Act of the General Assembly permitting the Commissioner to accept free transportation from the railroads and steamship lines operated in the State, all of these companies have met the spirit of the Act. However, under the Federal law, it is impossible to utilize transportation of this character except entirely within the borders of the State, and it cannot even be used from the initial point in the State if the State line is to be crossed. This new Federal law has, therefore, considerably increased the transportation expenses.

During the summer of this year the railway lines operating in the South succeeded, after some years of continuous effort, in getting an arrangement with connecting lines whereby homeseekers' rates into the South Atlantic States have been established. This was an end that was much desired and it has resulted in the entrance into this State of numbers of people from the Middle West and Northwest sections of the United States, examining and looking over properties for themselves, with the intention this winter and spring of moving to the State to make their future homes.

Continued cheap rates prevail from the agricultural sections of England and Germany.

There has been considerable improvement in the matter of rates both by water and rail from the Eastern States.

LITERATURE.

A thorough advertising campaign has been conducted during 1908 for the first time since the creation of the Department for the reason that up to this year the Department has not had literature giving complete and detailed information in regard to the resources of the State. During the last session of the General Assembly a portion of the first edition of 2,000 copies of the Handbook was delivered by the printers, and the demand for this work was so great that by early fall the entire edition had been exhausted. In the meantime, the Department undertook a complete revision of the work, bringing all statistical information up to August 31, 1908, and added an appendix giving considerable other additional information that had not been contained in the original volume. The first copy of this edition of 4,000 was received by the Department on September 5, and the demand is as great or greater than for the first edition. In the meantime, the Department hastened, utilizing some of

the figures that had been gathered, to issue its booklet entitled "List of Available Properties," with statistical information as an appendix, and 3,000 copies of this work were delivered on July 22. During the year several other publications were issued on various subjects, being widely distributed, and a large 1908 map showing the new county of Calhoun, as well as a small map, were issued. The Department also issued a very large 1908 edition of the booklet entitled "South Carolina—Her Resources Epitomized," with which the East and Northwest have been fully supplied. The Department has also issued regularly, at stated periods, carefully prepared and uniformly accurate reports on the condition of growing crops of the State, the first report being issued on June 16. During the year many hundreds of copies of the publication entitled "Cotton Mills in South Carolina" were sent out. The Department has rendered assistance also in distributing such publications as the annual reports of the proceedings of the State Live Stock Association and such organizations. Every possible opportunity to avail ourselves of any reliable means for the advancement of the resources of the State has been seized. The Department has prepared and furnished a large number of special articles for different magazines and journals, and in public addresses your Commissioner has in all parts of the country used his every endeavor to properly present to the world the facts about our Commonwealth. In addition to this, many hundreds of personal letters, some at great length, have been written to prospective investors in all parts of the country, making very specific inquiries. The Department, up to the present time, has issued upward of fifty official publications, the standing of which among the departments of other States and other governments is gratifyingly high.

AGRICULTURE.

In the general portion of this report, and in the section relating to agriculture, I have endeavored to reflect, as far as possible, the accomplishments of the year in this particular branch of the Department's work. The record of the year has been most gratifying. I cannot pass over a reference to agriculture, however, without complimenting the representatives of the United States Farm Demonstration Work, who have labored in such close co-operation with me during the year. Dr. D. N. Barrow, at present director of the Department of Agriculture at Clemson College, who was in charge of this work upon its inauguration in this State, was called to the

Washington office in January last, and Mr. J. P. Campbell was sent to South Carolina to succeed him. Mr. Campbell's work was so efficient and so effective that he likewise was called to the Washington office, and Prof. Ira W. Williams was sent to succeed him during the summer. Prof. Williams is at present doing an admirable work in all parts of the State. When the office of Farm Management inaugurated its practical work in South Carolina—the first State to receive it, by the way—Dr. C. L. Goodrich, of the Washington office, was sent to this State, arriving on July 21. He has spent the remainder of the year almost continuously in the State, getting his valuable work well under way. Prof. Goodrich is one of the ablest and most earnest practical workers with whom it has been the pleasure of this Department to labor.

During the spring Lieutenant Burde, of Germany, arrived and spent the summer on a farm in South Carolina for the specific purpose of studying South Carolina cotton with an ultimate view of its utilization by the cotton manufacturing plants of his country on direct exportation. He returned to his home during the fall with the expectation of again coming to South Carolina in 1909.

FORESTRY.

I beg leave to repeat the following contained in my last annual report:

“Nothing is of more importance at this time in South Carolina than the forestry of the State, and steps should be taken looking to its conservation and preservation upon intelligent lines by the State. This Department has had occasion to do with matters relating to the results of deforestation in the Appalachian Mountain Range, and unhesitatingly endorses any step that might be taken looking to the preservation of the forests of South Carolina. It may be years, no matter what action be taken, before anything material can be accomplished, but now is the time to make the start, enabling the State to invoke Federal aid in so important an undertaking. South Carolina's forestry demands governmental attention.”

No intelligent merchant would do business without at times taking stock. South Carolina does not know what her forest resources are.

Are they being used up too rapidly and wastefully, or are they inexhaustible?

What is the annual drain upon the forests of the State?

These are pertinent questions and such questions as a practical business man should ask.

We know nothing definite about our forest resources. The best we can do is to estimate roughly. Such rough estimates indicate that the forests of the State constitute a great source of wealth to the State and to the people.

There are 19,000,000 acres in South Carolina, 13,120,000 of which, or 68 per cent., comprise the wooded area. Of this, 454,785 acres are owned by lumbermen, giving 1,998,200,000 feet of estimated timber so owned. South Carolina's total cut of lumber in the last 27 years has been 9,115,000,000 feet. The total cut in 1907 was 649,058,000 feet board measure, as against 466,109,000 feet in 1900. An average of 4,000 feet of lumber per acre would give 52,000,000,000 as the amount of standing timber in the State. At \$15.00 per thousand, this timber is worth the enormous sum of \$780,000,000. Property of this value is worth looking after.

Estimates by experts show that the annual growth on an acre is 60 to 100 feet. The 13,000,000 acres of wooded land in the State, therefore, grows 1,300,000 feet lumber every year, which at \$15.00 per thousand, is worth \$19,500,000. By the practice of better methods this amount can be greatly increased. In Prussia between 1830 and 1905, by the application of scientific forest methods, the annual cut was increased 25 per cent. In Saxony between the years of 1820 and 1890, by careful treatment of the forests, the annual cut was increased 50 per cent. and by 1904 it was again increased by 5 per cent. more.

A 50 per cent. increase over the present productiveness of the forests of South Carolina would mean \$9,750,000 in the pockets of the people of the State.

These figures are based on present prices of lumber; but the price of lumber is rising rapidly. White pine in the New York market was worth in 1880 \$45.00 per thousand; in 1895, \$47.00; in 1900, \$57.00; in 1905, \$82.50; in 1907, \$87.00, or in 27 years an increase of 88 per cent.

In the past year or two New York and Pennsylvania have made conspicuous advances in regard to forestry, and there are now 21 States, including Louisiana and Maryland, who have State officers charged with the care of the forest interests. Maryland's law providing for a State Forester was passed in 1905.

IMMIGRATION.

This subject has been so thoroughly treated in the general portion of this report above that I feel it scarcely necessary to say more than will be found in a detailed way in the section dealing with immigration. The present is an abnormal period in the history of American immigration, practically as many leaving the United States as are arriving, and this branch of the work has given the Department practically no trouble during the year 1908.

COMMERCE.

Attention is particularly directed to the section of this report dealing with the commerce of the State and with the general industrial advancement. The matter is dealt with fully and I trust in a manner that may prove of some value.

MEETINGS AND GATHERINGS.

Your Commissioner or representatives of this State have been present and participated in practically all of the large conventions and gatherings of any possible concern to the State during the year 1908.

During the summer a large number of farmers' meetings were held in all parts of the State, the head of this Department as often as possible assisting the authorities from Clemson College and the United States officials at work in South Carolina in the conduct of these gatherings. A State meeting of all interests was held in Columbia during the State Fair in November which was prolific of good results.

Commencing in August upon the Gonzales farm, near Columbia, practical farm management work was inaugurated by the Federal government, and your Department conducted in connection therewith monthly meetings upon the farm, to which all those interested were invited.

I.—AGRICULTURE.

South Carolina's advance upon agricultural lines during 1908, notwithstanding the credit system and the large percentage of farming operations conducted by negroes, has been more marked than it was during the preceding year. A renewed interest in farming resulting from the stimulating influences already pointed out, the practical demonstration that better money results could be obtained, and a

ceaseless agitation have combined to bring about this desirable result. There has been a marked tendency toward diversification and the raising of more home supplies, and it is a matter of regret that the actual results in stock raising cannot be shown. Corn growing has been stimulated until the acreage is now almost up to the cotton acreage. The most conspicuous advance is in the corn crop, which is over \$3,250,000 in value increase over 1907, and this following the \$6,000,000 increase in 1907 over 1906, making an increase in two years of nearly \$10,000,000, the total value in 1906 of the entire crop being only seventeen and one-fourth million dollars. In seven crops—corn, wheat, hay, tobacco, oats, Irish potatoes and rye, the value of which for the Southern States is \$789,613,561, an increase over 1900 of \$362,168,519 and over 1907 of \$95,505,561, South Carolina has produced marketable quantities this year worth \$37,860,500, \$3,546,500 more than in 1907, and \$12,334,494 more than in 1906. These figures are upon the basis of the Federal Government's estimated yield of 14.1 bushels of corn per acre in 1908, against 15.1 for the year 1907, which figure has been challenged by this department, as stated elsewhere—a figure that should be between 17 and 18 at least. If the yield per acre of 1907 (15.1) only were considered, \$1,886,430 would have to be added to this year's total value, making these seven crops worth on the market the handsome total of \$39,746,930, or an increase of \$5,432,930 over the year 1907.

These figures do not take into account the cotton crop, the rice crop, and the truck crop, or the wool cut, the value of dairy products, live stock and all such allied industries.

The aggregate value of the 1907 cotton crop, including Sea Island and cotton seed, was \$72,657,817. The bumper crop in the State's history has probably been raised this year, and allowing for the decrease in prices it will probably not be less in aggregate value than in 1907. The truck crop is worth perhaps \$5,500,000, and the rice crop \$508,800.

Adding these to the seven crops already enumerated, the market value of South Carolina's strictly agricultural crops for 1908 is approximately \$118,354,930. If the corn crop has averaged 17 bushels to the acre nearly four million dollars could be added to this amount.

It is noteworthy that the principal increase in acreage this year over 1907 was in corn; the actual increase being 99,000, while in cotton, the next, the increase was 37,000. Oats ranked third in point

of increase with 6,000 acres, tobacco fourth with 5,700, and hay next with 4,000. The total acreage of the State was increased 153,853 acres over 1907, and is larger than in 1900 by 713,937 acres.

There has been maintained the percentages of increase in acreage, production and value which were so marked between 1900 and 1906 as shown in my last annual report as follows :

PERCENTAGE OF INCREASE BETWEEN 1900 AND 1906.

	Acreage.	Production.	Value.
Cotton	5.9%	19%	23%
Corn	9.3%	35%	88%
Wheat . . . . .	.83 %	191%	234%
Oats	14 %*	32%	64%
Rye	5.9%	70%	131%
Potatoes	11 %	14%	132%

Invariably the percentages of increase for production and value of product have exceeded the percentage of increase of acreage, and each day the doctrine of larger yields per acre is being preached and accepted.

It is a most significant fact that, even on the Federal figures, the production of corn should have been increased this year by \$3,349,000 value over 1907, and that, too, following an increase of \$6,012,800 in 1907 over 1906.

It speaks well for the work done in the last three years and for the effect that the small sum of money the State has spent on cereal growing contests has had.

But the comparative figures for all the crops dealt with speak best for themselves :

SOUTH CAROLINA CROP ACREAGE.

	1900.	1907.	1908.	Increase Over 1907.
Corn	1,772,057	1,974,000	2,073,000	99,000
Wheat	174,245	314,000	315,000	1,000
Oats	222,544	195,000	201,000	6,000
Barley	281	.....	253	253
Rye	4,256	4,000	4,000	.....
Potatoes	8,068	9,000	9,000	.....

*Decrease in acreage.

	1900.	1907.	1908.	Increase Over 1907.
Hay..	106,124	61,000	65,000	4,000
Cotton..	2,074,081	2,426,000	2,463,000	37,000
Tobacco..	25,993	23,300	9,000	5,700
Rice..	77,657	19,100	20,000	900
	<hr/>	<hr/>	<hr/>	<hr/>
	4,465,316	5,025,400	5,179,253	153,853

PRODUCTION.

	1906.	1907.	1908.
Corn (bushels)	23,611,233	29,807,000	29,229,000
Hay (tons)	88,596	92,000	81,000
Wheat (bushels)	2,960,041	2,669,000	2,835,000
Oats (bushels)	3,538,292	3,900,000	4,020,000
Tobacco (pounds)	8,978,000	20,070,000	25,085,000
Irish Potatoes (bushels)	743,330	630,000	729,000
Rye (bushels)	34,128	38,000	38,000
Rice (bushels)	418,792	516,000	480,000

VALUE.

	1906.	1907.	1908.
Corn	\$17,236,200	\$23,249,000	\$26,598,000
Hay	1,351,089	1,518,000	1,199,000
Wheat	3,256,045	3,203,000	3,686,000
Oats	2,016,826	2,808,000	3,015,000
Tobacco	942,690	2,795,000	2,508,500
Irish Potatoes	780,496	693,000	802,000
Rye	42,660	48,000	52,000
Rice	418,792	.....	508,800

YIELD PER ACRE.

	S. C. 1906.	S. C. 1907.	S. C. 1908.	U. S. 1908.
Corn (bushels)	8.91	15.1	14.1	26.2
Wheat (bushels)	10.23	8.05	9.0	14.4
Oats (bushels)	10.54	20.0	20.0	25.0
Potatoes (bushels)	86.10	70.	81.0	85.7
Tobacco (pounds) . . . . .	.670.	900.	865.0	820.2
Rye (bushels)	8.5	....	9.6	16.4
Hay (tons)	1.46	....	1.25	1.52
Rice (bushels)	22	....	24.0	33.4

TRUCKING.

Heretofore I have devoted considerable attention in the annual reports to the trucking industry, but owing to the fact that the trucking industry's year ends on July 1st, making it extremely difficult to get accurate reports, a special bulletin for the 1907-1908 season will be issued. Though the early season of 1907 was not as good as some seasons in recent years, this industry on the coast now ranks as one of the most profitable of all our crops. More extensive operations are being planned and executed in all three of the districts—Charleston, Beaufort and Horry, and this Department is encouraging the starting of truck growing in the vicinity of interior cities and towns. The acreage in the trucking districts alone at this time is over 30,000.

Assistance is now being given the Southern Railway in the matter of a proposed development of this industry along its lines in the interior. The value of the truck now annually raised in the county of Charleston alone is worth approximately \$4,000,000; and the individual growers are becoming prosperous.

RICE.

For several years past, since the wonderful development of the rice growing industry on the lower Mississippi in Louisiana, it has been generally believed that the South Carolina industry was doomed to annihilation. While the industry suffered severely, and was in languishing condition for a time, it now seems there has been a gratifying rehabilitation.

The Department received from Mr. Samuel G. Stoney, one of the leading members of the Historic Agricultural Society of South Carolina, and one of the leading rice millers of Charleston, an interesting report which is incorporated. Mr. Stoney gives the following interesting information:

"I am glad to say that the industry is looking up, and is in better shape than it has been for years, and that an additional acreage will be planted this year; also, that more inquiry has developed of late for rice lands than we have had for several years. The great fear of competition from the Gulf Coast, which has existed for several years past, has now abated, and the people of the rice raising sections along the Atlantic Coast feel more confident than ever of the future for 'Carolina rices.' Labor is now more abundant, and will become more available as the lumber people finish up their lumbering work along our lower section of coast. The introduction and utilization

of improved machinery is now making considerable headway, and we feel confident that there is every reason for encouragement all along this line. There are still many abandoned fields throughout the lower Carolina section and Georgia, and there is no more inviting investment for capitalists that we know of at this time than the embarkation into thorough and extensive rice planting.

"As you know, 'Carolina rice' stands at the head of the list of all the rice produced in the world, and the demand for this grade of rice is increasing steadily throughout the United States. The reputation of this rice is so world wide, that I made shipments to several parties in Calcutta, India, last season, of choice Carolina Gold Seed, and one of our merchants has been making shipments recently to the Continent of the finished produce, notwithstanding the strong competition from Oriental rice growers.

"The rice planters have recently organized a very strong association along the Atlantic Coast, and are now taking active steps towards the further development and protection of this important industry. I feel confident that I have only to call your attention to this important matter to win your hearty and earnest co-operation in the further development of one of the greatest industries along our coast. I shall be pleased at all times to furnish you all the information that I can obtain on this important matter, or any other connected with the agricultural development of our coastal section.

COAST EXPERIMENT STATION.

"The Coast Experiment Station recently established by Clemson College near Summerville, is attracting much attention throughout this section, and the South Carolina Agricultural Society of Charleston are giving their hearty aid and co-operation in this work. I shall be glad to have you visit this station at any time, and note how much has already been done, and examine into the plans for the future development of same."

THE FUTURE.

Recently Mr. Charles E. Chambliss, formerly State Entomologist of South Carolina, who had made careful investigations and studies for several years in the rice fields of this State, was called to Washington and made the "Rice Expert" of the United States Bureau of Plant Industry. Recently conferences were held in Washington looking to active co-operative work in the South Carolina territory,

and it is expected that much will be accomplished during this year for the rehabilitation of the industry.

In 1908, 20,000 acres were planted in rice, and the yield was 480,000 bushels, which brought to the planters \$508,800.

TOBACCO GROWING.

The revival of the tobacco growing industry which came during 1907 with a yield of 20,070,000 pounds, upon an acreage of 23,300 acres, continues, and the largest crop on record has been raised in 1908 on 29,000 acres. The United States Government's report gives the 1908 crop at 25,085,000 pounds. The crop went on the market at an average price of 10 cents per pound, making the total value \$2,508,500.

Of the crop 75 per cent. is bought by the American Tobacco Company and the Imperial Company; the former's grades consist of cigarette and granulators (for smoking) and wrappers for American trade. The latter company's grades consist of cigarette and plug cut tobaccos, which are all shipped to England.

There is a very small per cent. of twist and plug tobaccos grown in this State. We have about 20 per cent. of a crop of semi-bright strips that are shipped to European markets, mainly to England, by independent buyers. The remaining 5 per cent. of the crop consists of scrap tobaccos that are manufactured by the American trade into smoking tobaccos. The independents buy from 10 to 15 per cent. of the crop of wrappers for American trade, and these are principally shipped West.

All our tobaccos are manufactured in Virginia and the West; what per cent. of our grades and kinds goes into the different output it is impossible to say.

COMMERCIAL FERTILIZERS.

The use of commercial fertilizers has increased to an alarming extent, if such use is to be judged by the amount of tax tags bought during the fertilizer year. In 1900 the amount used was but a little over one-third of what it is to-day, and this State's present rate of consumption is far greater than any of the more prosperous agricultural States, explaining why this Department is aiding in every way to hasten the utilization of the winter leguminous crops and development of the live stock industry. This year's sale of tags represents a total value of \$15,715,041 of fertilizers and cotton seed meal.

The number of tons and average price of both fertilizers and cotton seed meal sold in South Carolina during the year from July 1, 1907, to June 30, 1908, as indicated by sales of tax tags (our year closes with the 30th of June, and consequently these are the latest possible figures. It is impossible to differentiate the acid phosphate and kainit, as the tags sold are used alternately for these ingredients, as well as for complete fertilizers), are as follows:

Tons fertilizers sold, 565,666; average price per ton. . . . \$22.50

Tons cotton seed meal sold, 114,906; average price per ton. . . 26.00

When we include nitrate of soda, muriate and sulphate potash at \$50 per ton, Peruvian and other high grade guanos at from \$25 to \$30 per ton, the above average price of \$22.50 is not above the average price, but rather below; \$26 per ton is about a fair average price for cotton seed meal of the usual percentage.

COTTON IN 1907.

Since the last report, the details of South Carolina's 1907 cotton crop has been received. The crop was 1,186,672 running bales, equivalent to 1,142,244 500-pound bales, including linters, or 1,119,220 bales, excluding linters. The Sea Island crop amounted to 13,247 bales and the linters were 23,107 bales. The South Carolina crop was 10 per cent. of the total crop of the United States, and South Carolina took fourth place in rank as a cotton-producing State, advancing from the eighth position, the other ranking States being Texas, Georgia and Mississippi, in the order named. The two Carolinas and Georgia produced 31.8 per cent. of the entire crop of the country, against 27.7 per cent. in 1904.

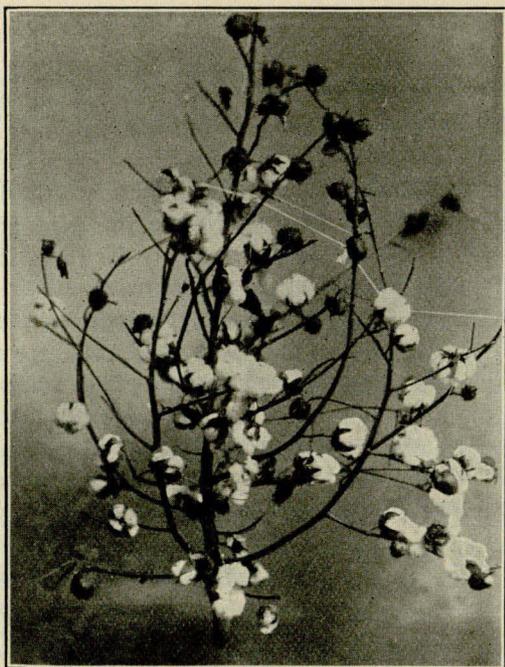
The average weight per bale was 481.3, including linters; the square bale 482.4 pounds, and the Sea Island bale, 355.8 pounds. In pounds, the aggregate of lint cotton produced was 571,121,984, including Sea Island and linters; there were 4,712,666 pounds of Sea Island.

Sea Island cotton was grown in only four counties on 23,902 acres, and this State's crop was sold at an average price of 35.59 cents per pound, that for Georgia and Florida averaging 24.27.

The average value of the seed crushed from the crop of 1907 was \$17.63 per ton, compared with \$13.76 for 1906, and \$14.91 for 1905.

The aggregate value of the State's cotton crop, including Sea Island and the cotton seed was \$72,657,817, against \$49,888,619 in 1906. There were 408,633 tons of seed, which sold for \$10,336,662.

The crop was made ready for the market by 3,192 ginneries.



NO. 1. "PRIDE OF GEORGIA."
Improved by Selections.



NO. 2. HYBRID. SEA ISLAND—UPLAND.

The total acreage was 2,426,000, which was the largest the State ever had save in 1904 when it was 2,531,875, and resulted in the making of the record crop in that year. Anderson County led in production, with 65,182 bales, Spartanburg being a close second.

COTTON IN 1908.

This year the acreage has been increased by 37,000 acres. The Department's estimate, allowing for weather conditions, had been, early in November, 1,098,500 bales; but the season became better, and by December 15th there had been 1,130,000 bales ginned, and the latest estimate issued indicates a crop of 1,226,000 bales, which if that figure is reached will break the record made in 1904. The Sea Island crop promises to be about the same as in 1907.

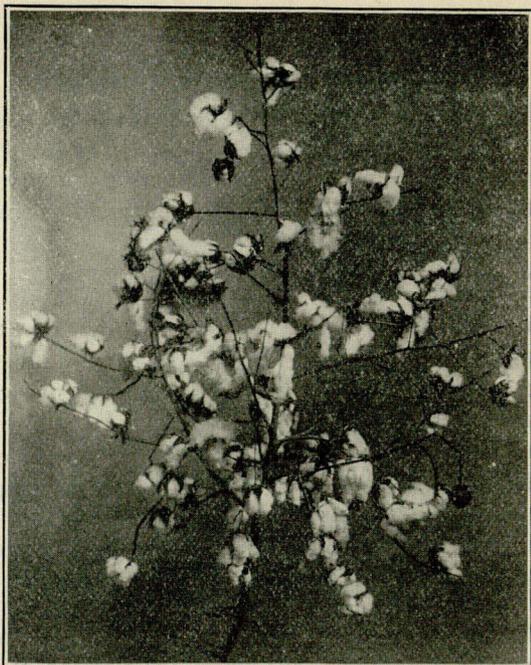
COTTON HYBRIDIZATION.

The experiments that the United States Bureau of Plant Industry has been conducting for some time on the farm of Mr. R. C. Keenan, near Columbia, in the matter of fixing types and improving staple of cotton by hybridization, are now bearing substantial results. Several of the developed varieties have been used generally in different parts of this State this year, and some of the production (No. 3. illustration) has brought 22 cents per pound on the market. The types this season have been even better than the year preceding.

Herewith are presented illustrations of the five plants—sixth generation—with which the Department won, for Mr. Keenan, the silver medal at the Jamestown Exposition. No. 1, a very early plant, has uniformly one-inch staple; No. 2, the foundation being "Klondyke," is full one and three-eighths-inch staple; No. 3, now being generally planted in South Carolina and in Texas, with foundation of "Russell Big Boll" upland (staple of seven-eighths-inch), shows a staple of one and three-eighths-inch; No. 4, which has done well in this State and in Texas, shows one and one-fourth-inch staple; and No. 5 is full one and three-eighths-inch staple, its foundation being the "Klondyke."

IMPROVED SEED.

With a view to stimulating seed, the Department this year secured a quantity of most carefully selected seed of various varieties, and distributed them among farmers who had indicated a desire to give

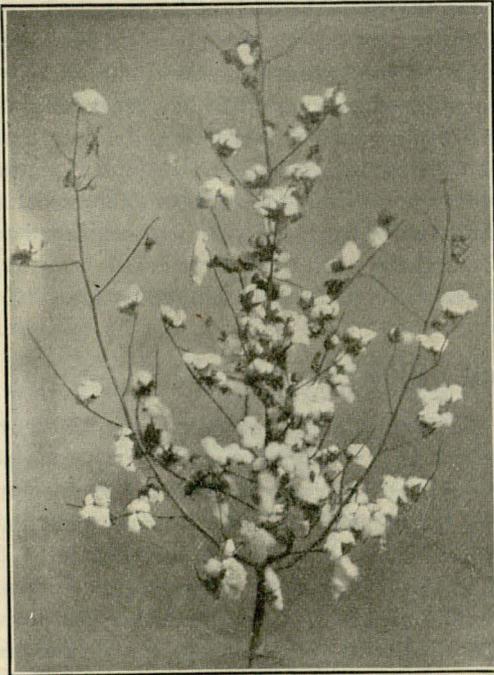


NO. 3. "COLUMBIA."
Improved by Seed Selections.



NO. 4. "KEENAN."
Improved by Selections.

attention to seed selection. Only small quantities were given individuals, they in each instance agreeing to carefully safeguard the cotton, and select the seed for the use of themselves and their neighbors in the season of 1909. This has been generally done. Among the varieties distributed were Russell Big Boll, Cook's, Toole's, Columbia Long Staple.



NO. 5. HYBRID. SEA ISLAND—UPLAND.

COTTON PICKER.

During the year Mr. R. S. Wheeler, of Springfield, invented a cotton-picking machine, and at the request of the inventor the machine was given a test in a cotton field near Columbia on November 25th. While the machinery is yet crude and not perfected, the principle upon which it works is apparently the most promising that has yet been evolved.

DRAINAGE.

The question of drainage of the wet lands of the coastal section of the State continues to be a vital one, both from the standpoint of

health conditions and reclamation of lands for agricultural purposes. There are in the State 3,116,800 acres of swamp and wet lands that could be reclaimed at a reasonable expense. This Department has year after year been calling the attention of the General Assembly to this most important matter, and has urged the State to pass an Act creating a State Drainage Commission, and placing the expense of the drainage upon the lands themselves, by means of a small continuing tax for the retirement of long-term bonds. Such a plan has been successfully operated in several of the Western States without waiting for Federal aid, which this office has repeatedly assisted in invoking. The draft of such a measure providing for drainage in large units is on file in this office. The Federal Government has assisted during the year in drainage surveys. The Charleston County Drainage Commission during the year has continued to accomplish splendid results, and the work done there is still being regarded as an object-lesson to other sections of the United States.

THE FARMERS' UNION.

The State Farmers' Union has grown steadily during 1908 in membership as well as in influence for good. The non-political meetings held by the union in all parts of the State are proving one of the agencies making for the improvement of farming methods and conditions. The union has established a weekly journal, "The Farmers' Union Sun," and this Department has aided this enterprise in every way possible. The union has now established its permanent headquarters in Columbia, and the secretary has become resident at the capital.

COUNTRY LIFE COMMISSION.

Early in the fall the Country Life Commission, appointed by President Roosevelt, visited South Carolina and held an interesting session at Spartanburg. This Department, by request, arranged for all those interested or in any way engaged in agricultural or educational development to meet the commission along with many representative farmers, and full information was given the members of the Commission as to South Carolina conditions. The need for rural agricultural education and for good roads was stressed by nearly all of the farmers present.

INTERESTING NEW LINES OF WORK.

Since the success of the experiments at the State Experiment Station at Clemson College with the manufacture of starch from the sweet potato, this Department has entered into negotiations for the establishment of a factory to manufacture starch with parties from Iowa. Investigations have already been made as to sources of supply of potatoes and as to sufficiency of the supply for the running of the plant during the year. These efforts may lead to a plant using Irish potatoes too small for shipment and cassava at the seasons when sweet potatoes are not available.

The successful experiments with the growing of matting rush in Colleton County, mentioned elsewhere, have led to inquiries to the Department from progressive operators on the lowlands in eastern South Carolina, looking to the planting of the rush this year upon extensive acreages.

During 1908 the Department, having made careful investigation as to suitable localities affording proper pasturage, expects to introduce bee culture into South Carolina upon a commercial scale. Several experts from the Middle West are now considering the advisability of moving their stocks and equipment to the Piedmont section.

The efforts at growing silk in progress in several portions of the State at the time of the last report are meeting with considerable success and substantial results may be expected.

The Department, accepting an offer from the expert in charge of the tea gardens in Summerville, has been instrumental in having fine tea plants distributed to individuals in many portions of the State, the object being to encourage tea growing for home consumption, the plant being a beautifully ornamental one.

Early in the year the Department induced several thoroughly educated horticulturists and agricultural specialists from New Jersey to settle in this State and enter upon scientific fruit culture and poultry raising. They have established a handsome plant and their undertaking promises excellent results.

A TRUCKING COLONY.

One of the most interesting developments at the end of the year is the undertaking by outside capitalists to fully develop some 25,000 acres of land in Chesterfield County, their idea being to locate on small farms families from other sections of this country, for the purpose of growing truck and fruit for the Northern and Eastern markets. Parties who are interested in the undertaking propose at once to establish

a small test farm for the demonstration purposes upon the property and this Department is assisting in the matter of the establishment and conduct of this farm. Among the crops that will be included will be peanuts and tobacco, the ground now being made ready for the establishment of the test farm. In the development of this admirable plan, which will mean much to the section in which agricultural efforts are badly needed, the Department is giving all possible assistance and will invoke the aid of the Federal Government in the conduct of the demonstration work. The people interested are those of means who have undertaken the proposition upon their own initiative.

DEEDS AND MORTGAGES.

The following extract from a letter received by this Department from a Piedmont farmer has a bearing on present agricultural conditions :

“In my efforts to secure cheaper money for our farmers, I find it will be necessary to have a change made in our laws relative to time for recording deeds and mortgages. You know the time limit is 30 days from date of execution, and there is no compulsion as to placing same on record. The priority of mortgages and deeds should be determined by the date when submitted to the Register. In most of the States not only is the day, but the hour and minute when a paper is submitted is stamped thereon, and these establish priority. This is a very important matter to farmers owning real estate who may wish to borrow money thereon.”

THE NEEDS OF AGRICULTURE.

The above summary of the year's achievements in agriculture is one of which all South Carolinians may be proud, and it is all the more gratifying to this Department, inasmuch as the real advance has chiefly come in the last two years.

But there are conditions that face us from which arise pressing needs of the hour. When we realize that practically every dollar of the \$72,000,000 we are putting in our pocket as receipts from our cotton-growing operations is almost immediately sent to other States for home supplies that we can raise cheaper than those who produce them, and the heavy amount mentioned above for commercial fertilizers to do the work in plant development that ought to be done by the elbow grease and exercise of in-

telligence of the farmer, we must face the condition, and it is a most deplorable one. Then when we look at this State with 58 per cent. of her 155,000 farms operated by negroes working on their own account and accompanied by an annual per capita value of agricultural products of only \$51, and then turn to a new State like Oklahoma, where only 5 per cent. of the farms are operated by negroes, and see a per capita value of \$114, and take into consideration that a new territory like Oklahoma has already got under actual cultivation the same acreage that South Carolina has, it is time for intelligent white men to come to a full realization of conditions within our own gates, realize that our farming methods are far from what they ought to be and determine to do those things that will cure the manifest evils, keep the farmer boy on the farm and make him more intelligent, rescue our fertile soil from a destruction that threatens it as a result of its handling by thriftless, ignorant and careless negro tenants and bring about a condition that will not only double or treble the profits per acre, but will make home life in rural communities and on the individual farm itself so attractive that ambitious young men and women will not be so anxious to rush to centres of population.

AGRICULTURAL EDUCATION.

Our chief need is two-fold. First, the education of the agricultural classes; and, second, the necessity for raising of supplies for actual living upon the individual farm.

Nothing could be of more paramount importance than agricultural education. Our agricultural colleges and experiment stations are of the greatest value, and I would be the last to underestimate that value. What we most urgently need in South Carolina is the trained and educated farmer of the present generation and a properly trained youth for the succeeding generation. And herein lies the earnest cooperation that has been given Dr. Knapp and the Bureau of Plant Industry in their farm demonstration and farm management work by the South Carolina State Department of Agriculture. Your Commissioner went last summer into Canada, the home of this practical training of grown-up farmers, and found 40,000 men, ignorant at first of all the principles of agriculture, converted into experts, and farming conditions calculated to bewilder the uninformed.

From that moment I was an absolute convert. I realized that experiment stations and other work were good as far as they went, but that for reaching the masses practical demonstration work with

scientific demonstrations for general results, coupled with agricultural education for farmers' sons, was worth far more; and I quickly gave the support of the State government to the practical work inaugurated by Dr. Knapp and his assistants, and later to the work in farm management, inaugurated under the Federal Bureau of Plant Industry by Dr. Goodrich and his assistants. In both instances there has been phenomenal advances.

The great movement from the farms to the cities of our young men and women, which has gone to an alarming extent, can only be stopped by making farm community life more attractive and more profitable. It can be done, but only through instilling into the child, in the rural school, a love of plant life, a love of Nature. The greatest need of our agriculture at this moment is the introduction of agriculture as a branch in our rural schools. For this there must be competent teachers, and this leads to the agricultural high school, which will serve the three-fold purpose of giving to the country schools such teachers, of giving the boy unable to go to college an intelligent understanding of the fundamental and business principles of agriculture, fitting him for his life's work, and of turning out young men already equipped by teaching and practical work and imbued with a love of agriculture to proceed to Clemson College and become skilled agriculturists.

A GOOD FOUNDATION.

The South Carolina Rural Improvement Association has in the past two years laid a splendid foundation for the introduction of agriculture into the rural schools by means of the splendid work it has done.

The whole country is turning its attention to agricultural education, and this State is alive to its need. Many of the Southern States have concluded that it pays to provide agricultural education, for the boy of today, with the development of agriculture continuing, will be the farmer of tomorrow, and the greater his opportunities the greater will be his value to the State. This boy's agricultural education is not to be dreaded by the taxpayer as an expense to the State, but, as Commissioner Koiner, of Virginia, says, "is to be regarded as the greatest opportunity she has for an inestimably profitable investment."

AGRICULTURAL HIGH SCHOOLS.

Realizing the great need for agricultural high schools, and knowing there would be extreme danger, for legal reasons, to the whole if any attempt be made to divert any of the fertilizer tax from its present purposes, the State Superintendent of Education and your Commissioner called into conference, on November 13 and again on November 30, Professor Hand, in charge of the State's high schools, and others interested in the matter, as well as several of wide experience with such undertakings in other States, including Dr. Knapp, with the result that this Department and the Department of Education, with the endorsement of the State Board of Education, send in recommendations for the establishment of three agricultural high schools and the immediate introduction of agriculture into the curriculum of the public schools of the rural districts of the State.

At the conference held on this subject the effort was made to thresh out the entire matter and arrive at some feasible plan which would combine all educational and agricultural interests in the State, a plan keeping the undertaking free from political influences, avoiding pitfalls that had been encountered elsewhere in the early stages and offering a link between the public school and the State Agricultural College, while avoiding antagonisms that have in many instances arisen elsewhere. The effort was made to get at something that would cost the State by direct appropriation a minimum amount and afford a stepping-stone upon which Clemson College's agricultural feature could be rapidly upbuilt, enabling that institution to raise its curriculum and broaden and extend its agricultural work. The proposal to establish these schools looks more to their cost falling upon the several communities than upon direct appropriations, or upon any plan or thought of taking any existing money now raised by indirect appropriation for educational purposes in the State.

At the conference your Commissioner was asked to draft a recommendation embodying the combined views of the participants in the conference. This is presented as follows:

"The early mistakes that have been made in Georgia and elsewhere should be avoided at all hazards if the State attempts this greatly needed and most valuable undertaking. There should be a combination of all interests working for the development of agriculture, and that combination of such a nature as to forever keep these institutions out of politics and free from local rivalries and jealousies. To this end, I would recommend that the entire control of these institutions be in the hands of men filling executive positions of responsibility,

and representing the agencies that are primarily concerned in the upbuilding and uplifting of the masses of our people. I would recommend that the board of trustees for the three schools consist of:

- "1. The Governor of the State.
- "2. The State Superintendent of Education.
- "3. The State Commissioner of Agriculture.
- "4. The head of the Agricultural Department at Clemson College.
- "5. The director of the State Experiment Station.
- "6. The chairman of the Committee on Agriculture of the Senate.
- "7. The chairman of the Committee on Agriculture of the House.

"It has been suggested that there should be four additional members of this board. 1. A school superintendent familiar with problems of school organization. 2. An actually experienced high grade school teacher. 3 and 4. Two practical farmers, living at or near the school, familiar with local conditions and needs. This suggestion seems a wise one.

"This board should have the power of selection of teachers and arrangement of curriculum in consultation with faculties.

"In order to avoid one of the pitfalls that has proven most dangerous and disastrous in Georgia it should have the power to call for bids for the location of these schools, and should at all hazards be given power to reject the highest—or, indeed, any—bid made if, in the opinion of the board, any location was not for the best interests of the particular section concerned.

"Now as to cost. After carefully going over all these details with men of large experience in just such undertakings a basis of cost establishment and operation the first year, which is deemed at once adequate and reasonable, has been reached. Upon this basis the following estimate has been made:

	Per School.	For Three Schools.
Buildings	\$50,000	\$150,000
Equipment—Implements, barns, dairies, etc.	10,000	30,000
Actual running expenses per annum	10,000	30,000
Total	\$70,000	\$210,000

"As to how this \$210,000 should and can be raised it is not for this report to say. A certain direct appropriation, in my opinion, should be made, of so much per school, if so much be necessary, the board having the right to call upon certain towns in the neighborhoods of the localities deemed best suited to make offers of cash and sites. A provision should be placed in the Act to the effect that no institution should be located within one mile of the corporate limits of any town, and that there must be enough land—200 acres at least—offered to provide for a satisfactory practice or demonstration farm, in the work upon which by the students the Federal Government could and would assist, thus eliminating the curse of agricultural education in the South—the teaching of agriculture within the circumscribed limits of four brick walls. I would see, also, short 'off-season' courses for farmers and boys unable to take full courses.

"Coupled with this, agriculture should by all means be placed in the curriculum of the public high schools of the State as a regular branch in all grades from the eighth grade upward. But not making the passing of the eighth grade a requirement for admission to the agricultural high school.

"If the above plan, thus briefly outlined, be carried into execution, I believe a long step will have been taken toward increasing the usefulness of our public school system, the usefulness of Clemson College and the sphere of usefulness of many of our young men."

INDEPENDENT START MADE.

During the past summer the Department, not waiting for legislative action, has undertaken to enlist the services of the United States Government for the teaching of agriculture, with practice farms, at two leading existing high schools in the State. In the first instance the United States Farm Demonstration office was induced to give supervision to such instruction in the Gen. Sumter Memorial Institute at Stateburg, and this work is now well under way. In the school the admirable text-book of Dr. Goodrich, of the United States Bureau of Plant Industry, has been introduced, and the Government keeps an expert at the school in charge of the practice farm. Prof. Ira Williams, in charge of the demonstration work in South Carolina, visits the school regularly and lectures to agricultural clubs that have been formed in connection with the undertaking and to the students; frequently at these meetings he is accompanied by important lecturers from the Bureau of Plant Industry.

The other undertaking has been with the Downer Institute, located at Beech Island in Aiken County, where a practice farm of some 20 acres has been put into service for the practice work, and Dr. Goodrich's book on farming has also been placed in the curriculum. This work is under the direction of the Farm Management Office of the Bureau of Plant Industry, and Dr. Goodrich himself personally supervises the work, visiting the institution from time to time.

In both undertakings the farmers of the surrounding country—indeed, the entire community—have given their most earnest and active support and a widespread interest has been aroused. The two experiments have done more than any other one thing to convince this Department of the soundness of the recommendations made above looking to the establishment of agricultural high schools.

THE AUGUST FLOODS.

During the last week in August this State was visited by one of the most disastrous floods that ever swept the river courses and valleys of the State, floods reaching water stages higher than had ever been recorded. The Department at once undertook to gather complete data and the Commissioner spent several days along the water courses, in the flood territory, arranging for exact reports as to damages to agricultural lands, crops and all other property—specific information that could be used in behalf of the National Forestry measure, if necessary. Illustrations accompanying give some idea of the extent of this great flood near Columbia.

Taking the Savannah River territory into consideration, along with the intra-State water courses, it is safe to assert that total damages resulted closely approximating \$2,000,000, about half of which was in money value of crops destroyed and in erosion or deposit on farm lands. This does not refer to lives lost, of which there were a number in Savannah River territory.

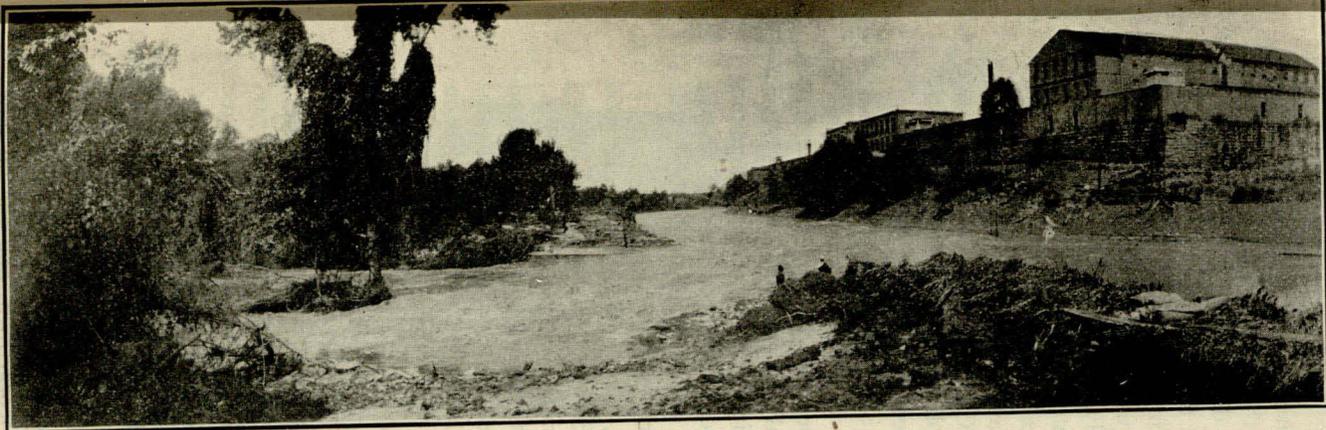
The following report of the United States official with whom I co-operated, is so comprehensive as to the territory exclusive of Savannah River that I embody it:

SPECIAL RIVER REPORT.

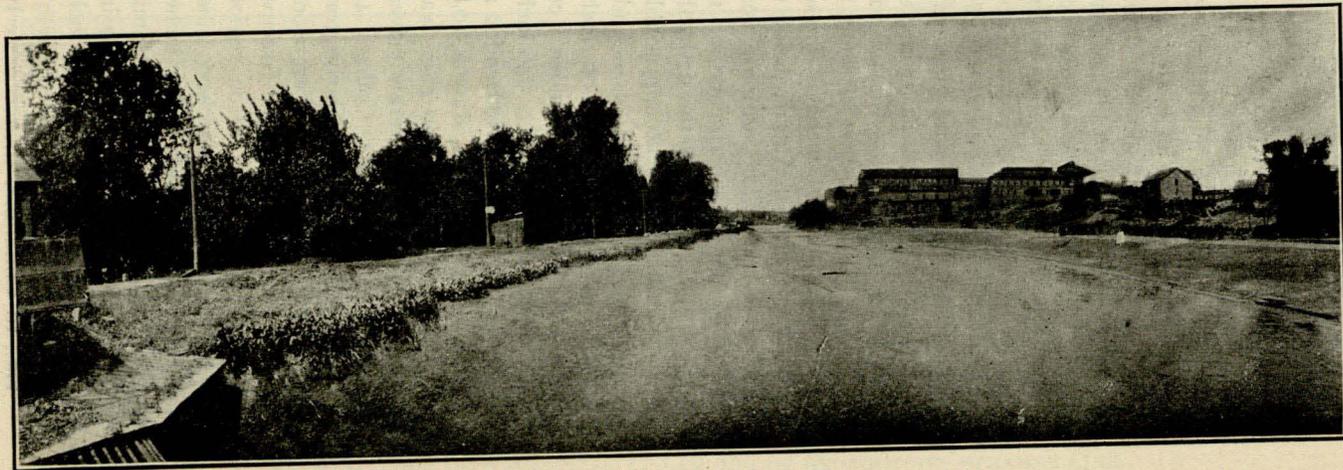
September 22, 1908.

Chief United States Weather Bureau, Washington, D. C.

Sir: In compliance with existing instructions, this office begs leave to render the following report on the flood that occurred in the rivers under the supervision of this office, comprising the Santee



SHOWING WHERE BROAD RIVER, AFTER BREAKING INTO THE CANAL, SWEEPED AWAY CANAL BANK NEAR STATE PRISON AND ENTERED THE CONGAREE.

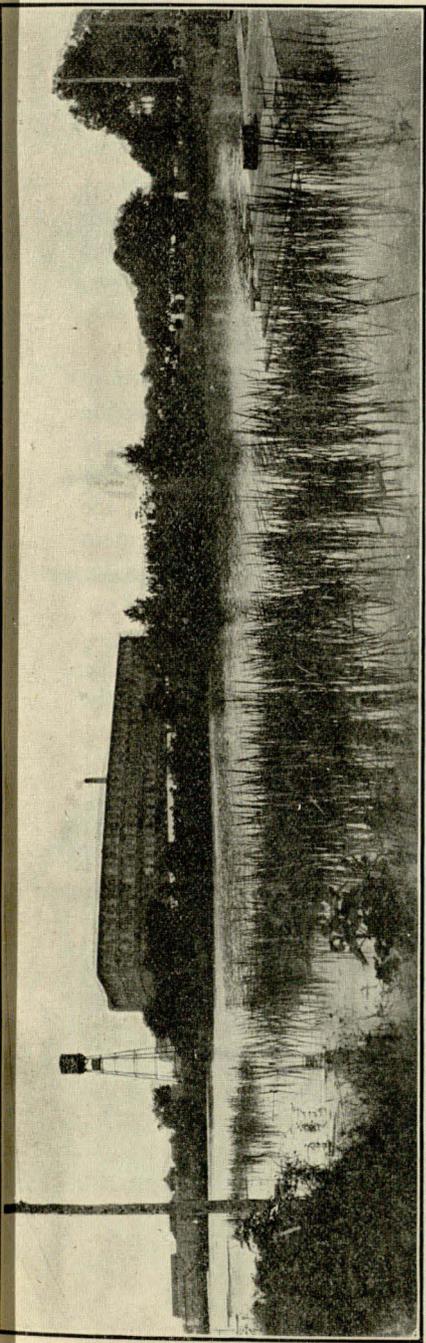


SHOWING BED OF THE CANAL BELOW BREAK FILLED WITH DEPOSIT.

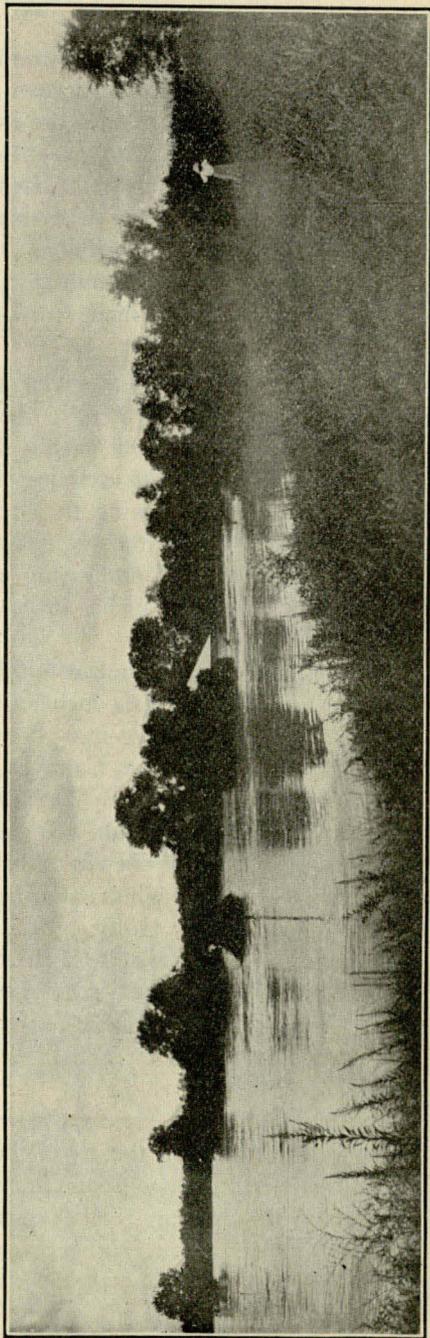
River and its confluent tributaries, namely, the Congaree, formed by the Broad and Saluda Rivers, and the Wateree-Catawba system. The rainfall that made this, the most disastrous flood in the history of South Carolina, possible, began on the 23rd of August and continued in the form of heavy showers, in places as a continuous rain, until the morning of the 26th of August, having been exceptionally heavy at a number of places, principally at the foothills of the Appalachians, in the form of a belt of country varying from 30 miles to 80 miles in width and extending from northern Georgia through South Carolina and North Carolina and Virginia. The following rainfall measurements at stations in Georgia near South Carolina, in South Carolina, and in North Carolina near South Carolina, define fairly well the area of heaviest precipitation.

Georgia Stations.—Clayton, 10.24 inches; Toccoa, 4.87 inches; Hartwell, 14.72 inches; Lisbon, 8.54 inches; Elberton, 19.22 inches; Washington, 8.61 inches. These amounts include the total rainfall for the month of August, being the only available data at this office. For the rest of the stations, namely, in the Carolinas, the amounts include the measurements for the 5-day period beginning on the 23rd and ending on the 27th, though the rainfall on the 27th was very light and had no appreciable effect on the floods.

South Carolina Stations.—Anderson, 14.82 inches; Batesburg, 5.66 inches; Bennettsville, 1.96 inches; Blairs, 8.64 inches; Calhoun Falls, 9.72 inches; Camden (co-operative station), 11.75 inches; Camden (river station), 5.46 inches; (this gage was lost in the flood before the rainfall period ended and does not include the total rainfall at this station); Catawba, 10.82 inches; Chappells, 3.10 inches on the 24th when the rain gage was lost; Cheraw (cotton region station), 5.50 inches; Cheraw (river station), 6.64 inches; Clarks Hill, 2.49 inches; Clemson College, 4.30 inches; Columbia, 3.97 inches; Conway, 2.93 inches; Darlington, 1.39 inches; Dillon, 1.94 inches; Effingham, 2.88 inches; Ferguson, 2.42 inches; Florence, 1.11 inches; Georgetown, 2.48 inches; Greenville, 16.94 inches; Greenwood, 7.06 inches; Kingstree (cotton region station), 3.39 inches; Kingstree (river station), 2.80 inches; Liberty, 12.02 inches; Little Mountain, 6.80 inches; Newberry, 6.01 inches; Pelzer, 5.62 inches; Saluda, 3.01 inches; Santuc, 11.33 inches; Smith's Mills, 3.28 inches; Society Hill, 1.51 inches; Spartanburg, 9.70 inches; Trenton, 4.08 inches; Trial, 4.04 inches; Winnsboro, 8.90 inches; Winthrop College, 9.00 inches. These stations are situated north and west of a line from Augusta, Ga., to Columbia, thence easterly to Georgetown, and the off-flow



FOOT OF COLUMBIA CANAL AT HEIGHT OF FLOOD.



SHOWING ROOF OF WAREHOUSE AT LANDING OF GEORGETOWN STEAMER LINE.

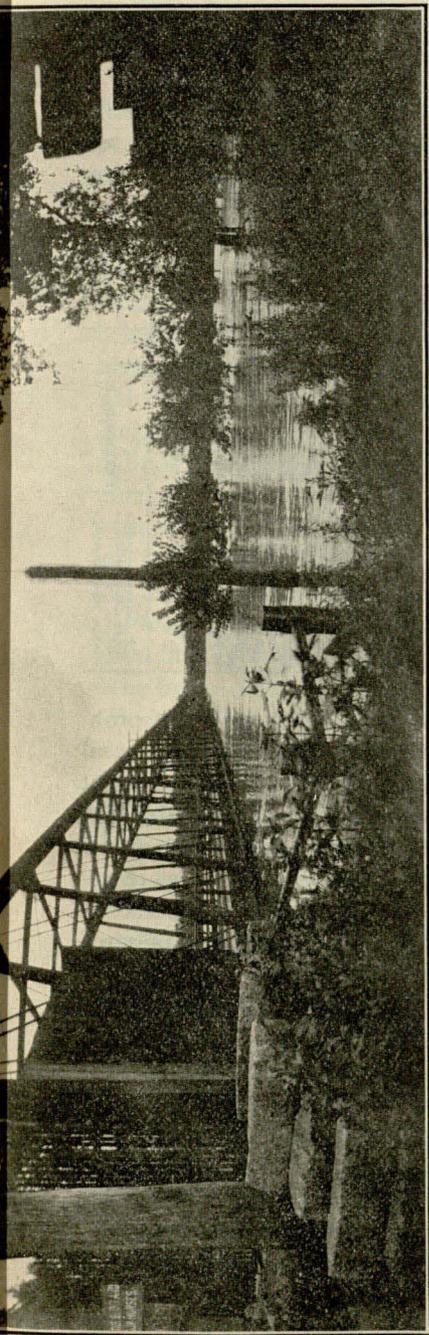
of this rainfall was all measured at the various river gage stations in South Carolina and at Augusta, Ga., and the area comprised within the lines as drawn defines the extent of the heaviest rainfall.

North Carolina Stations.—Asheville, 3.12 inches; Caroleen, 13.51 inches (entire months); Charlotte, 8.98 inches; Mt. Holly, 11.41 inches; the rainfall for the remaining stations is for the entire month, being the only data available. Hendersonville, 12.17 inches; Horse Cove, 10.73 inches; Lumberton, 8.74 inches; Monroe, 19.38 inches; Rockingham, 14.38 inches; Sapphire, 14.55 inches; Whiteville, 8.23 inches.

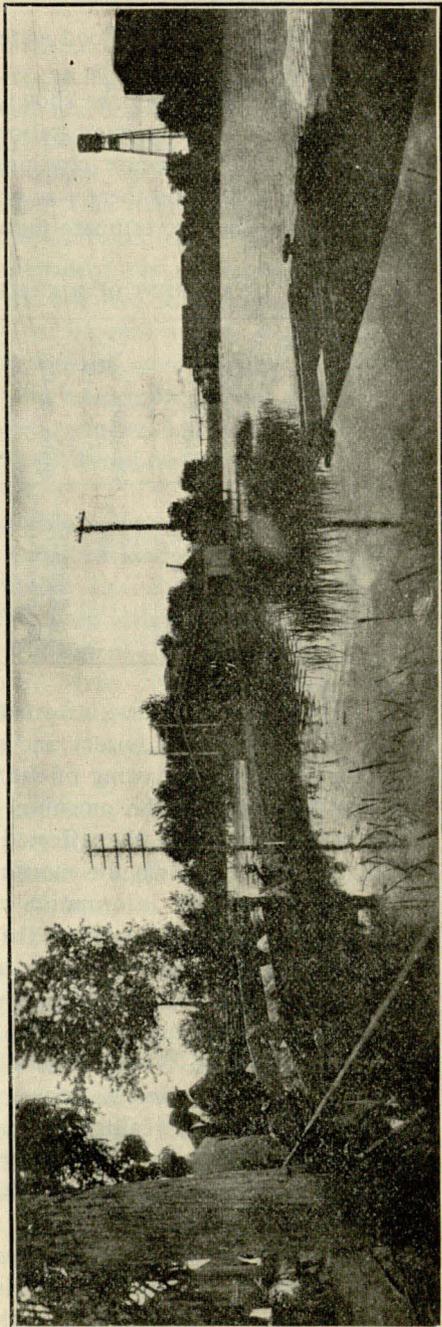
While the rainfall as given in the above statement all assisted in swelling the flood waters to the unusual heights attained, yet if the precipitation had been evenly distributed over this period it would not have caused the extreme high water that was recorded. For the purpose of showing the immediate precipitation that causes the widespread and extensive damage the following rainfall statement has been prepared, indicating an excessive rate of precipitation, or at the rate of 2.50 inches in 24 hours, together with the dates of occurrence:

At Anderson, on the 24th-26th, 14.31 inches in 34 hours; at Blairs, on the 24th-26th, 8.64 inches in 60 hours; at Calhoun Falls, on the 23rd-26th, 9.62 inches in 63 hours; at Camden, on the 25th-26th, 9.05 inches in 23 hours; at Catawba, on the 23rd-26th, 10.12 inches in 65 hours; at Cheraw, on the 24th-26th, 6.24 inches in 62 hours; at Clemson College, on the 25th, 2.81 inches in 24 hours; at Greenville, on the 23rd-26th, 16.94 inches in 78 hours; at Greenwood, on the 24th-26th, 7.06 inches in 60 hours; at Liberty, on the 24th-25th, 11.12 inches in 24 hours; at Mt. Holly, N. C., on the 23rd-26th, 11.19 inches in 27 hours; at Pelzer, on the 24th-26th, 5.14 inches in 27 hours; at Santuc, on the 23rd-25th, 10.38 inches in 58 hours; at Spartanburg, on the 24th-26th, 9.33 inches in 72 hours; at Winnsboro, on the 24th-25th, 7.85 inches in 48 hours; at Rock Hill, on the 24th-25th, 7.10 inches in 48 hours.

It will be seen from the above that while the excessive rains began, at places, on the 23rd, they were general over the watersheds of the Congaree and Wateree Rivers on the 24th-25th, at a few places on the 26th, though the heavy rains ended generally on the afternoon of the 25th. There had been quite heavy rains over the same regions from the 19th to the 21st, inclusive, that nearly or quite saturated the soil, so that the run-off from the following week's rains was above the usual percentage of run-off. Stated in other words, the conditions



THE CONGAREE AT EXTREME HEIGHT AT COLUMBIA—LOOKING WEST.



FROM SAME VIEWPOINT, LOOKING NORTH, SHOWING CANAL AND RIVER AT PRACTICALLY SAME HEIGHT.

were all favorable for flood waters in this region following these extraordinarily heavy rains.

The effects can best be shown in the following statement of river stages at the various gage stations. At some of these stations it was impracticable to secure readings owing to the fact that the river gages were lost and there was no exact method, or even approximate marks by which to estimate the water's height:

STATEMENT OF RIVER STAGES, AUGUST 23-30, 1908.

	Pelzer, S. C.	Chappells, S. C.	Blairs, S. C.	Columbia, S. C.	Mt. Holly, N. C.	Catawba, S. C.	Camden, S. C.	Rimini, S. C.	Ferguson, S. C.
23rd.	4.2	2.9	1.8	1.4	4.6	8.3	16.1	10.7	11.5
24th.	5.4	12.9	10.8	3.3	4.8	10.2	19.4	11.5	11.3
25th.	25.6	16.8	22.1	21.2	10.0	28.4	29.0	12.4	11.7
26th.	14.0	34.7	31.1	26.6	14.2	28.0	39.7	12.9	12.2
27th.	9.8	.....	31.0	35.8	12.0	28.0	38.4	13.3	12.4
28th.	5.8	.....	23.0	34.7	5.0	20.0	35.2	22.4	13.0
29th.	5.6	.....	10.0	22.7	3.0	12.0	32.6	31.7	14.7
30th.	5.1	.....	4.2	14.5	2.6	5.0	2.0	33.8	2.5
31st.	4.7	.....	2.2	7.3	2.8	4.5	16.5	32.0	23.7

Warnings.—The first information that this office received of probable floods was an advisory and cautionary message from the Central Office late in the evening of the 23rd. Upon its receipt a statement was prepared for the morning newspaper, for the reason that the paper would reach the affected places sooner than any telegrams that could be sent in the morning, after the river reports were received, giving the information conveyed in the Central Office telegram, and defining the rivers that would be affected. The Congaree was not threatened at that time, as the heavy rains were in the watershed of the Catawba-Wateree system. After the river reports were received in the morning of the 24th, this office issued telegraphic warnings for the Wateree, stating that that river would rise to above flood stage in the next 24 hours. A statement was also prepared and published in the evening newspaper giving fuller information, and that it was altogether likely that there would be flood stages in the Congaree within the next two days. At this time the Congaree was rising very slowly at this place. Late in the evening of the 24th, special reports were received from several river gage stations, indicating heavy rainfall and very rapid rises in the rivers. A statement was then prepared and published in the morning paper of the 25th, warn-

ing all interested persons in the Congaree and Wateree, and Santee valleys to remove all movable property to high ground, as an unusual flood was imminent. This statement reached the affected localities earlier than any statement could have been mailed by this office after the morning reports of the 25th could have been received. As soon as the morning reports were at hand, this office issued both telegraphic and mail warnings for stages above 28 feet at Columbia and above 32 feet at Camden. It subsequently was shown by the gage measurements that these warnings did not give accurate information, being under-estimates, but as they anticipated stages equal to the highest previous water, and as river reports were missing from the Saluda and Broad Rivers owing to poor telegraphic service and to the fact, not then known, that river gages were washed away, this office did not feel justified in issuing warnings, based on rumors, for stages much in excess of previous high waters. On the afternoon of the 25th an article was prepared and published in the evening paper giving the previous highest stages at Columbia and Camden, and stating that the present flood would probably exceed those stages.

Flood Damages.—This report has been delayed in the hope of gathering approximately accurate estimates of the immense damages done by the flood, to include the entire State. For that purpose this office has been working in connection with the office of the Commissioner of Agriculture, Immigration and Commerce of South Carolina, but as this report has been called for by letter from the Central Office, it will be rendered, with the estimates of damage restricted to the following counties, and a large part of it estimated by comparison with known damage to lands, etc., situated within the damage zone. It should also be stated that in every instance, in this report, the minimum estimate has been used. If the maximum had been used, the damage would appear to have been more than twice as large. The counties to which the figures apply are strictly within, or bordering on the rivers, the river district under the supervision of this office, are as follows, namely: Abbeville (partly), Anderson (partly), Berkeley, Cherokee, Chester, Clarendon, Fairfield, Georgetown (partly), Greenville, Greenwood (partly), Kershaw, Lancaster, Laurens, Newberry, Pickens (partly), Richland, Saluda (partly), Spartanburg, Sumter (partly), Union, Williamsburg, and York. This excludes the Savannah Valley, and the valleys of the Great Pee Dee and Waccamaw Rivers and their tributaries.

The damages will be stated under four heads, as directed by Circular, dated June 16, 1908, and the value of property saved by Weather Bureau warnings under one head, as follows:

(1). Money value of property destroyed, or amount of damages, including railroads, and excluding crops, \$571,800.

(2). Money value of crops destroyed, or amount of damage, \$312,200.

(3). Damage to farm lands by erosion or deposit, \$177,800.

(4). Money value of losses occasioned by enforced suspension of business through floods, including wages of employees, \$82,000.

(5). Money value of property saved by flood warnings of the Weather Bureau, \$56,000.

These estimates are very conservative and are likely to be exceeded, rather than diminished, when the investigation has been completed.

Respectfully submitted,

J. W. BAUER, Section Director.

Damages resulting from suspension of river navigation are not considered in the above report, nor is the total wreck of one of the Savannah River steamers.

Reports were obtained by this office from many farms in the valley of the Congaree. The following is a specimen of these reports, which have all been placed on file:

Specimen Report.—I beg to submit the following conservative estimate, drawn up with the aid of two prominent farmers:

No. 1.—Money value of property destroyed:

(a) Hay sheds.	\$ 275.00
(b) Dam.	500.00

Total.	\$ 775.00
----------------	-----------

No. 2.—Money value of crops destroyed:

(a) 8,000 bushels of corn on stalk, @ 60c.	\$ 4,800.00
(b) 8,000 bales of hay @ 40c.	3,200.00
(c) 40 acres of cotton @ \$40.00.	1,600.00
(d) 40 acres of peas @ \$15.00.	600.00

Total.	\$10,200.00
----------------	-------------

No. 3:

(a) Damage by erosion (uprooting trees and actual loss of river bank)	\$ 500.00
(b) Damage to meadow lands by deposit (200 acres completely covered with sand to a depth in some places of several feet, rendering it a total wreck, valued at \$50.00)	10,000.00
Total	<u>\$10,500.00</u>

No. 4.—Unable to estimate (small.)

No. 5.—18 head of horses and colts in pasture	\$ 1,000.00
No. 6.—Loss of horses	\$ 150.00
Loss of sheep	50.00
Loss of hogs	25.00
Total	<u>\$ 225.00</u>

Summary:

Total, No. 1	\$ 775.00
Total, No. 2	10,200.00
Total, No. 3	10,500.00
Total No. 6	225.00
Grand Total	<u>\$21,700.00*</u>

ALONG THE SAVANNAH.

Along the Savannah.—In the Savannah River Valley most carefully prepared reports were obtained. Only a partial digest, but sufficient to show the extent of the flood, can be given.

In this valley, from "Horse Creek" to the "Upper Runs" on the South Carolina side of the river, a distance of only about 16 or 18 miles of our water front, individual reports filed show that 32,570 bushels of corn, 1,381 tons of hay, 182 bales of cotton, 223 hogs, and a considerable amount of other live stock were swept away by the flood. The actual damages to property in this short stretch amounted to about \$5,000, and one life was lost. A statement of the

*Actual loss No. 5, not included.

loss, covering the distance from North Augusta opposite Augusta, Ga., to the mouth of Horse Creek, about 15 miles on the South Carolina water front on the river, shows, by individual reports, that 7,550 bushels of corn and 320 tons of hay were washed away; that two lives were lost in Hamburg district; that property was damaged to the extent of \$82,600, and that the actual business losses entailed from suspension of business of the various plants, due entirely to the flood, amounted to \$6,750. In other words, the total loss, not including that of lives in this short stretch, was approximately \$136,550. This is doubtless sufficient to give a fair idea of the tremendous losses on the South Carolina side of the full length course of the Savannah River, between Augusta and Savannah. Reports very much of this character were received from various points along the river, indicating that at no point was the damage smaller to any degree. These figures are indicated in the general minimum estimate given in the opening paragraph in regard to the flood, and have no reference whatever to the total destruction of two bridges across the Savannah between Hamburg and Augusta, and the loss of one of the Savannah River steamers, worth probably \$20,000 or more.

The officials of the Southern Railway report to this office that their total loss incurred—and nearly all of it was in South Carolina, the heaviest portion being upon the C. & G. division—amounted to \$120,000. The officials of the Seaboard Air Line Railway report a total loss in this State of \$40,000. It was estimated on September 10th that the Santee River had damaged the rice fields in Georgetown County to the extent of \$1,000,000. The total loss incurred by the Southern Power Company was \$81,000.

These figures probably are sufficient to give some idea of the extent of the flood and to show the enormous damage done to agriculture, not only from loss of growing crops for the season, but the permanent damage resulting from erosion of soil and deposits. In the matter of deposits, it is of particular interest to note the illustration herewith showing the bed of the Columbia Canal below the State Prison, after the Broad River, which had broken through into the canal, had carried away the embankment in the rear of the penitentiary and entered thereby the Congaree. In many places between Columbia and Alston the entire railway track was washed away and steel rails bended almost into semi-circles.

Fortunately, most of the cotton manufacturing plants located upon these streams did not suffer heavy damages.

VALUE OF BIRDS TO AGRICULTURE.

At the request of this Department, the Secretary of the State Audubon Society, Mr. James Henry Rice, Jr., has prepared a special report on the value of birds to agriculture, and from that report, which will later be published in full, I beg to incorporate the following:

The Audubon Society.—The United States Department of Agriculture advises farmers throughout the country to join the Audubon Society and to back its work. As the Audubon Society is the foremost agency in the world for protecting insect-eating and song birds, it is well to give its plan and purpose.

The National Association of Audubon Societies in New York City is the parent of all the various State Audubon Societies and it was organized by a few patriotic men for the purpose of saving the birds of America.

In the year 1896 there was a rapid spread of the society into various States until each State in the Union has an Audubon Society and is giving more or less attention to the protection of its birds.

In 1907 the Legislature of South Carolina chartered the Audubon Society of South Carolina, whose declared purpose was to educate the people up to the value of birds, game and non-migratory fish to the State.

Since its organization the society has been active in this work of educating the people along the lines indicated. The secretary has published a great many articles in the daily and weekly newspapers on the value of birds and on the best ways of protecting them. The society has published and circulated the laws and has issued two annual reports. The secretary has also made a canvass of the State, securing members and organizing branch societies for the further prosecution of the work and to get the principles of bird protection understood by the people. Addresses have been delivered at many places for the purpose of enlisting the people of the State in the cause.

The means for carrying on this work have been furnished by those citizens of the State who joined the organization. For the purpose of paying wardens and of meeting other expenses the General Assembly allowed the Audubon Society to use the Game Protection Fund, which is derived from non-resident licenses, fines and forfeitures. The amount received in this way has been altogether too small and inadequate to meet the demands on the society, but this has not stopped them from prosecuting the work with vigor.

The Present Condition.—Farmers must realize that the time has come to demand more protection from the laws than they have received in the past. The rapid multiplication of hunters, white and black, has led to the destruction of thousands of insect-eating and song birds, as well as to a decrease of game that is alarming. The burden of all this falls directly on the farmer; he has to pay the freight.

Most farmers agree that something should be done to protect the birds and to save the great losses entailed on the crops by the slaughter of the birds.

The Audubon Society has proposed the plan, now general throughout the country, of putting a license of one dollar on each hunter and from this to raise a fund for enforcing the laws for the protection of birds, fish and game. This would enforce the laws because it would furnish funds and would also bring the officers of the law into contact with the hunter in each community.

There is really no other plan that has proved a success. Posting land is not sufficient, for as game moves from place to place the posting of certain areas, with other areas left open, would undo the work. Moreover, there must be some way to pay officers who are to enforce the law; without wardens to enforce it any law for the protection of birds is sure to become a dead letter. The license does all this and it is so small that it would not prove a hardship on any hunter. No man need pay it unless he wanted to hunt.

It was the plan of the society from the outset to seek only means that were practical and that had been tried. The plan of licensing the hunter is now law in twenty-five States, and it works to the satisfaction of all, the hunters themselves approve it. As the farmers are the chief beneficiaries, they, of course, everywhere endorse and support the plan, and there is every reason why the farmers of South Carolina should at once take advantage of such an opportunity as the work of the Audubon Society has opened to them.

In going over the State I have hardly met a single farmer who did not favor the plan when he understood it. It is to this end that all Audubon work tends; to the benefit of the farming interests of the country. There is no subject today before the country that aims more vitally at the well-being of the farmers than this one of bird protection.

When the fact is considered that in a few years not a crop could be grown with the birds gone, the subject rises to an importance

of the first magnitude. The terrible drain on the farms of the State from the killing off of the insect-eating birds has been not the least of the burdens the farmer has had to bear.

As farmers dominate the General Assembly, and as there can be no difference of opinion as to the value of birds and as to the need of giving them protection, if they do not receive such protection as they deserve, nobody but the farmer will be to blame. This is one subject well within his power to handle.

Briefly, as the case demanded, but fully enough to convince any reasoning man that action for the protection of the birds is necessary now, I have set forth in this article some of the facts of the case. The situation of South Carolina: to the west girdled by mountains, on the east washed by the Atlantic and pierced and watered by numerous rivers, and with an immense domain not under cultivation, is one most peculiarly favored by the Almighty. While other States, less favored, have been swept by pestilence and devoured by plagues, our own has escaped. So much having been done for us, we ourselves ought to show appreciation by doing for ourselves what the situation obviously demands.

Now the time has come when the great protecting agency of the Lord, the birds, is being swept away with a besom of destruction, and if this is permitted South Carolina will no longer enjoy the immunity from insect pests that has marked her for nearly two centuries.

It takes a very short time to destroy the birds of a State, but a long time is required to get them back, and some go never to return. The Carolina paroquet, once so numerous that Audobon killed a half bushel with two discharges of his gun, is now extinct in South Carolina, as is the ivory-billed woodpecker, king of his tribe.

Ere the evil days come when action will be no use, it is well that the farmers of the State lend a hand and help save the birds, on whose work the crops of South Carolina and of the American continent depend. To do less than this would be to show small and scant recognition of the bounty of God.

II.—COMMERCE.

Steadfastly and unflinching have the efforts of this Department been continued looking to the upbuilding of the commerce of the State, the re-establishment of the commerce that once flowed through the three ports of South Carolina. It has been extremely difficult during the past year, in the face of the financial condition of the

country, the unusual depression in all lines of business, to make much headway with this difficult branch of the Department's work, but, nevertheless, the Commissioner has expended much time and energy upon the task and has sought out every available channel promising any degree of success to the dual end that our commerce might be increased, and that the cotton producers might be given freedom upon true economic principles from the bonds that now control the price of their staple.

The present status of the effort to open the port of Charleston to regular trans-Atlantic freight and passenger service is shown in the following letter, dated December 19th, written to Mr. B. Harris, president of the State Farmers' Union, with copy to Mr. P. H. Gadsden:

Mr. B. Harris, President State Farmers' Union, Pendleton, S. C.

My Dear Sir: In accordance with my personal conference with you on the evening of December 5th in this office, I am writing you in reference to the vitally important undertaking of putting Southern cotton on direct export from a Southern port, and when I say a Southern port I mean, of course, the port of Charleston, which is the best adapted port for the purpose on the South Atlantic seaboard. Ever since the creation of this Department, and I was called to its head, I have been devoting my every energy to successfully opening up the port of Charleston, to put our cotton producers in South Carolina and in the South Atlantic States into direct dealing with the consuming European manufacturer. I have realized that all of the efforts that we have been making to get a stable price for cotton by agreeing to hold, and such undertakings have not been based upon sound economics, and that if we are to control the situation it is imperative that the producer and the European consumer must be brought into direct dealing and this dealing going through a Southern port.

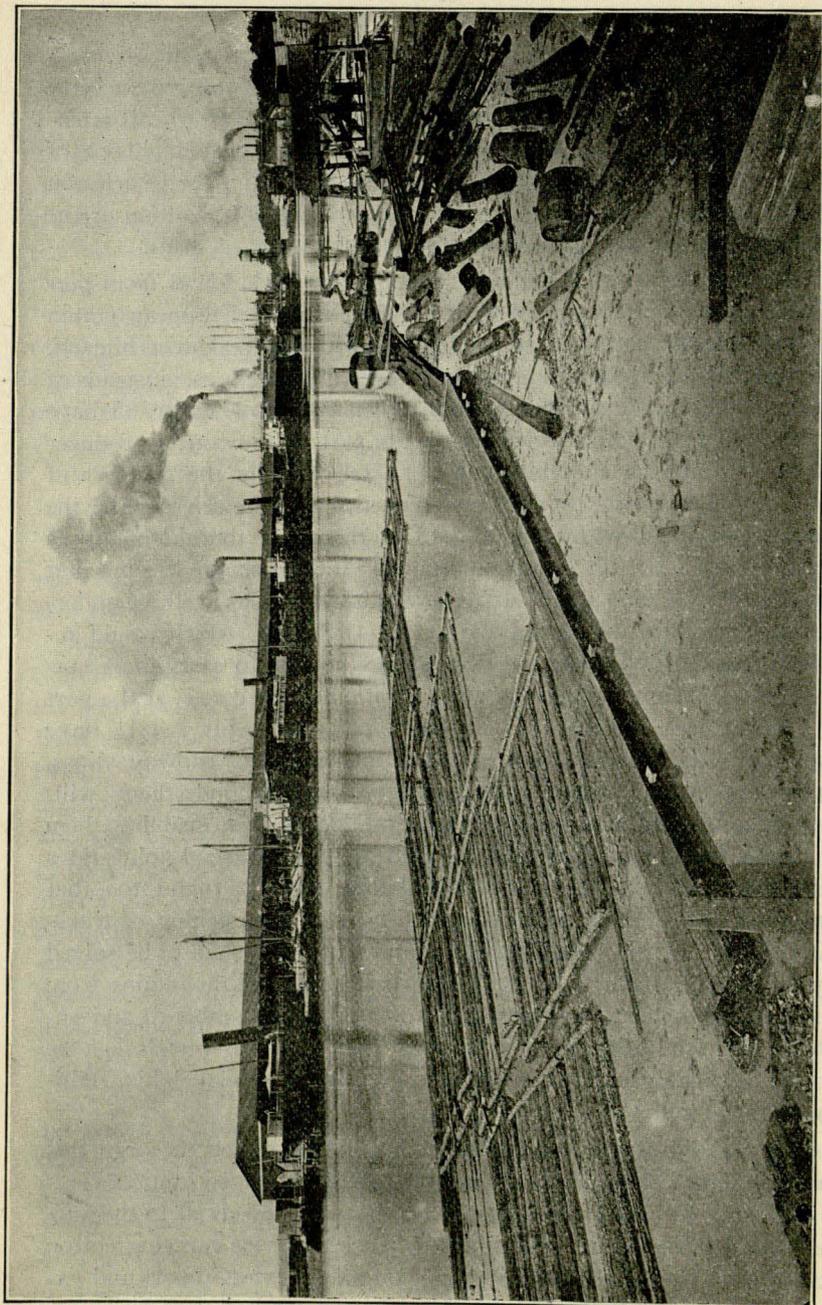
I have studied the question carefully, deeply and sincerely, and I am convinced that the above offers the only practical business-like solution. It is true that cotton is being shipped from Savannah and Charleston to Europe direct today and that the ocean-going rate is about 32 cents per 100 pounds, whereas, the ocean rate from the port of New York, for instance, is not more than 16 to 17 cents. The steamship man will tell you that this difference is due to the fact that the trans-Atlantic steamship service can not live otherwise because all of the cargo that it carries must be of low class, as there

is no established or even occasional import or export business carrying the high rate of freight that would enable them to give the New York rate. But it is not my purpose to do more than to call attention to this disparity of rates, for I have fully, in the "Handbook of South Carolina, 1907-1908," and in special articles in the Charleston export edition of *The State* and the recent C. C. & O. edition of the *Spartanburg Herald*, discussed these matters in great detail.

In the prosecution of our investigations we have found from personal interview and contact with the majority of European cotton manufacturers that they prefer to deal with the producer himself, through his own dispatching and receiving shippers, instead of through the varied middlemen from whom both now suffer. I have found that they would welcome, on the part of the cotton producer of South Carolina and the South, the selection by the growers of export agents to direct shipments as needed and the selection by the growers of their own agent abroad to distribute the shipments as received at U. K. and Continental ports. It has occurred to me that the Farmers' Union might undertake this feature as well as undertake to introduce the East India system of baling, which would reduce the cost of bagging and ties, enable the ship to carry more cotton and result in the weighing and valuation of the cotton at the port of departure instead of at the port of entry. I have had full conferences with general officials of railway lines, operating in the cotton belt territory, and I find them willing to co-operate with any such undertaking as this, enabling them to break the chains that now hold them to established joint rates with lines north of Mason and Dixon's line. I have found, too, that one of the greatest problems confronting us in the opening of trans-Atlantic service between Charleston and Europe is soon to be solved by the coming of the C. C. & O. Railroad across the mountains from the coal fields, bringing cheap coal to the Atlantic seaboard and enabling the establishment of a coaling station where vessels can be coaled as cheaply and as quickly as at New York, Philadelphia, Baltimore or Norfolk.

Our own illustrious Hayne spent his life in trying to forge this one link in the chain of Southern trans-Atlantic transportation.

Knowing full well that it would be absolutely essential to the success of the permanent establishment of such a service carrying cotton at practically a New York-Liverpool rate, to provide import and export shipments of high class freight, I have consulted with large exporters and importers in the principal Western centres of commerce



SHIPPING LUMBER AT PORT OF GEORGETOWN.

and I find that they are more than anxious to divert a good portion of their business, carrying the high freight rates, through the port of Charleston, and in this connection permit me to say the new C., C. & O. Railroad, when completed, will prove an important factor, although comparative distances from Kansas City, St. Louis, Cincinnati, Louisville, etc., are in our favor as against New York, and there is no congestion of lines causing delays in delivery of shipments. I find, too, that nearly all of the articles of export and import of the South today are handled by rail via New York, Philadelphia or Baltimore. In Germany I know of sufficient business for westbound cargo to sail an 8,000-ton ship every 30 days, which can be guaranteed for a year in advance.

When I first undertook this matter it was necessary to demonstrate to the steamship world the entire practicability of handling at the port of Charleston large passenger carrying steamers, and the practicability of securing freights at both ends of the line. Though in Europe at the time, as though I was simply driving at the solution of the minor problem of immigration, I undertook to bring out personally, without the opportunity of having worked up any business on the commercial side in America, a 7,000-ton ship to make this demonstration. Carrying a low-rate cargo in order to make the voyage successful, it was necessary that the passenger business should make up the difference, and the cotton manufacturers of this State gave freely to the cause, enabling me to bring sufficient passengers, with whom they wished to experiment in the mills, to meet the exigencies of the case. This voyage proved the absolute superiority of the port of Charleston, and the thorough practicability for the working of a permanent line—the two things in which I was most concerned and in which our whole agricultural industry was most concerned. After the first voyage a second was tried, with the number of passengers greatly reduced. Had it not been for the ensuing financial panic that almost immediately thereafter swept this country, and from the effects of which it has not yet fully recovered, I firmly believe that the excellent financial reports made in regard to the experimental trips would have resulted in the establishment of the permanent line without further cost to any one, and that even now our producers would be dealing with their consuming purchasers.

Notwithstanding the necessary failure to get a permanent service "going" of its own volition as a business proposition, handicapped as it would have been by a lack of coaling facilities and loading facilities at the port of Charleston, I have not for one moment ceased my ef-

forts, and for the past 18 months I have been working to interest other lines in the undertaking. At one time during this year it looked very much as if we could get a new Scandinavian-Mexican line to consent to make Charleston a port of call upon terms that would be agreeable to the financial interest in Charleston. Though a great amount of work was done in regard to this matter, it failed.

During the summer Mr. Geo. C. Sherman, an American citizen, though born in Scandinavia, and who has been engaged for a long time in the introduction of purchasing Scandinavian farming families into the Northwest, turned his attention to South Carolina, came here, contracted for 9,000 acres of land preparatory to a large undertaking, met with and consulted with leading business men in Charleston, whom he satisfied as to his character and standing and ability, and set out for the Scandinavian peninsula. I had talked with Mr. Sherman, as had Mr. P. H. Gadsden and others in Charleston, in regard to this proposed steamship service, and he displayed a lively interest in the matter. We asked him to look carefully into the possibilities of such a service while in Europe. I heard nothing definite from him until September 30th, when he had returned to this country.

He wrote me that he had taken up the matter of a direct line between Sweden and Charleston and that he had received a letter from the people interested in Sweden. I wrote him, asking him to give me full particulars. On October 6th I received from him the following letter, and, I might say here for some of those whom it might frighten, that the "emigrants" he refers to therein are exclusively land-purchasing, farm-working settlers:

"Col. E. J. Watson, Columbia, S. C.

"My Dear Colonel: Yours of October 3rd received. I had a long interview with Mr. Lundgren, the owner of the Swedish South African line, in Gothenburg, Sweden. He is now running eight steamers between that place and Africa. He is very much interested in a direct line between Gothenburg and Charleston, and he has made the suggestion that he could put in two steamers to begin with on this route, making monthly sailings, and was willing to put in two boats that would be completed and delivered from the shipyards some time in January. They were ordered to be used for his African line, but he would be willing to put them in on this route, provided we could see our way clear to sell 50 per cent. of the stock, equal to about \$300,000, in which case he would organize a separate company with these two steamers for £120,000 sterling, we to take one-half the

stock, which would equal the \$300,000. He then agrees, as stated, to put in two steamers of 9,000 tons dead weight, making 13 knots an hour. I enclose a plan of the steamers as they are now being built. They will load 7,200 tons dead weight at a draft of 25 feet, they will be 390 feet long, 52 feet wide and $22\frac{1}{2}$ feet in depth. The idea would be to send them from Gothenburg direct to Charleston, to touch on their return at one of the continental ports, say Amsterdam, for instance; on their way out to take emigrants from Finland and other Scandinavian countries to Charleston, and to load pulp, etc., going out. They can control full loads going out and if necessary they can make continental ports even on their way out; on their return passage they would take all the cargo they could get for Scandinavian ports and to fill out take cargo for any continental ports.

"They expect us to give a guarantee that they will have a full returning cargo, and expect the Southern railways on their part to agree that all goods they ship to the continent via Charleston will be via these steamers.

"I am now waiting for your suggestions, propositions, etc., and I think that a deal could be arranged. These people have new steamers, are broad-minded and willing to extend their business relations with this country and are in dead earnest, and could, whenever there would be a demand for it, put on any number of additional steamers.

"I expect to go abroad again in December or January, at the latest, and feel confident that if I have the proper data, and some kind of assurance from you and your friends, that I can bring about the desired results. If the people of South Carolina are as anxious for the direct line as they have indicated in the past, they now have an opportunity of making a deal to secure it.

"Yours very truly,

"GEO. C. SHERMAN."

On October 9th I acknowledged Mr. Sherman's letter and told him that I would take the matter up with the people in Charleston and yourself. On November 5th Mr. Sherman wrote me as follows:

"Col. E. J. Watson, Columbia, S. C.

"My Dear Colonel: In further reference to the direct line between Gothenburg and South Carolina, wish to say that Mr. Lundgren of Gothenburg writes me under date of October 23 and received by me today, as follows:

"Since writing you I find it should be of interest to have the negotiated matter settled as soon as possible. As I told you when here,

we have an 8,000-ton steamer building, and if we could come to an arrangement before the steamer is delivered on the 15th of February, we could make all the necessary arrangements for her to take emigrants before she leaves the builders. We could also stop the sister ship, Stemmed, here for January loading for African and Australian ports and these two steamers could immediately on the new year take up the trade, should our negotiations come to satisfactory conclusions. Please, therefore, take up the matter with energy as soon as possible and let me know if it is possible to arrange, and you can run across and finally settle matters.

“Yours faithfully,

“W. R. LUNDGREN.”

“I expect to arrange to go abroad before Christmas, and if you think you can get matters in shape so that I can lay the whole thing before Mr. Lundgren, I think it would hurry the matter up some. I know that he is as anxious to make this a success as we are.

“Very truly yours,

“GEO. C. SHERMAN.”

Since I talked with you on December 5th I received a letter from Mr. Sherman enclosing the following, Mr. Sherman remarking in his letter to me, “They mean business in Sweden; that is evident:”

“Gothenburg, Dec. 1, 1908.

“Dear Sir: Being one of the directors of Captain Lundgren’s steamship company, ‘Rederi Aktiebolaget Transatlantic,’ and having worked with him hand in hand since we started proceedings in buying two small tramp steamers, I am naturally informed of and fully initiated in, as well as greatly interested in, your plan of the direct line between Charleston and Sweden. I shall be starting on January 16th for New York on other business, but I shall before that go fully through everything with my friend Lundgren, and shall have great pleasure in making an appointment with you when over in America to discuss matters, especially so the matter I herewith take the liberty of putting before you.

“As you are well aware, there is a large cotton export, and also a great rosin export, and these two different classes of goods would naturally be greatly favored by the new projected line, and merchants on your side would naturally be anxious of forming good direct connections on this side. It is thus my purpose by writing this letter to

ask you kindly to put me into connection with people who would be interested in shipping their goods by the direct line, and getting a reliable agent over there. I thus propose to take up these agencies. I have mentioned cotton and rosin, but, of course, I am prepared to take up any big article you put before me, but, of course, I am only wishing to touch the wholesale trade and make a large turnover. I am myself carrying on a large export business in this city, and would like to combine this with import business, and I am thus open for such proposals as I have named to you.

"With regard to my personal standing, I beg to refer you to Aktiebolaget Goteborgs Handelsbank and Captain Lundgren, and, besides, when you were here, you are sure to have heard about me.

"Hoping to hear from you before I leave this, and that you shall be able to put before me some proposals which I might take up and arrange when I get to your side, I remain, dear sir, hoping for a speedy and lucky development of our mutual plans,

"Yours very truly,

"WM. DICKSON."

Prior to my conferences with you, in which I verbally explained far more fully most of these matters, and the business principles involved, I visited Charleston and consulted with Mr. Philip H. Gadsden, vice-president of the chamber of commerce of that city, and also sought a conference with Mayor Rhett, but the latter was absent. I showed Mr. Gadsden the correspondence in full and he took the view that this was the most businesslike proposition that had yet been made to any Southern port; that he believed Mr. Sherman fully capable of carrying out the undertaking and making it of immense advantage; that he knew Mr. Sherman and thought he was the right man to handle the matter. I then asked Mr. Gadsden if in his opinion the Farmers' Union of South Carolina, or indeed the farmers of South Carolina, would take half of the stock asked for, thus obtaining for this State a half interest in the service; the business interest of Charleston would take the other half and undertake to look after the port facilities, both, of course, combining to utilize, in connection with the entire matter, the warehouse system that has now become so well developed in this State. Mr. Gadsden said that he felt warranted in assuring me that the people of Charleston would do this, for the proposition was upon a thoroughly business basis. I told him that I would then present the matter to the State Farmers' Union. He said, however, that it would be necessary, if such a combination

were formed, for it to be formed with a body having a corporate existence under a charter of the State, which might be made up within the union or from within the union, with the aid of additional non-union producers, but that it must be a strong corporate body under the laws of the State.

This was the shape in which the matter stood when I conferred with you, and, as you will recall, I promised to reduce to writing the entire matter and submit it to you, with copy to Mr. Gadsden. I am doing this because it is the only course open to me. As I take it, this Department has no power to do more than to try to work out these problems and present them promptly to those immediately concerned, and it is, therefore, that I send the proposition to you and to the people of Charleston simultaneously for such action as you may deem proper. I wish to assure you, however, that all of the knowledge of the situation and of the details of the undertaking, in any of its ramifications, that this Department has been able to obtain by the close study given, both in this country and abroad, is at your service in the prosecution of the undertaking.

I have labored long, hard and earnestly to bring about what I know offers to our people the only permanent, practical and businesslike solution of this problem of avoiding the toying with our chief product by men at a distance, and I am presenting this matter to you with the request that you will present it in turn to the members of the union, and that as true patriots and as protectors of the product of their own labor, the full value of which should go to their wives and children, they would put their shoulders to the wheel, seize the opportunity that is offered and at least make an effort to break the chains that have clanked around them since American cotton became a world-demanded commodity. The levying of a very small sum per bale on this year's crop alone would put the undertaking upon its feet, and it is beyond my comprehension that any producer or any citizen of the port of Charleston should fail to do what appears to me so clear and so promising of prolific result.

I would be pleased to confer with you or representatives of the union at any time, and I shall be more than pleased to hear at an early date that some definite action has been taken, as Mr. Sherman is soon to return to Sweden and wishes to be fully informed as to his bearings in this matter before he goes.

Very truly yours,

E. J. WATSON, Commissioner.

Mr. Gadsden, vice-president of the Charleston chamber of commerce, in acknowledging this letter, writes :

Charleston, S. C., Dec. 21, 1908.

Mr. E. J. Watson, Commissioner, Columbia, S. C.

Dear Sir: I beg to acknowledge receipt of yours of the 19th, with copy of letter addressed to Mr. Harris, president of the State Farmers' Union. I had already seen the letter in the paper, and am glad to know that you are actively pushing this matter, and think that your letter states the proposition very favorably. If I can be of any further assistance in the matter, you can call upon me.

Yours truly,

P. H. GADSDEN, Vice-President.

The matter is at present pending in the shape indicated by the correspondence.

EXPORT AND IMPORT BUSINESS.

The export business at the State's three ports is picking up gradually, and after the rapid decline which began about 1883 and continued until about two years ago, there is prospect of a noteworthy increase during 1909. The exports of merchandise for 1908 are given as follows: Beaufort, \$181,900; Charleston, \$2,510,965; Georgetown, \$29,702. The Charleston and Beaufort exports for 1908 are not yet available; the handsome showing made by the port of Georgetown, however, in exports, is referred to in the paragraph dealing with coastwise service.

The value of Charleston's imports for 1908 cannot yet be given. For 1907, however, the imports amounted to \$3,528,553, a gain of \$700,000 over the preceding year, and exceeded those of Norfolk and Savannah combined. The number of vessels, foreign and domestic, arriving, exceeded that of any preceding year.

COASTWISE SHIPPING.

The coastwise shipping service by regular lines is confined to Charleston and Georgetown. It has been extremely difficult to obtain tonnage reports in time for this report.

Charleston is served by three regular coastwise steamship lines, namely: The Clyde Steamship Company, plying from Boston and New York to Charleston; Baltimore & Carolina Steamship Company,

plying between Baltimore and Charleston; and Southern Steamship Company, plying between Philadelphia and Charleston. These steamship lines operate regularly between the ports mentioned, and the tonnage reports indicate that they are all enjoying a remunerative business.

The comparison of tonnage for 1908 with 1907 cannot be given at this time as the reports have not been made up.

The Clyde Company during 1908 added to its fleet the largest and most complete passenger steamer ever built for its service, "The Mohawk." She is 400 feet long and of 5,000 tons register tonnage. This gives Charleston four regular sailings of passenger ships per week between that city and New York.

A regular Clyde line service is maintained between Georgetown and New York also. This port has on the average about 170 steamship outward sailings a year and a larger number of sailings of schooners and barges. All of this business is coastwise, practically, there being usually hardly more than 10 steamers and schooners to sail annually for foreign ports. The outward tonnage is largely lumber and lumber products, cotton and fertilizers, aggregating in value about six and one-fourth million dollars, and the inward tonnage is about \$4,500,000, consisting largely of general merchandise, machinery, grain, etc. About \$225,000 worth of turpentine is included in the outward shipments, as is also something over 20,000 bales of cotton.

NAVIGABLE INLAND WATERWAYS.

According to the most recent examinations of the navigable river waterways the total length of such streams in this State that are navigable is 666 miles. These intra-State navigable lengths do not include the 250 miles of the Savannah for Georgia and South Carolina.

Throughout the State there is an active interest in the opening of these navigable streams. Regular service is maintained on the Congaree and Santee Rivers between Columbia and Georgetown, but the line is not receiving the patronage that would naturally be supposed when the great difference in freight rates between the rail and all-water routes between Columbia and New York is considered. Cheraw and Camden are giving attention to river navigation also.

The Eastern Carolina Waterways Association has been formed and is doing excellent work, its last annual meeting having been held in Columbia on December 28th.

The influence that the opening of these river courses for transportation purposes will have on the agriculture and the commerce of the State cannot be estimated.

Out of the port of Charleston there is only one established river line operating regularly, known as "Sea Island Steamboat Company," plying between Charleston, Beaufort, Edisto and various way landings. Quite a number of small boats ply between the different islands, none of which are regularly scheduled, but they perform the service between these points. It is impossible to get information as to the business done by these small lines.

The following is the last report filed with this office of the river steamers plying between Georgetown and landings on the rivers tributary to Georgetown:

Name of Steamer.	River Operated Upon.	Gross Tonnage.
"Merchant"	Pee Dee	405
"Eutaw"	Pee Dee	547
"F. G. Burroughs"	Waccamaw	283
"Mitchell C."	Waccamaw	250
"Ruth"	Waccamaw	89
"Frank Sessoms"	Waccamaw	93
"William Elliott"	Black	171
"Brunswick"	Black	67
"City of Columbia"	Congaree E.	175
"Thistle"	Santee	13
"Marion"	Sampit E.	10
"Emma A. Twiggs"	Santee	16
"Romain"	Santee	62

A regular line of steamers is operated between Beaufort and Savannah and intermediate points on the inland waterway, and this line does a lucrative business.

On the Savannah River a regular line of steamers is maintained between Augusta, Ga., and Savannah, Ga., and does an excellent business, serving points along the river, also. Recently, the South Carolina hay growers along the Aiken County front of Savannah River built and put into operation their own steamer for the purpose of transporting their produce to market.

All river navigation is most seriously interfered with by the deforestation in the mountain sources, causing irregularity of flow and consequently alternately floods and extreme low water.

The Federal Government maintains, engaged on the harbor work around Georgetown and on the rivers tributary thereto, five powerful dredges and two combination dredge and snag boats.

RAILROAD TRANSPORTATION.

There has been a material step forward in the matter of railroad transportation this year, the attainment of Hayne's long-cherished plan of getting through or over the Blue Ridge Mountains, giving short-line and easy grade connections with the West and with the coal fields.

The great significance of this step forward is not shown by the actual number of miles of road built in the State this year, which is only 9.5 miles. In 1880 this State had 1,427 miles of railway; in 1890, 2,289; in 1900, 2,919, and in 1908, 3,252.

This promises to be a year of material progress in railroad construction, a total of 223 to 263 miles being under contract and proposed to be built this year. Of this about 125 miles will be constructed by the C., C. & O., 25 by the Charleston and Summerville, the C. & L., about 30, the G. & W., 40, the Greenville & Knoxville, 6, the Raleigh & Charleston 2, the N. & S. C. 20, the H. & B. 15. The C. & L. extension is to be from Pageland to Lancaster, 25 miles, and from Crowburke via Monroe, N. C., to Concord or Charlotte. The R. & C. extension is to be two miles south from Marion. The G. & K. is to be from Marietta to Cleveland. The C., C. & O. is now building southward from Bostic, N. C., to Spartanburg, 32 miles, and the coming of the C., C. & O. to Spartanburg was properly celebrated in that city early in December, the occasion being a noteworthy one. This line contemplates building from Cowpens Ridge to Columbia this year.

THE C., C. & O. AND CHEAPER COAL.

The coming of the Carolina, Clinchfield & Ohio Railroad through the mountains into South Carolina means much more to the industrial and commercial future of South Carolina and of the South, and the country at large, for that matter, than appears on the face of the proposition, more than one feels warranted in depicting at this stage. It is a proposition that perhaps means a readjustment of railroad rates to and from the Middle West and the Northwest, and, what is of far more importance, of rates from Western and Southern points to and from Europe. It is an undertaking the accomplishment of

which may have a most important bearing upon international shipping arrangements—the export and import business of America, and may mean millions of dollars annually to the cotton producers of the South in an indirect way, by proving the means of opening to regular trans-Atlantic service some Southern seaport.

“Coal” is the name of the real key to the situation, and this key, this new road is to furnish. If it does, more than half of the barrier to the opening of the South Atlantic seaboard to the markets of the world will have been removed, and a genuinely bright future will be in sight. For some years, representing our commercial interests, this Department has been wrestling with this problem, in the light of a full knowledge of both the adverse and the favorable conditions confronting the South, and always and ever the difficulty of getting coal at a reasonable figure has proven the most essential stumbling-block. This barrier to the onward movement is now to be rolled away by the coming of this line, and coal is to be placed at the water at seventy cents cheaper than at present at the very outset. If this be done a great impetus will be given Southern export and import business, and the distributing centres of the Middle West and Northwest will be found more than willing to do export and import business through Southern ports instead of through the channels of trade which now hold the monopoly of their great trade.

Were there nothing involved but cheaper coal for our textile manufacturing plants in the Piedmont, that alone would mean more to our future than one scarcely dare picture.

Much is to be done this year, according to announcements, in the way of new rolling stock by nearly all the lines operating in the State.

NORTH AND SOUTH CAROLINA LINE.

The North & South Carolina Railroad is the name of the new line which is being built by W. R. Bonsal & Company of Hamlet, N. C., railroad contractors. A report from Hamlet says that Mr. Bonsal recently leased from the Seaboard Air Line a branch 10 miles long running south from Hamlet to Gibson, N. C., which latter place is at the border of South Carolina. From Gibson he has recently built seven and one-half miles of new line to McColl, S. C., and is now building seven and one-half miles more to Clio, S. C. The line is to be further extended, it is reported, from Clio to Dillon, S. C., about 20 miles. There are rumors that the road will be finally built to Charleston, S. C., but Mr. Bonsal is quoted as denying this.

It is said that the first seven and one-half miles of line from Gibson to McColl were completed inside of 60 days, and the new tracks from Gibson as far as Clio are expected to soon be in operation. This will make the line from Hamlet to Clio 25 miles long, and then work may be suspended until next spring. The road will serve a fine farming country.

PUBLIC HIGHWAYS.

Good roads are becoming more and more important as arteries of transportation, feeding rail and water lines, and consequently of greatest value to the commerce of the State. Much headway is being made by the several counties in the building of good roads, working on independent lines, but greater headway could be made, perhaps, if some State official was charged with the work of advising and aiding in concerted plans for good road construction. In North Carolina the State Geologist is charged with these duties and excellent results have been obtained. Street paving in the cities of the State has likewise been given much attention during the year.

III.—IMMIGRATION.

So completely has the immigration side of the work in this Department been set forth in the introduction to this report, that I feel it scarcely worth consuming the time and space to deal with the sociological and economic questions involved.

More than eighteen months ago, after the European experiments had been made, practically all effort toward the bringing in of foreign-born people was suspended. The work in behalf of immigration this year has been confined to the proper advertising of the resources of the State in England and Scotland, directed entirely to the securing of the purchasing agricultural settler and his family. Some slight advertising has been done along the same line in Germany, but nowhere else. On the other hand, every possible effort has been made, and every opportunity has been seized, looking to the securing of investing agricultural settlers from the Eastern, Middle Western and Northwestern portions of this country.

During the spring of this year, on one ship, a number of English agricultural families—31 in number—came from the best agricultural sections of England, and were met at Philadelphia by representatives of this Department, brought to the State and settled in various

portions of the State. There have been a few to arrive since that time, due to the influence of those who had already come, and occasionally a desirable man comes in as the result of the advertising done and of letters that these people have written home. With these English people we made some experiments in regard to the domestic servant problem, utilizing girls who had been in service at home, and who had come here with their families. These experiments, though carefully guarded and conducted, have only in a few instances proven successful.

In 1904 the arrival of foreign-born people in South Carolina amounted to practically nothing. The first year 156 Scotch people were brought in. In the second year of the Department's existence 485 came to the State, and in the third year, the year that the chief experiment was made, 1,316 came; in 1907 practically 1,000 persons, a large number of whom were Americans, came to the State. Of the foreigners a great many left because of dissatisfaction with local conditions, and the usual natural hysteria, but many of them have, even during 1908, returned to South Carolina, after trying other sections of this country, announcing their intention to make their permanent homes in this State.

For eighteen months past every offer of immigrant or American labor has been declined. On the other hand, every effort possible has been made to stimulate a growing stream of desirable purchasing settlers, and this stream is constantly growing. Persons of more or less means have been brought in from Vermont, West Virginia, New York, Pennsylvania, Virginia, Illinois, Indiana, South Dakota, New Jersey, and, indeed, almost all of the Eastern and Western States. The tide is even yet but a small one, but it is gathering strength at last under the influence of a systematic advertising campaign, and the heaviest portion of this work now seems to have been accomplished. During the season of the State and County fairs in the Middle West the Department sent a personal representative, Mr. J. W. Helms, to that section, with an ample supply of literature, and he did excellent work in the stimulation of the movement, work that is only just now being felt in the way of results.

The Federal immigration report for the fiscal year ending June 30, 1908, accounts for only 42 persons of foreign birth arriving at the ports, giving South Carolina as their destination, and of these five were English, three Dutch and Flemish, and seven German speaking. The others were made up of nationalities with which this Department has nothing to do, and they were undoubtedly coming to

relatives or friends resident here. During the months of July, August, September and October, 1908, the Federal reports show 81 persons arriving, of whom 40 were English, French, German, Irish, Welsh and Scotch, the others being people of nationalities undoubtedly coming to join relatives and acquaintances who had written for them.

Our small movement from England during the year, which includes the original 31 arriving in the spring, amounted to about 75 persons for the year. There have been some dozen or more Scotch to arrive directly from their homes. The total movement from abroad into the State during 1908, including the 31 English referred to, amounted to scarcely more than 165 persons, all of whom have settled down and have already become useful citizens and producers. This small movement has, of course, been largely due to the fact that immigration into the United States this year has been only about as great as the number of foreign-born persons returning to their homes on account of the financial condition of the country.

DEPARTMENTAL REPRESENTATIVES.

The Department has issued but few commissions to special agents. For advertising purposes it is still represented in Scotland at no cost to the State by Mr. Mitchell at Glasgow, and in England by Capt. Alex. Thompson, an American, who has been resident in England some years. The only advertising representative to whom a commission was given during the year was Mr. J. E. Norment, of this State, who took literature with him on a trip to Europe. Another resident of this State going to Germany was paid for similar services, but no commission was issued to him.

INVESTIGATIONS.

In the middle of June, after preliminary correspondence, first through the late Senator A. C. Latimer and later through other members of the commission, Maj. Rauch and Mr. Arthur Everett Small, representing the U. S. Immigration Commission created by Congress, the latter as expert, arrived in the State for the purpose of fully and exhaustively investigating any and everything in this State relating in any way to the subject of immigration. As had been the custom of the Department in its treatment of investigators from the government, or any other reputable body, every possible assistance was afforded these gentlemen by your Commissioner, and every opportunity given to them to see and talk with foreign-born persons resident in

the State. Likewise every opportunity to investigate our conditions was afforded them. They were even taken about the State into mill districts, and out into the farming country, spending considerable time in the State.

The final report of the Congressional Commission has not yet been made public. I recently requested a copy of the section relating to this State, but it could not be given to me until it had been presented to Congress.

GRATIFYING CLOSING CHAPTER.

Herewith, however, I present to you a letter from the expert of the United States Immigration Commission appointed by Congress, Mr. Small, the able investigator, who spent several weeks probing to the very bottom every act of this Department, being welcomed to do so by myself, even going to every locality wherein foreign-born people had been settled. I present this letter in order that the masses of the people of the State may see that this Department has exercised care and caution in the discharge of as difficult a task as was ever imposed upon any branch of a government at a time when popular demand made action necessary. I can do so, I trust, and thus clarify to some extent the misapprehension that has grown widespread, and all the more can I do so for the reason that for more than eighteen months this last branch of the Department's work has been given practically no attention, nearly all of the time of the Commissioner being devoted absolutely to the building up of the agriculture of the State, inducing the Federal Government to aid in launching lines of work that have already produced the handsome results shown elsewhere in this report. This letter is merely a closing chapter to a series of experiments that have led to the third branch of the Department's work reaching at this time the stage where we are getting purchasing agricultural settlers almost exclusively from other portions of this country, and therefore making efforts beyond the seas no longer necessary. This report shows elsewhere that in this branch of the work we have left the foreign field to itself, using our Act as merely a protective agency. The contents of this letter, which is incorporated by permission of the writer, are particularly gratifying, as it closes the chapter in a manner reflecting credit upon our State—not that our plan is to be further prosecuted because of it, for, as I have pointed out, we have passed the stage of development longer demanding work in the foreign field.

The letter follows:

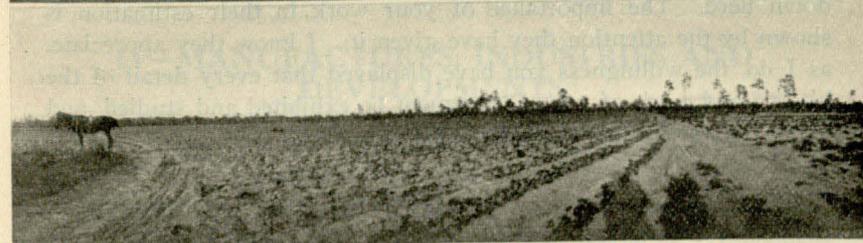
Washington, D. C., Dec. 19, 1908.

Hon. E. J. Watson, Columbia, S. C.

Dear Mr. Watson: I regret very much having been obliged to answer your telegraphic request in the negative. The Immigration Commission recently voted, in response to similar requests, that their first report is due Congress, and that giving out the same to State departments or commissions or individuals would be improper. You will see that their position is on the whole proper, although there are cases like yours where no harm would really ensue except to establish a precedent.

I believe, however, I am violating no confidence when I say that your four years of work in the line of immigration has been of great value not only to your State, but to the nation. You have not only brought desirable immigrants to your State and have for the first time presented the South in a favorable light to immigrants as a progressive and inviting section of the United States, but you have also blazed a new trail in the matter of State selection of immigration at its source that has evoked widespread attention, and will doubtless be emulated by many other States as the most feasible plan.

I believe I am not making a rash prediction when I say that the South is bound to be the great Mecca of immigration in the near future. The nature and quality of that immigration will largely be determined by her own efforts. If she sits idly by and lets the indiscriminate tide drift in from the North without setting up counter currents of selected immigrants direct from Europe, such as your plans, if followed, will bring about, she will find not only that her cities become crowded with aliens of a low grade, but that she has a race problem added to a race problem. You know that the probable source of future immigration is not the North and West of Europe, but the South and East. The Pole, the Jew, the Turk, the Greek, the Syrian, the South Italian, the strangely-mingled peoples of Austria-Hungary and the Balkans, and the mongrel hordes of Asia Minor are at our doors. The stationary populations, like the Russian peasantry, may soon be on the move. Like attracts like. Let the most ignorant, unprogressive, alien races of Europe and Asia get a foothold in your comparatively thinly settled South, and you will have your great cities of the future dominated by them. I do not mean to say that there are not many individuals in all these races of the very highest ability and readily assimilated and a credit to their new homes, but



U. S. COMMISSION VISITING BELGIAN SETTLERS.

the task of assimilating thousands of Syrians, South Italians, Turks, Greeks, Italians, Slovaks, Russian Jews and similar races through intermarriage, education and social and political participation with them in all the problems of the South would, I believe, overtax your resources in many directions.

The only remedy that occurs to me is what you have adopted. Every State should have a special department for the study and trial of these experiments. The encouragement of trans-Atlantic lines to Southern ports from Northwestern Europe, the selection of high grade immigrants at their source, and other efforts such as are possible by the maintenance of a highly efficient department like yours, would in time set a stream of immigration toward your section of the type the South needs and must have. Yours is a work that requires time and only by careful and extended investigation, such as I have just completed of your work, can its great and far-reaching effects be appreciated. Its indirect results of attracting desirable trans-State immigration, and the investment of new capital in your State has likewise been of great value. My investigations lead me to believe that the income in taxation to the State from the property you have directly or indirectly induced to be transferred to South Carolina exceeds several times over the total cost of your Department to the State. I feel sure that the reports of the Immigration Commission when published will bear out many of the things I have set down here. The importance of your work in their estimation is shown by the attention they have given it. I know they appreciate, as I do, the willingness you have displayed that every detail of the history and work of your Department be exhibited and studied, and your courtesy in making such a study possible.

Cordially yours,

ARTHUR EVERETT SMALL.

You may use the contents of this letter as you see fit.

DEATH OF MR. SARGENT.

In mentioning the subject of immigration it is but proper that there should be recorded in this report the sincere regret of this Department at the death during the year of Frank P. Sargent, United States Commissioner-General of Immigration. Mr. Sargent was a true friend of South Carolina, and, throughout our experiments, aided the Department materially in its several undertakings, giving

advice directed to avoiding any unloading of undesirables upon the South and leading to the securing of purchasing agricultural settlers.

HOMESEEKERS' EXCURSION RATES.

After several years of repeated effort, the railway lines operating in the South have succeeded in getting their connecting lines in the West to put into force special homeseekers' excursion rates once a month, such as the Southwestern States have enjoyed for some years. These railway lines have also put in similar rates south from Washington. The establishment of these rates has been a great stimulus to the movement of Western and Northwestern people into the South Atlantic States, and South Carolina being so extensively advertised has been and is receiving probably more attention from these prospectors than any of her sister States in this section of the country.

COLONIZATION ENTERPRISES.

There are at present several large agricultural colonization enterprises designed for the permanent settlement of families from other sections of this country in process of development at this time. One of the chief of these is mentioned in the section of this report relating to agriculture.

IV—MANUFACTURES, INDUSTRIES AND DEVELOPMENTS.

South Carolina is still forging ahead as a manufacturing and industrial State. Despite the hard year on industrial undertakings of every description, there has been a marked advance upon all lines throughout the State. There is not yet that degree of development in the matter of small diversified manufacturing—the manufacture of small commodities heretofore bought from the East and West—that is so much to be desired. There has been some advance in this direction, however. The State still leads the Southern States in cotton manufacturing, having about \$2,225,000 more capital and about one million more spindles than the next ranking State—North Carolina. This State in this respect also ranks second among the States of the Union, being second only to Massachusetts.

South Carolina still ranks fourth in the United States in the manufacture of commercial fertilizers, and fifth in each of the canning

and hosiery industries. The relative rank of the various industries in the State is the same as last year.

There are over 77,000 persons now actually engaged in the various manufacturing plants, and of these about 60,000 are employed in the textiles.

THE TEXTILES.

The Department during this year made an additional census of the textile industry in the State, the reports being closed on August 31. The result of this showed a slight difference in the matter of spindles and looms as compared with the census of the Federal Government, which also closed with August 31st. The Department's reports gave 3,776,981 spindles, while those of the Federal Government gave 3,713,006; in looms, this office's reports showed 92,744, against 88,408 by the Federal Government. The United States Government figures also gave more than 100,000 less bales of cotton consumed.

The Department's summary is given herewith, as follows:

	1908 to Aug. 31.	1907.
Number of establishments.	182	179
Number of corporations.	162	159
Total capital invested in textiles. . .	\$105,826,919	\$103,821,919
Capital stock, par value.	56,992,050	54,987,450
Capital stock, actual value.	50,682,234	48,677,234
Number of spindles.	3,776,981	3,688,761
Number of looms.	92,744	90,177
Bales of cotton consumed annually. . .	793,396	774,905
Value of product annually.	\$ 77,010,419	\$ 75,455,019
Number of employees.	56,223	54,887

No reports were obtained this year as to the number of children employed, but there is every reason to believe that the proportion of decrease, which was 700 less in 1907 than in 1905, has been maintained.

Accepting the Federal figures to August 31st as a basis of comparison, the facts below are of interest:

Of the 3,713,006 spindles, 3,617,358 were active during the year. There were 610,734 bales of cotton consumed, of which 3,012 were foreign bales.

In the number of spindles, Massachusetts exceeds every other State with 9,446,380, or 34 per cent. of the total in the country.

This State comes next with 3,713,006, or 13 per cent., and North Carolina is in third place with 2,944,404, or 11 per cent. "Rhode Island has fourth place, Georgia fifth, New Hampshire sixth, and Connecticut seventh. No other State reports as many as a million spindles."

Of the spindles in the South Carolina mills, 3,700,974 are ring spindles, and only 12,032 mule spindles.

"Massachusetts," says the Federal report, "is the leading State in the consumption of cotton, with 1,146,619 bales, or 25 per cent. of the total for 1908, followed by North Carolina, with 637,401 bales, and South Carolina, with 610,734 bales. This slight difference between the last two States is especially remarkable in view of the fact that South Carolina has nearly 800,000 spindles more than are reported for the mills of North Carolina. This probably results from a tendency in South Carolina to spin the finer counts. It may be stated in this connection that, according to the returns of the manufacturers, the average time which the mills were idle in South Carolina during the year amounted to 54 days, compared with 76 days for those in North Carolina. Georgia ranks fourth in quantity of cotton consumed, with 10 per cent. of the total; New Hampshire ranks fifth, Rhode Island sixth, and Alabama seventh. As indicated above, a comparison on the basis of spindles gives some of the States a somewhat different rating."

In South Carolina on Aug. 31, 1908, stocks of cotton on hand amounting to 76,763 bales, were held against 113,688 in 1907, being in the possession of the following: manufacturers 32,783 bales, warehouses and compresses 31,117, transportation companies 1,383, producers 5,664, other holders 5,826.

The exports of cotton from the United States were less than those for 1907 by 929,916 bales. From Charleston only 44,518 bales were exported, which was, however, more than double the amount of the preceding year—1907. The net receipts at Charleston were 203,491, against 149,924 in 1907, less than half as much as Wilmington, while Savannah went over one and one-half million bales.

The general condition of the textile industry in this State has improved greatly during the year. The mills fortunately escaped any serious damage by the August floods. Much welfare work has been done among the operatives, and the discussion of the hook-worm disease has had a tendency to improve hygienic conditions. The mills have had abundant labor. But very few of the mills in this State were forced to run "short time" in the spring on account of the bad

market conditions then generally prevalent. The new 10-hour law seems to be working most satisfactorily.

REGISTRATION OF BIRTHS NEEDED.

If there is to be a proper enforcement of the child labor law, a law requiring a proper registration of births and deaths is, as has been said in preceding reports, an absolute necessity. The damage resulting from the absence of such a law from the statute books is incalculable.

FACTORY INSPECTION.

Elsewhere in this report the subject of factory inspection by the State is dealt with, and attention is called to the recommendation made in regard to this important matter.

1908 INCREASES AND PROPOSED ENLARGEMENTS.

The following shows the actual increases of capital during 1908 of existing mills:

	From	To	Inc. in 1908.
Anderson Cotton Mills, Anderson	\$ 600,000	\$ 800,000	\$ 200,000
Fountain Inn Mfg. Co., Fountain Inn	200,000	300,000	100,000
Brandon Mills Mfg. Co., Greenville	300,000	1,000,000	550,000
Carolina Mills, Green- ville	50,000	200,000	.....
Springstein Mills, Ches- ter	100,000	500,000	.....
Ware Shoals Mfg. Co., Ware Shoals	1,000,000	1,300,000	100,000
Oconee Knitting Mills Fort Mill Mfg. Co. . .	15,000	50,000	20,000
Greenwood Cotton Mills, Greenwood	200,000	450,000	250,000
Liberty Cotton Mills, Liberty	100,000	500,000	100,000
Fairmount Mfg. Co., Fairmount	100,000	200,000	25,000
	5,000	300,000	295,000

Net actual increase of capital of existing plants in 1908. . . \$1,640,000

So far as the reports have been received an actual increase of 10,000 spindles has been made in the above mills.

The latest new mill to be established is the Rikard Knitting Mill, of Leesville, Lexington County, with a capital of \$10,000.

Among the textile developments and improvements, enlargements, etc., proposed for the year 1908 (prepared on Aug. 31) are the following:

Newberry Cotton Mills proposes increase from 28,000 to 38,000 spindles, and from 900 looms to 1,200 looms.

Aragon Mills, of York—proposed to double plant during year, which would mean 20,480 spindles and 560 looms.

Darlington—Proposed new mill of 10,000 spindles and 300 looms.

Pendleton Cotton Mills—Proposed increase of spindles from 3,136 to 11,000.

Cheraw Cotton Mills, Chesterfield County—Proposed new mill of 10,000 spindles and 300 looms.

Calhoun Mills, Calhoun Falls—Proposed increase from 16,000 to 25,000 spindles and from 400 looms to 600 looms.

Lockhart Mills—Proposed increase of 3,000 horsepower of water-power.

Greeleyville—Proposed new mill.

Monetta Mills and Highland Cotton Mill—Enlargements contemplated before the end of the year.

Tyger Cotton Mills—Proposed enlargements before end of year.

Wellford—New mill proposed with \$300,000 capital.

Spartanburg—Proposed new mill to be known as Crescent Mfg. Co.

Blacksburg—Blacksburg Mills, organized in 1907 with \$250,000 capital, almost ready to start with 5,000 spindles and 128 looms, and 700 operatives.

INVESTIGATION OF CONDITIONS.

The United States Bureau of Labor, early in the year, sent a corps of special investigators into this State under the direction of Mr. Walter B. Palmer, Special Agent, to make a thorough investigation of all possible phases of labor conditions in the textile plants of the State. These investigators were freely given by the State Department all assistance possible in the prosecution of their labors, and they were courteously received by mill officials throughout the State. The results of this investigation have not yet been published.

WATER POWER.

The potentiality and value of the immense water power possessed by this State can scarcely be realized and the development has but just been entered upon. What is said in the section of this report dealing with the great floods in the streams possessing these water powers clearly indicates the constant menace to which they are subjected, and explains the earnest advocacy by this Department of the proposed Appalachian Forestry Reserve measure.

In the Handbook of South Carolina it is approximately estimated that 300,000 horsepower is available on the streams of the State for practical development, of which about 125,000 has been developed, though not all utilized, leaving 175,000 still available.

During 1908 there has been issued a carefully prepared statement, showing the estimated minimum horsepower of the three great water courses that come down from the Appalachian mountains. It is as follows:

	Minimum For the Year.	Minimum For Six High-Water Months.
Pee Dee	167,800	256,945
Santee	319,590	472,000
Savannah	209,000	314,600
	<hr/>	<hr/>
	696,390	1,043,545

This estimate does not deal fully with such streams as the Congaree or take into consideration potentialities of streams of less than 500 horsepower. It merely suggests the available power to be derived under a proper scheme of conservation at the sources, insuring regularity of flow.

The development of water powers for economic purposes has materially advanced during the year.

The developed power is driving machinery in dozens of great cotton mills, contributing to make this the second cotton manufacturing State of the Union; it is furnishing the power for street railways and the light for towns and cities. Because of the available water powers, an extensive system of inter-urban electric railways is now being surveyed. The possibilities of manufacturing development with this cheap power are unlimited. The cost of development is so low that power can be sold profitably as cheap as anywhere in the United States.

There have been several valuable developments of water powers during the year.

The Reedy River Power Co., of Laurens, has put in operation its new water power electric plant, furnishing 2,000 horsepower for lighting and manufacturing. There is a demand for all the power, and the company is supplying 200 horsepower to the city of Laurens on a 10-year contract.

The Southern Power Company has completed arrangements for the development of another of its water power properties in this State. It has awarded the contract for the construction of the dam and power house at Ninety-Nine Islands, on Broad River, seven miles from Blacksburg. About 20,000 horsepower will be developed for transmission by electricity to manufacturing and lighting plants, and it is understood this development will increase the company's total available horsepower to 110,000. The Ninety-nine Islands dam will be 1,100 feet long and 90 feet high, containing 170,000 cubic yards of masonry—concrete and rubble. The construction contract involves about \$650,000, and is to be completed within 15 months. In awarding this contract the Southern Power Company takes another step forward in its extensive plans for furnishing electricity generated by water powers in the Carolinas.

BANKING.

The briefest summary shows a healthy condition as to banking in the State.

The following gives an idea of the development of National Banks:

	Resources.	Capital.	Individual Deposits.
1880.	\$ 7,827,604	\$2,451,100	\$ 2,586,177
1900.	11,934,976	2,083,000	5,171,644
1908.	27,069,218	4,330,000	11,328,102

OTHER BANKS.

1880. . . . .	.....	\$ 658,812
1900. . . . .	.....	8,774,786
1908. . . . .	.....	28,067,455

NEW BANKS.

The following new banks have been granted charters by the Secretary of State during the year, others having been commissioned with additional capital of \$129,000: Citizens' Bank, Fairfax, \$15,000; Farmers' Bank, Johnston, \$25,000; Ridgeway Savings Bank, Ridgeway, \$20,000; Peoples' Bank Fountain Inn, Fountain Inn, \$15,000; Planters' Savings Bank, Greer, \$25,000; Westminster Bank, Westminster, \$100,000; Peoples' Bank, Woodruff, 50,000; Bank of Calhoun Falls, Calhoun Falls, \$20,000; Bank of Berkeley County, Monck's Corner, \$1,500; Savings Bank, Darlington, \$50,000; Citizens' Bank, Blackstock, \$10,000; Peoples' Bank of Florence, Florence, \$100,000; Bank of Estill, Estill, \$1,000; Bank of Bethune, Bethune, \$15,000; Bank of Gray Court, Gray Court, \$15,000; Peoples' Savings Bank, Clio, \$25,000; Bank of Pomaria, Pomaria, \$15,000; Planters' Bank, Orangeburg, \$50,000; Union Savings Bank, Columbia, \$25,000; Peoples' Bank, Campobello, \$15,000; Bank of Landrum, Landrum, \$15,000; Citizens' Savings Bank, Union, \$25,000; total capital, \$632,500.

INCREASES OF CAPITAL.

The following increases of capital have been made by banks during the year 1908:

	From	To	Increase 1908
Peoples' Bank of Anderson, Anderson	\$100,000	\$250,000	\$150,000
Chicora Savings Bank, Pel- zer	25,000	50,000	25,000
Peoples' Bank of Ridge Springs, Ridge Springs	20,000	30,000	10,000
Bank of Fountain Inn, Foun- tain Inn	15,000	50,000	35,000
Citizens' Bank, Honea Path.	25,000	75,000	50,000
Bank of Bowman, Bowman . .	10,000	15,000	5,000
Bank of Timmons ville, Tim- mons ville	25,000	50,000	25,000
Commercial Bank, Camden . .	25,000	50,000	25,000
Carolina Trust Co., Spartan- burg	25,000	50,000	25,000
Bank of Camden, Camden . . .	25,000	100,000	75,000
Bank of Johnston, Johnston . .	30,000	75,000	25,000
Bank of Troy, Troy	15,000	25,000	10,000
Bank of Clio, Clio	25,000	50,000	25,000

MANUFACTURING ENTERPRISES.

Many new enterprises have been inaugurated during the year, such as a plow, stock and implement company at Clio, mining companies at Greenville and Union, a paper box concern at Charleston, etc. There have been a large number of new ginneries and steam laundries started. A cigar box manufacturing company has been established in Charleston, a brick plant at Kinard's, cotton warehouses have been built in many portions of the State; a brick tile manufacturing company has been started in Laurens, the Pacolet Mining Company has been formed at Gaffney, for the purpose of gold mining in that vicinity, a mattress and broom factory has been started at Kershaw, a basket and box factory at Darlington, a large fruit cannery in connection with the Palmetto Farms in Aiken, a tin shingle plant at Anderson, a box and crate factory at North Augusta, and the Claussen Gold Mining Company at Fort Mill, with \$100,000 capital, has been formed to conduct gold mining near Fort Mill. Another important enterprise started during the year is that of the Clay Products Manufacturing Company of East Liverpool, Ohio, which company has purchased 160 acres of kaolin land in Aiken County and proposes to manufacture brick, sewer pipe, terra cotta, and plain and ornamental chinaware.

UTILIZING PINE STUMPS.

At present negotiations are pending with parties from the West for the utilization of some 20,000 acres of pine stump land in the State for the purpose of utilizing the stumps in the manufacture of turpentine, pine, oil, etc.

PUBLIC IMPROVEMENTS.

Throughout the State the year 1908 has witnessed wonderful headway in the matter of municipal improvements. Nearly all of the towns of any size are putting in concrete paving and sewerage systems, water works plants and gas works. The city of Anderson is constructing a complete gas plant; Chester is putting in new water works and cement pavements. Laurens is paving her streets; street paving has made wonderful headway at Union; Abbeville is building a new city hall at a cost of \$60,000; Darlington is putting in a sewerage plant; Beaufort is putting in a plant for water works and lights and is constructing a new city hall; Greenville is getting a new telephone equipment at a cost of \$100,000, with wires underground;

work is about to begin on Sumter's new postoffice; Greenwood is spending \$50,000 on street paving, and extensive paving contracts have been awarded in both Columbia and Charleston; the new United States Courthouse is being constructed in Greenville; Yorkville is putting in a telephone exchange connecting the county seat with the town of Clover; Yorkville is also putting in a sewerage system; and new courthouses are being constructed in Manning and St. Matthews.

Among other improvements not strictly municipal may be mentioned the Nurses' Home at Charleston, the improvements costing \$15,000, and a \$40,000 addition to the Hotel Jerome at Columbia. A new hotel has been constructed at Chick Springs at a cost of \$50,000, and at several other points in the State new hotels are under construction. Greenville is to have a handsome new hostelry. Large tobacco warehouses are being constructed at Marion and Manning. The United States Government has awarded the contract for the construction of the new navy yard pier at Charleston at a cost of \$81,000.

V.—THE STATE EXHIBIT.

In the general introduction to this report attention has been called to the great need for constant access by the Department to the State Exhibit property. As long as this property was under the supervision and control of the Department it was used to immense advantage with prospective investors visiting the office. Such an exhibit, accessible at all times to visitors, and from which from time to time selected specimens and exhibits could be sent to notable conventions along with those from other States, is one of the necessities at this time. In calling attention to this matter and making the recommendations, elsewhere herein, in regard to the supervision of the exhibit property, which is still stored in the old dispensary buildings just as it was returned from the Jamestown Exposition, this Department does not do so in any spirit of antagonism to the State Agricultural and Mechanical Society. As things are, however, this extremely valuable property is worse than useless to the State or the society, and the very purpose that this Department had in view in assembling most of the material—a purpose vital to the successful conduct of the Department's work—is being defeated.

VI.--IN THE MINERAL FIELD.

The year 1908 has been one of substantial advancement in the mineral field. The State's valuable mineral resources have been merely scratched on the surface, but just at this time more attention is being given to these resources than ever before. The mineral production of the State has only been slightly increased, aggregating in value about \$2,500,000, being approximately the figures given in my last annual report.

During the year several new mining propositions have been undertaken in the Piedmont country, which give promise of good results.

At the present time the Department is earnestly engaged in an effort to assist in bringing from Scotland a number of granite "firms"—cutters who take contracts, operate with their own capital and tools, using the rough stone from our quarries. Several such have already been located near the quarries of the Winnsboro Granite Corporation, and considerable development in this direction is expected during the winter, some of the firms preparing already to not only move to South Carolina from Aberdeen and vicinity, but to bring their equipment of machinery with them.

During last winter, through the influence and assistance given by this Department a Vermont quarryman of means came to South Carolina and undertook the development of the Heath quarries in Lancaster County. He has brought a number of expert cutters to the State during the year, having moved here himself with his entire family, and is already conducting a rapidly growing business.

During the summer, with the president of the College for Women of Columbia, the matter of the utilization of our clays for art pottery work was taken up and every assistance given by the Department to bring about the starting of this new industry. The Department's connections with the users of these clays for similar purposes in the East were utilized, with the result that, as this is written, a complete line of work for the young women of the college is being established. Some of the experiments have been eminently successful and the work done has been of high character.

During the past year the phosphate rock output was 257,221 long tons.

During the spring of this year a fine deposit of shale, suitable for the manufacture of vitrified brick was discovered on the Broad River some miles north of Columbia, the deposit being apparently in inexhaustible quantity. Tests were made of this material by the experts

of the United States Public Roads Office in Washington, and the report of Director Page, of the office of Public Roads, contains the following statement: "The compressive strength is the highest of any bricks yet tested in this laboratory." A company has already been organized with \$200,000 capital for the construction of a large brick plant on the property to manufacture the material extensively for commercial purposes.

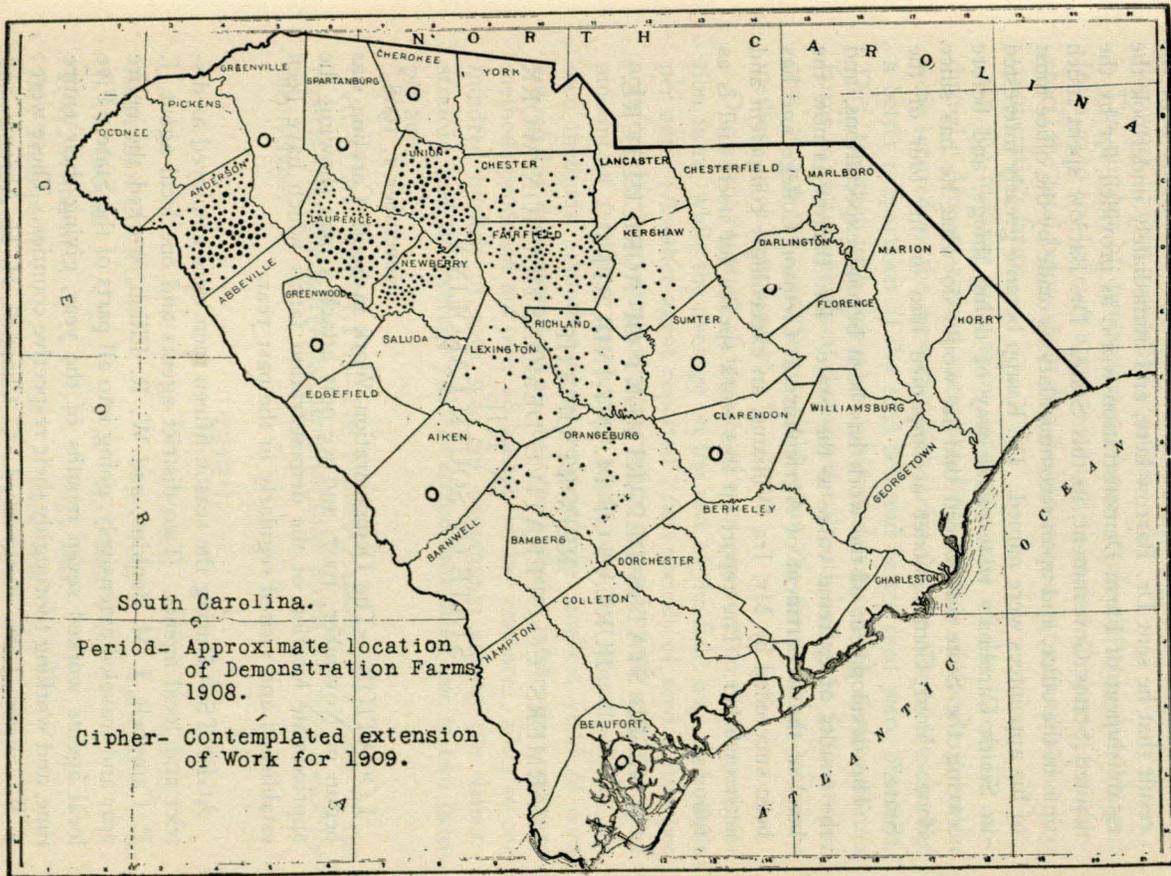
VII.—FEDERAL AGRICULTURAL WORK IN SOUTH CAROLINA.

Elsewhere in this report in a general way the extensive work in South Carolina that the United States Department of Agriculture through its various bureaus and divisions has been referred to. In the conduct of all these various branches of work your State Department has from the first given the closest co-operation, having, indeed, been directly responsible for the securing of several of the lines of work that are being prosecuted this year with so much vigor. It has been a settled policy of the Department to ask the Federal Department to enter this State in any line which seems to be needed, and to offer the fullest co-operation on the part of the State. In many instances, through information already gathered and through the advice that the State Department has been able to furnish readily, the Federal field workers have been enabled to save much valuable time and to advance their operations far more rapidly than they could possibly have done otherwise, even had they entered South Carolina unsought.

In view of the close connection of your Department with all these varied lines of agricultural endeavor in this report, a departure in State agricultural reports is made. I determined to ask the Federal authorities to have prepared for this report summaries of the work the several bureaus were doing in South Carolina, the chief object being to acquaint our own people with what the National Department is doing in their State in collaboration with the State Department. The Federal authorities readily acceded to my request and herewith are presented several of the reports filed, all of which will doubtless prove instructive and valuable.

FARM DEMONSTRATION WORK.

In my last annual report I said: "It was owing to the work of this Department, assisted by State Superintendent of Education Martin, that Dr. S. A. Knapp, that distinguished pioneer in the work of mak-



COMPREHENSIVE MAP SHOWING EXTENT OF U. S. DEMONSTRATION FARMS.

ing two blades of grass grow where one grew before, came to this State in the summer of 1907 and studied the conditions, with the result that he sent Dr. Barrow here, and immediately undertook the establishment of Farm Demonstration work, as provided for by the United States Government, in this State. Dr. Barrow spent much time in the office, and upon recommendations made by the office most of his appointees were named. Dr. Knapp became greatly interested in South Carolina's wide-awake way of doing things, and before leaving the State announced that he would do what he has since done. Your Commissioner accompanied him on his tour of the State."

The development of the work has been beyond expectations, and the results of extreme value to the State. Dr. Barrow is now the head of the Department of Agriculture at Clemson College and has been succeeded by Mr. Ira Williams, an exceedingly competent and active worker. The report on this work speaks for itself and is as follows:

UNITED STATES DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY.
REPORT OF THE
FARMERS' CO-OPERATIVE DEMONSTRATION WORK
IN THE
STATE OF SOUTH CAROLINA.

November 1, 1908.

LOCATION.—The Demonstration Work in South Carolina was begun in November, 1907, and we now attach a map showing the approximate location of the demonstration farms which have been established and visited regularly in the past year.

AGENTS.—During the season fifteen men were employed as district and local agents. Two district agents and one local agent, J. P. Campbell, J. M. Jenkins, and W. R. Elliott, worked the entire year and traveled extensively, going into all parts of the State. Five local agents worked seven months of the year, giving their entire time, and working thoroughly their respective counties. These were: J. B. Tinsley, J. W. Rothrock, L. C. Chappell, H. H. Abrams, and T. J. Cunningham.

RESULTS.—At a meeting held in Columbia, South Carolina, October 26th to 27th, all the agents gave a report of the demonstration work in their respective counties.

The number of demonstration farms conducted this year ranged from 40 to 100 for each agent, with quite a varied number of co-operators, the total being about 600 demonstration farms and about 500 co-operating farms.

In the meeting each agent made a report of the farms he conducted. Almost without exception, better stands of corn and cotton were secured on the demonstration farms for the simple reason that a better preparation of the seed bed and better seed were obtained. This, together with intensive cultivation, caused the demonstration farms to better withstand the summer drouth and gave from 10 per cent. to 100 per cent. larger yields than the farms where ordinary methods have been applied.

One agent reported 46 bushels of corn per acre on the demonstration farm, while the average on the rest of the field was 14 bushels per acre. Another agent reported 1,600 pounds of seed cotton per acre on the demonstration farm, while on same land with the same amount of fertilizer, the farmer made only 800 pounds under his own methods. Another agent reported the smallest yield of corn among his demonstrations to be 23 bushels, while the ordinary methods produced not over 18 bushels in any instance. Fifty to one hundred bushels of corn was not uncommon among the demonstrators, and the average yield of cotton was from one to two bales per acre.

ACTUAL RESULTS.—The following abstracts of some of the reports from the individual demonstration farms for 1907 speak for themselves:

CORN.

ANDERSON COUNTY—	Raised This Year.	Near-by Land This Year.
J. W. Cromer	75 bus.	
T. W. Wilborne	62½ bus.	
Jno. Thompson	65½ bus.	
Jno. H. Keasler	60 bus.	
J. T. Burby	60 bus.	
T. H. Burriss	60 bus.	

	Raised This Year.	Near-by Land This Year.
CHESTER COUNTY—		
J. B. Atkinson	30 bus.	11 bus.
Walter Simpson	46 bus.	9 bus.
J. S. McKeown	30 bus.	11 bus.
J. G. Lee	27 bus.	8 bus.
H. W. Miller	41 bus.	12 bus.
FAIRFIELD COUNTY—		
J. C. Wellingham	51 bus.	15 bus.
H. G. Gladden	30 bus.	5 bus.
D. L. Stevenson	30 bus.	10 bus.
Jim McGill	35 bus.	10 bus.
J. W. Crawder	30 bus.	9 bus.
W. J. Burley	50 bus.	30 bus.
Harry Harrison	35 bus.	15 bus.
John A. Gibson	40 bus.	15 bus.
LAURENS COUNTY—		
W. H. Culbertson	36 bus.	20 bus.
R. G. Wilson	41 bus.	15 bus.
I. T. Ganett	51 bus.	
T. P. Neighbors	45 bus.	
H. H. Pinson	40 bus.	
W. H. Culbertson	35 bus.	
B. W. Z. Pitts	37½ bus.	
W. M. Curry	38 bus.	
J. B. Curry	35 bus.	
RICHLAND COUNTY—		
L. C. Chappell	50 bus.	6 bus.
R. B. Crawford	25 bus.	15 bus.
Dr. H. Claytor	30 bus.	20 bus.
W. H. Burnside	25 bus.	20 bus.
J. A. Dixon	20 bus.	12 bus.
ORANGEBURG COUNTY—		
Reese Morgan	40 bus.	30 bus.
J. C. Phillips	67 bus.	40 bus.

UNION COUNTY—	Raised This Year.	Near-by Land This Year.
W. H. Hawkins	30 bus.	15 bus.
C. A. Betsill	52 bus.	20 bus.
R. S. Harris	55 bus.	25 bus.
P. H. Betenbaugh	40 bus.	12 bus.
W. F. Bobo	46½ bus.	10 bus.
S. F. Summers	50 bus.	
C. A. Betsell	52 bus.	
S. C. Gregory	55 bus.	
Mr. Santelli	52 bus.	

COTTON.

ANDERSON COUNTY—	Made This Year.	Near-by Land This Year.
T. W. Wilburn	2,633 lbs.	.....
Jno. T. Kusler	2,268 lbs.	.....
J. T. Busby	2,300 lbs.	.....
T. E. Watkins	2,000 lbs.	.....
D. C. Wekfield	2,000 lbs.	.....
W. P. Stevenson	2,550 lbs.	.....
J. D. Smith	2,500 lbs.	.....
Sam McCrary	2,500 lbs.	.....
J. P. Hunter	2,000 lbs.	.....
J. P. Douthit	2,000 lbs.	.....

ORANGEBURG COUNTY—

T. F. Brantley	1,437 lbs.	1,125 lbs.
T. G. Robinson	2,230 lbs.	1,850 lbs.
J. A. Summers	900 lbs.	750 lbs.
S. J. Hallman	1,100 lbs.	950 lbs.

CHESTER COUNTY—

J. B. Atkinson	1,310 lbs.	700 lbs.
Walter Simpson	1,832 lbs.	600 lbs.
J. R. Reid	1,120 lbs.	400 lbs.
J. E. Trussell	1,620 lbs.	540 lbs.
E. A. Cassels	2,027 lbs.	700 lbs.

	Made This Year.	Near-by Land This Year.
FAIRFIELD COUNTY—		
T. L. Johnston	1,250 lbs.	800 lbs.
E. H. Dixon	1,412 lbs.	800 lbs.
Jas. B. Stevenson	1,100 lbs.	750 lbs.
J. C. Willingham	1,493 lbs.	900 lbs.
H. G. Wylie	2,448 lbs.	1,600 lbs.
D. L. Stevenson	*5275 lbs.	**500 lbs.
W. E. Blackwell	1,325 lbs.	700 lbs.
RICHLAND COUNTY—		
L. C. Chappell	2,000 lbs.	400 lbs.
W. H. Burnside	1,500 lbs.	1,000 lbs.
J. A. Dixon	1,500 lbs.	400 lbs.
Dr. H. Claytor	1,500 lbs.	500 lbs.
D. W. W. Ray	1,650 lbs.	1,300 lbs.
LAURENS COUNTY—		
W. H. Culbertson	1,675 lbs.	1,200 lbs.
R. G. Wilson	1,418 lbs.	700 lbs.
W. O. Wharton	1,575 lbs.	.....
C. M. Wolf	1,315 lbs.	.....
J. H. Wharton	1,275 lbs.	.....
P. M. Pitts	1,500 lbs.	.....
W. A. Tumbling	1,550 lbs.	.....
A. B. Culvertson	1,200 lbs.	.....
J. T. A. Ballew	1,200 lbs.	.....
H. L. Jones	1,200 lbs.	.....
J. T. Hill	1,000 lbs.	.....
LEXINGTON COUNTY—		
C. T. Koon	1,100 lbs.	800 lbs.
J. H. Price	1,200 lbs.	800 lbs.
Geo. C. Price	1,300 lbs.	900 lbs.
W. W. Barre	1,050 lbs.	600 lbs.
Geo. C. Shirley	1,100 lbs.	700 lbs.
T. H. Rawl	1,600 lbs.	900 lbs.
F. W. Shealy	1,000 lbs.	700 lbs.

*Five acres. **One acre.

	Made This Year.	Near-by Land This Year.
KERSHAW COUNTY—		
H. G. Carrison..	1,300 lbs.	800 lbs.
C. N. Humphries..	1,200 lbs.	700 lbs.
F. H. Arrants..	900 lbs.	700 lbs.
A. M. McCaskill..	1,707 lbs.	700 lbs.
Samuel Boykin..	1,230 lbs.	800 lbs.
UNION COUNTY—		
L. E. Garner..	2,000 lbs.	.....
Henry Smith..	2,586 lbs.	.....
D. C. Gist..	1,944 lbs.	.....
W. H. Hawkins..	2,100 lbs.	1,000 lbs.
C. A. Betsill..	1,400 lbs.	500 lbs.
R. S. Harris..	1,500 lbs.	500 lbs.
P. H. Betenbaugh..	1,400 lbs.	700 lbs.
W. F. Bobo..	1,100 lbs.	600 lbs.

SCHOOL OF INSTRUCTION.—Aside from the regular work on the demonstration farms, more than 100 Schools of Instruction were held over the State this year, in which the agents gathered together the farmers of the counties and talked to them on the preparation of the soil, the uses of good seed, and intensive cultivation. They have also been called upon to speak at different public meetings, Farmers' Union meetings, the Farmers' Institutes, and various associations.

It is safe to say that the local agents have this fall succeeded in getting ten farmers to select seed for next spring's planting, make a fall preparation of the soil, and add a winter cover crop where only one farmer was accustomed to this before. Some agents report that fifty times as many farmers have adopted this method.

Another pressing need is the use of better farm machinery and more stock, which the agents are advocating with splendid results.

Statistics gathered from the Commissioner of Agriculture, merchants, and a number of farmers from each county, show that only about two-thirds of the hay, grain and pork consumed in each county is raised by the farmers themselves. Our agents have taken advantage of the situation, and are constantly urging the farmers to grow more home supplies.

We have been rewarded already, and it is surprising to note the number of farmers who are now, for the first time, growing other

crops than corn and cotton. Mr. Elliott, of Fairfield county, estimates that at least one hundred of his men have this year seeded vetch and crimson clover for the first time. Equally as good reports are coming in from other sections of the State.

CO-OPERATION.—The hearty co-operation of the State Department of Agriculture has been largely responsible for the success of the demonstration work in this State. Mr. Watson has not only helped to make the work a success, but has advertised it in such a way as to create a demand for the work, which, together with his own personal effort, has brought about an increase in the appropriation, since its introduction one year ago, from \$8,000 to \$13,000. It is very important that this co-operation be continued for the future success and continuation of the work in the State. Its continuance, and, if possible, some direct contribution by the State, would go a long way towards doubling the national aid at no far distant date.

We have had also the hearty co-operation of the agricultural schools and experiment stations, business men and Farmers' Union, and have helped in establishing quite a number of farmers' organizations.

At a recent meeting of the agents in Columbia, South Carolina, the following men were present and gave us much encouragement:

Congressman A. F. Lever, State Agricultural Commissioner E. J. Watson, President of the Farmers' Union B. Harris, Frank Parrott, editor of the Farmers' Union Sun; Ben F. Taylor, president of the Columbia Chamber of Commerce, and F. H. Weston, chairman of the Committee on Agriculture of the South Carolina Senate.

Congressman Lever distributed to the demonstrators several bushels of vetch for a winter cover crop this fall, and the Commissioner of Agriculture, Mr. Watson, presented us with quite a good lot of improved cotton seeds for planting purposes last spring. The editor of the Farmers' Union Sun furnished an office for the demonstration agent at Columbia, South Carolina. President B. Harris, of the Farmers' Union, has offered his services any time we have need of them.

Perhaps the most beneficial meeting during the entire year was that held at Sumter, South Carolina, on May 8th. There were present about five hundred business men and five hundred farmers. Secretary Wilson, Doctor Galloway, Chairman Scott, and Mr. Lever, of the Agricultural Committee of Congress, were the speakers of the day. The demonstration agents were considerably benefited at

this meeting and have been very enthusiastic in the work ever since.

This meeting also did more to advertise the demonstration work in the State than, perhaps, anything else we have done, and we are constantly receiving requests from farmers in every section of the State to extend the work into their locality.

The requests were so great, in fact, that Dr. Knapp had to secure a second donation of funds for the extension of the work in 1909.

SOURCE OF MAINTENANCE AND COST.—The General Educational Board made an appropriation of \$10,000 for the work in 1908, but so many calls have come for its extension that an additional \$3,000 was appropriated at a recent meeting. With this amount the following counties will be worked and agents are now being appointed:

State Agent Ira W. Williams Richland County and others.
 Local Agent W. R. Elliott Fairfield County.
 Local Agent L. C. Campbell Richland County.
 Local Agent W. C. Hane Calhoun County.
 Local Agent J. A. Summers Orangeburg and Aiken Counties.
 Local Agent E. N. Chisolm South Orangeburg County.
 Local Agent G. A. Derrick West Lexington County.
 Local Agent Jas. W. Shealy East Lexington County.
 Local Agent Thos. W. Lang Kershaw County.
 Local Agent L. L. Baker Lee County.
 Local Agent L. S. Watson Sumter County.
 Local Agent Frank McCluny Cherokee County.
 Local Agent L. S. Jeffords Darlington County.
 Local Agent C. A. McFadden Clarendon County.
 District Agent J. M. Jenkins Spartanburg County and others.
 Local Agent J. B. Tinsley Union County.
 Local Agent J. W. Rothrock Anderson County.
 Local Agent T. J. Cunningham Chester County.
 Local Agent S. M. Duncan Newberry County.
 Local Agent J. F. Sloan Laurens County.
 Local Agent J. D. Sullivan Laurens County.
 Local Agent E. E. Ware Greenville County.

All agents are appointed collaborators by this bureau at a salary of one dollar per annum and are paid by the General Education Board.



HOW ONE FAIRFIELD FARMER GETS HIS HAY FROM THE WEST.



HOW HIS NEIGHBOR GETS IT IN 1908 AFTER FARM DEMONSTRATION.

CLIPPING FROM FARMERS' UNION SUN—"THE DEMONSTRATION WORK."—"Commissioner Watson, of South Carolina, says: 'I deem the Farmers' Co-operative Demonstration Work second only in value to the rural mail delivery system to the South Carolina farmers.

"I am proud of the fact that in one year's time I have succeeded in getting about 1,500 demonstration farms established in South Carolina under the direction of the man who has just been elected professor of agriculture at Clemson College.

"What does this mean? It means the education of the farmers along lines that they have not thought of. It is to acquaint the local farmer with his own opportunities; if he doesn't want to learn, it is his own fault and his own loss.

"This kind of work in Canada—and I saw the results with my own eyes in June this year—has metamorphosed forty thousand farmers who had practically no experience and no education in skilled farming—men who are accomplishing results that should put us to deep shame. It would be a revelation to South Carolinians to see what these men are doing. Is it any wonder, in view of these conditions, that 65,000 Americans have gone over into Canada this year and availed themselves of the 160 acres of land each that the Dominion is giving free to each *bona fide* applicant?

"I believe that if you want anything from Uncle Sam, you have to ask for it; and we are getting more and more from the Department of Agriculture for this little State of South Carolina than any other State in the Union, small as she is.

"By watching, asking, receiving and working, we have, in one year's time, with practically the same acreage, increased the corn production of South Carolina by 6,000,000 bushels, and this year, despite the flood, the increase will be possibly as large."

THE BUREAU OF PLANT INDUSTRY.

In furnishing the report of the investigations of the Bureau of Plant Industry in South Carolina, the chief of the bureau, Dr. B. T. Galloway, writes me:

"Dear Mr. Watson: I have before me your favor of November 28, asking for a report on the work which this bureau has been doing in South Carolina for incorporation in your annual report. I think the plan an excellent one and likely to prove mutually beneficial. It is our desire to at all times keep in close touch with the

State authorities and co-operate wherever possible. I have therefore had a brief report prepared of the work we are doing in South Carolina, with the exception of the work being carried on by Dr. Knapp and Prof. Spillman, reports of which you have already received, and inclose same herewith. I have not mentioned tobacco, as we are not doing any particular work on that crop in your State at the present time."

The report follows :

IMPROVEMENT OF COTTON BY BREEDING AND SELECTION.—The Bureau of Plant Industry has been conducting important cotton investigations in South Carolina for several years. One phase of the work has been the improvement of cotton by breeding and selection. This work has been in direct charge of Mr. E. B. Boykin, who has had breeding plots at Lamar and Columbia, where several valuable varieties of early cotton have been developed, viz: the Keenan, the Pride of Georgia, and improved strains of the Sistrunk and Hawkins, which are proving well adapted to South Carolina conditions. Some of these varieties are being distributed this year in the Congressional cotton seed distribution.

In addition to the breeding work on the experimental plots, Mr. Boykin has induced a number of farmers in different parts of the State to begin selections of their own, and he has recently established some breeding plots in the Seventh Congressional District not far from Sumter. The National Department of Agriculture is expending annually in this work between four and five thousand dollars.

BREEDING DISEASE-RESISTANT COTTON AND COWPEAS.—Another phase of the cotton work has been the development of disease-resistant strains of upland cotton under the direction of Mr. W. A. Orton. Experiments with the object of developing a wilt-resistant strain of this cotton were begun nine years ago at Lamar and have been continuously prosecuted at various points in South Carolina since that date. The wilt-disease makes it impossible to grow cotton on many thousands of acres of the sandy lands in the coastal plains region. As a result of this work, two varieties of upland cotton have been developed which are fully resistant to the wilt. These are now being grown very widely in the South and several hundred bushels of specially grown seed are distributed each year through Senators and Representatives in Congress. This work is being made use of in connection with the Farmers' Co-operative

Demonstration Work under Dr. Knapp. Personal visits to farmers who have received seed have shown that they have been successful in avoiding loss from wilt through the use of the resistant varieties, with the exception of a few instances where the land was infested with a second disease called root knot. Methods to control the root knot disease are also being worked out.

In connection with this work experiments have also been conducted to develop cowpeas resistant to these diseases. This work has brought out the fact that large areas of the sandy lands of South Carolina are subject to root knot infection, and that the disease is in many cases propagated by the use of ordinary cowpeas used in rotations, further that it may be controlled by a rotation of non-susceptible crops, such as corn, small grains, velvet beans, and the iron cowpea, a variety shown by our work to be immune to both wilt and root knot.

The work on root knot is also very important in connection with the vegetable growing industry of the State, and there is need for a further campaign to convince farmers of the necessity for a change in their methods to avoid this danger.

In connection with the work on cowpea diseases the nature and means to control several other diseases of the cowpea have been worked out and some promising new varieties developed which are resistant to wilt and root knot.

Experiments are also under way to work out the life history of cotton anthracnose, its relation to seed infection and other diseases, and to demonstrate practical methods of control. This project will require considerable time for its completion.

BREEDING WILT-RESISTANT WATERMELONS.—This work has been in progress at Monetta, S. C., since 1900 and has had for its object the development of a variety of watermelon capable of being grown on wilt-infested land. Watermelon wilt is a disease closely related to the cotton and cowpea wilts, which makes it impossible to grow melons with safety more than once on any sandy soil. A new variety of watermelon of hybrid origin has been developed by Mr. W. A. Orton, who is in charge of the work, and it appears that he has succeeded in securing wilt-resistance coupled with first-class shipping qualities and a product ranking in flavor with the best of the present shipping varieties.

PECAN SCAB INVESTIGATIONS.—Work has recently been begun to find out a remedy for this disease by Mr. M. B. Waite at Orangeburg, but the work has not advanced sufficiently to report any results.

DRUG PLANT INVESTIGATIONS.—For several years the department has expended annually between \$2,000 and \$3,000 in an investigation of the possibilities in drug plant cultivation in South Carolina. These experiments are being carried on at present in co-operation with Mr. J. W. McCown at Florence, and Mr. E. Cottingham at Ebenezer. The plants under investigation are paprika and cayenne peppers, Castor beans, Cascara Sagrada, and a number of other drug plants. The main emphasis so far has been laid on the paprika pepper business. This year (1908) the crop of paprika grown in connection with the South Carolina experiment totals about 20,000 pounds of dried peppers, which will probably be marketed before the close of the year at a price of about 11 cents per pound to prominent New York spice grinders.

About three tons of American wormseed have been harvested in a test carried on during two seasons, and this material will now be marketed.

The outlook for the growing of cayenne pepper to supply the demand for the dried and ground product is very good and this will be undertaken on a commercial scale next year.

At the present time the indications are good for the development in the country about Florence of a small industry in connection with the red pepper business, and possibly also in the cultivation of the Castor bean. It seems probable from preliminary experiments made with a number of other drug plants which have been grown there that the limit of possibilities of this section of the country in this direction has not yet been reached, but can profitably be made the subject of further investigation.

TEA CULTURE INVESTIGATIONS.—Work in South Carolina on the production of tea as a commercial proposition has been in progress for a number of years at Summerville, and was undertaken more recently at Rantowles. At Summerville the department is working in co-operation with Dr. Charles U. Shepard, the funds applied to tea culture at this point having been greatly diminished during the current fiscal year (1908-09), owing to the fact that there seems to be a diminishing need for the department's aid here.

Further efforts are now being directed chiefly toward devising new types of machinery for doing away with the slow and expensive practice of pruning and picking tea by hand. Mr. Geo. F. Mitchell, scientific assistant representing the department, is stationed with Dr. Shepard at Summerville, and besides aiding him in connection with factory and field management, has designed during the present year, and is now perfecting, a mechanical tea pruner. Mr. Mitchell is sending out tea plants to farmers in various localities in the South who wish to undertake tea growing for home use, and is fostering this work by keeping in touch with these growers. The total amount which is being expended by the national department for tea work in South Carolina during the current fiscal year is \$4,350.

THE INTRODUCTION OF THE CULTURE OF MATTING SEDGE.—Important work is now being done in South Carolina in the introduction of the matting sedge culture as a new farm crop on the rice plantations. There have been invented in New England looms which can weave a better quality of floor matting than any that is now made by hand in the Orient and imported every year to an amount of over five million dollars' worth. For the last three years these looms have been running on raw material that is imported from Japan and China, but the obstacles that have been put in the way of the export of this straw from these countries makes it impossible for the manufacturers to continue the making of these floor mattings unless the Carolina farmers can grow on their rice plantations the straw for the looms. The Department of Agriculture has introduced from Japan and China large quantities of the young sedge plants and has established a small plantation near Charleston. This year the first crop of straw was harvested, cured and woven into the first piece of all-American grown and made matting. The quality of this straw was as good as anything that has been introduced from China or Japan, and the first important step in the establishment of this industry has been successfully taken. Special machinery for the splitting of the sedges has been devised and a mechanical drier is being constructed on which the split sedge straw can be dried. These are matters of detail which must be worked out before the industry is fully on its feet. There seems to be no reason why this infant farm industry, if it is not crushed by Oriental competition, should not develop rapidly and through American ingenuity result in a cheaper as well as a superior floor covering for the

masses, and give to the rice planters of the coast of the Carolinas another crop than rice.

RICE INVESTIGATIONS.—During the season just past the Bureau of Plant Industry conducted experiments on rice in South Carolina for the purpose of securing a variety, or varieties of rices resistant to blast and to determine the effect of environment upon the composition of rices. This work of selection along with breeding for resistance is undoubtedly the only practical way to fight the blast which is causing such heavy losses to planters along the Atlantic coast and will be continued until immunity from this disease is established in some strain. This work has been done on the Creighton plantation, on the Ponpon River, owned and managed by Mr. W. E. Haskell, Jr., Jacksonboro, S. C.

PRACTICAL FARM MANAGEMENT WORK.—The following special report of a new class of work, dealing principally with the introduction of the winter legume crops, has been furnished, and in connection with this matter I may say Dr. Goodrich has been given every assistance possible by the State department in the prosecution of his field work.

The office of Farm Management Investigations, of the United States Department of Agriculture, in its work in South Carolina is endeavoring to get in close touch with the farmers of the State for the purpose of

- (1) Studying their methods;
- (2) Finding out their problems and solving them so far as possible;
- (3) Advising with them and assisting them in the introduction of new systems of cropping and better methods of crop culture; in short, assisting them in every way possible and advisable to improve their methods of farm management; and,
- (4) Teaching them the fundamental principles which underlie successful farm practice.

The method of work is

- (1) By personal visits to the farms;
- (2) By correspondence;
- (3) By sending out Farmers' Bulletins and other literature;
- (4) By holding farmers' institutes, and
- (5) By using certain of the more progressive and successful farms of the community for the purpose of illustration and investigation.

This later line of object lesson farm work has been in progress barely four months, having been started during August. We have been more than gratified by the cordial reception and hearty co-operation we have received from the farmers over the State, and also by the number of progressive farms that have been offered for the purpose of carrying on our work. We have selected several of these farms in various parts of the State and have the permission of their owners to use them as object lessons and for the purpose of investigation.

The following line of work has been planned :

1. To illustrate the value of winter cover crops and to find the best time in the late summer or early fall when winter cover crops can be sown in the cotton crop to insure: First, early germination; Second, a well developed root system as a safeguard against winter killing; and, Third, the maximum amount of growth by the time necessary to turn them under as green manure for the succeeding crop. For this purpose bur clover, crimson clover, red clover, and the vetches will be tried.

2. In some sections where certain legumes have never before been grown inoculation of the soil is necessary. Experience has taught that it takes two or three years' persistent growing of a crop in order to establish it under such circumstances. We wish to determine whether it is possible to so inoculate as to insure a full crop the first year. In order to determine the quickest and most effective method of inoculating the soil crimson clover will be grown as follows:

(a) By using United States Department of Agriculture inoculation.

(b) By using soil taken from an old crimson clover field, in varying amounts from 500 to 1,000 pounds per acre.

Red clover has been found in various sections of the South under circumstances which would lead us to believe that the area in which it can be grown profitably is not yet known. As a soil builder it has few equals, and as compared with crimson clover and bur clover, it is no doubt superior. This we want to determine, and for that reason it will be tested alongside of crimson clover by planting in the fall or late summer and inoculating with the United States Department of Agriculture inoculation material as against soil taken from an old red clover field.

3. In certain parts of South Carolina, especially in the best cotton sections, deep plowing has become established and with it a greater use of the commercial fertilizers than was possible before deep

plowing began. This high fertilization is very expensive and one of the most expensive ingredients in the fertilizers is nitrogen. We believe that all or nearly all the nitrogenous materials necessary in general farming can be grown on the farm by the proper use of leguminous crops such as clovers, vetches, etc. In order to reduce the tremendous cost for commercial fertilizers to the farmer each year, the value of clovers in this respect will be demonstrated. Bur clover is perhaps the most easily established clover in the South at the present time. Its habit, however, is such that it does not furnish as much humus to the soil when turned under as a green manure as some of our other clovers. For this reason crimson clover will be used to plant in the fall in the cotton and turn under in the spring about the first of April. Along with this red clover will be used in the same way, as for this purpose it is considered superior to crimson clover, the object being to determine which is the most valuable for this purpose in the various parts of the State. Along with the clovers the vetches will be used in the same way. The growing of the clovers on the cotton lands will in time not only add a large portion or all of the nitrogen necessary, but it will insure the maintenance of the humus content of the soil.

4. Of late the Williamson method of growing corn has been interesting the farmers of the South and in some sections this method and modifications of it have been quite well established. Investigations will be made in corn growing with this method as compared with other successful methods that are now known, and also to determine how it applies to various soil types.

5. One of the great needs of the South is, a better knowledge of the methods of crop rotation, and demonstrations along this line will be established, the particular methods depending on the needs of the section in which the demonstrations are located.

6. There is much room for improvement in the seed that is used in the South, both in cotton and corn, and an effort will be made towards the general improvement of the seed of both of these crops by seed selection and cross breeding. There are certain varieties that are better adapted to certain types of soil than others, and an effort will be made to determine the best variety suited to the locality, especially looking towards a larger yield per acre.

For this line of work the following farmers have offered their farms and these have been accepted:

In Congressional District No. 1 at Walterboro, Colleton county, the farms of W. B. Gruber and J. E. Peurifoy; at Ritter, Colleton county, the farm of A. C. Saunders.

In Congressional District No. 2 at Barnwell, Barnwell county, the farm of Col. Alfred Aldrich; also the farms of W. M. Cook, Butler Hagood and J. Allen Tobin, and the farms of the Patterson brothers. At Williston, Barnwell county, farm of T. J. Grubbs. At Beech Island, Aiken county, the farm of the Downer Institute.

In Congressional District No. 3 at Greenwood, Greenwood county, the farms of Dr. R. E. Mason and H. G. Hartzog.

In Congressional District No. 4 the farm of J. Wade Anderson at Laurens, Laurens county. At Union, Union county, the farms of W. E. Thompson and R. L. McNally.

In Congressional District No. 5 at Chester, Chester county, the farm of J. T. Cunningham. At Gaffney, Cherokee county, the farms of Mr. Nathan Lipscomb, N. H. Littlejohn and C. M. Smith. At Cheraw, Chesterfield county, C. F. Moore.

In Congressional District No. 6 at Bennettsville, Marlboro county, the farm of Mr. H. H. Weston. At Marion, Marion county, the farm of Judge C. A. Woods.

In Congressional District No. 7 at Columbia, the farms of A. E. Gonzales and Messrs. B. and T. Taylor. At Congaree, Richland county, F. H. Weston. At Sumter the farms of L. D. Jennings, E. C. Haynsworth, Eugene Hogan, Eugene Moses and G. W. Waddill.

Work has been instituted on a part of these farms only as yet, and will be inaugurated on the others as soon as possible. Other farms will be taken up as soon as time and circumstances will permit. The work on these farms this fall has been directed particularly to the planting of winter cover crops. The work has been in progress so short a time that as yet it is hardly advisable or possible to publish any definite results, although some conclusions have already been arrived at with reference to the growing of these winter cover crops.

The office of Farm Management will keep one man in the State constantly looking after this work. As to the amount of money to be expended in the State, it is a little difficult to give an accurate estimate, but it will consist of the salary and traveling expenses of this man, plus the expense of the supervision of the work.

The office of Farm Management desires to express its gratitude for the hearty co-operation and valuable assistance rendered by the State Commissioner of Agriculture Col. E. J. Watson, and others, in the inauguration of this work.

C. L. GOODRICH,

Expert.

TEA EXPERIMENTATION.—The following special report on this subject has been prepared and furnished by “the father of American tea culture,” the owner of the “Pinehurst Tea Gardens” at Summerville, S. C.:

THE TEA EXPERIMENTATION AT
“PINEHURST,”
NEAR SUMMERVILLE, S. C.

The season of 1908 has been remarkable not so much for quantity as quality of tea production at Pinehurst. The quantity of output from any “tea garden,” as is termed a field of tea plants, depends primarily on the degree to which is carried the plucking of the leaf from which commercial tea is made. The young tea shoot generally has at its apex an unopened leaf which is called the “pekoe-tip” (pekoe means in Chinese “white-hairs,” referring to the appearance of the folded tip when dry), and following it downward on the stem are five or more leaves. These names and weights when freshly plucked are as follows, on a general average:

	Grains.
Pekoe-tip—or flowery pekoe.	1/2
Orange pekoe leaf.	1
Pekoe leaf.	2 1/2
First Souchong leaf.	5
Second Souchong leaf.	8
First Congou leaf.	9
Second Congou leaf.	8
Stem of shoot.	16
	—
	50

It appears, then, that the orange pekoe leaf weighs twice as much as the tip, the pekoe leaf almost twice as much as the tip and orange pekoe; the first Souchong (corruption of Chinese for small or scarce sort) more than all the pekoes together; the second Souchong almost as much as every leaf above it, and the Congous (corruption of Chinese for labor in rolling) are each as heavy as the second Souchong. It takes 50,000 ordinary pekoe-tips to make a pound of dried tea, but less than 4,000 of the second Souchong or Congou leaves. Therefore, the estimate of the yield of an acre of tea plants depends to a considerable degree on the method of plucking, whether fine or

coarse, and a comparative statement of the output of different gardens should always be accompanied by that of the degree of plucking. A leaf or two more from each stem greatly enhances the size of the crop; but as the quality falls off from the tip downward, its value correspondingly lessens. The constituent principles which gives intrinsic value to tea are contained in cells which have to be broken and their contents spread and dried on the leaves so that they may readily be taken into solution by the hot water poured on the dried leaf. These cells yield to slight pressure in the young and tender leaf, but are so securely enveloped in the older leaf that they require severe rolling. Again, by the economy of nature, the most valuable and scarcest constituents of plant food and growth are being constantly withdrawn from the older tissue, to be deposited in parts that are younger and in more rapid growth, and replaced by commoner and more abundant material. The newer, smaller leaf consequently contains more that is valuable and in a more accessible form. Thus the teas made from the pekoe leaves (to which the Pinehurst plucking is restricted) are more expensive to gather and more valuable for brewing than those from Souchong, and the latter than those from the Congou leaves (*Cyclopedia of American Agriculture*). Again, the yield of tea for the cropping season is seriously affected by the limitations of the plucking to the smallest leaves, because by so doing there is not the same necessity on the part of the plant to throw out successive flushes in order that it may maintain the requisite surface of foliage in the general equilibrium of growth; on the other hand, the wholesale stripping of almost every leaf from the shoot in the early summer gathering, as practiced in the far Orient, interferes with the later production of new shoots for the axis of the older ones, and although yielding an enormous plucking, reduces the number of leaf gathering to three or four for the season in China and Japan, instead of about twenty in India and Ceylon. At Pinehurst the plants are plucked of their fine leaf fifteen to twenty times during the season, which extends from the last of April into October. The quantity and quality of tea output depends also on the climate, i. e., the temperature and rainfall. The seven months of the leaf growth (April to October inclusive) of 1908, afforded an average temperature of about $73\frac{1}{2}^{\circ}$ F., or very nearly 1° F. more than the average for the preceding nine years, but was devoid of maximum temperature exceeding 96° F., whereas in the preceding nine years the average highest temperature was 98° F., and in three years reached or exceeded 100° F., according

to the Pinehurst experience, the greatest yield usually attends the combination of the highest temperature and the most abundant rainfall. The rainfall for eleven months (excluding Dec., 1908), has been 54 inches, as compared with the average total annual precipitation for nine years of 51 inches. The rainfall for the first four months of 1908 was 22 inches, or 50 per cent. more than was the average for the preceding nine years. Hence, the ground was unusually saturated with moisture at the beginning of the season and, thanks for a likewise unusually high mean temperature for April and May, the conditions were unusually favorable and yield unprecedentedly large. The average rainfall during the five months, May to September (inclusive), practically the entire cropping season, was $27\frac{1}{2}$ inches, as compared with 27 inches, the average amount for nine years. Had the favorable early season temperature been maintained throughout the five cropping months, the output might have been much larger. For successful crops of tea the rainfall in the months of April to October (inclusive) should, in this climate, exceed thirty inches, and the nearer to 35 inches the better. Compared with the Oriental tea countries, this is very small; but excessive rainfall has its drawback, especially in the denudation of top soil and in creating stagnant subsoil water, which if left there surely destroys the tea plant. With the local conditions, experience has shown that it is more important to get rid of excessive water than to attempt to increase the usual supply by artificial irrigation; and the Pinehurst Garden, where favorably situated, produces almost, if not quite as much, as most of the Oriental ones, whence was obtained the seed used in their establishment.

Hence, the crop of 1908, which, despite a very much restricted plucking, began with an unusually large production, culminated in a rather low output, chiefly owing to the finer plucking and the absence of high temperature during the summer. But the quality was much improved by a stricter limitation to the tenderest and youngest leaf, and especially by a reduction in the number of pluckings during the season. When the gatherings occur very frequently and the leaves are only a week or so old, the chemical principles which afford the flavor, fragrance and beneficial effect of prepared tea have insufficient time to be properly developed in the leaves. Nevertheless, there were exceptions as to productiveness among the various tea gardens at Pinehurst, one of which, over fifteen years old, afforded the largest output yet attained here, namely: at the rate of nearly 600 pounds of dried tea to the acre. It is well to again call atten-

ion to the desirability of establishing throughout the State domestic tea gardens, sufficiently large to meet the requirements of the household. This feature of tea culture has been fully described by Mr. Geo. F. Mitchell in "Farmers' Bulletin 301, Home Grown Tea." It may be obtained from the United States Department of Agriculture, Washington, D. C.

The commercial production of tea is necessarily a large operation, resembling therein that of cane and beet sugar, and involving large areas of cultivation and complete factories where machinery has supplanted the manual (and oftentimes pedal) processes of the far Orient. In the present condition of the trade in tea, it is also necessary to take the tea samples to the grocers, both wholesale and retail, to enlist their interest and keep their shelves supplied, which involves the services of commercial travelers with expenses incidental thereto. Had the American tea industry in its competition with the Orient the advantage of a duty on foreign teas, even to the limited extent of ten cents per pound, i. e., about one-twentieth of a cent on a cup of tea, the prospects of the general and successful tea production in the United States might be brighter, and the outlook favorable for obtaining at home some of the \$15,000,000 now paid to the Orient for tea. Belgium, (where they drink very little tea), and the United States are the only civilized countries which do not impose a duty on tea. That ultimately a duty on foreign teas will be re-established will follow naturally from the continuance of the present annual deficit in the treasury of the national government, as it is easily levied and has proven to be readily borne by the public. It has been abundantly demonstrated that teas fully answering the taste of American people may be grown in this country; and that the attempt to supply the demand from American gardens will surely be repeated by the government and individuals until success crowns their efforts, it is assured by the history of the past century and the knowledge that the flora existing in various parts of our Southern country is similar to that of prominent Oriental tea-producing countries, as also that other plants than the tea imported into this country from the latter thrive luxuriantly. The home grown teas possess an advantage over those produced in far distant lands, across thousands of miles of ocean, in that foreign teas are liable to mildew during the long voyage, and to counteract this possible deterioration, they are subjected to higher temperature in the "firing" (i. e., that is drying) process in curing than would be necessary otherwise; and that this elevated temperature is detrimental to the flavor and fragrance of

the tea. In comparison with other English-speaking peoples, we are not large tea consumers, preferring coffee. And it is therefore probable that this indifference is largely due to our ignorance as to the proper drawing of tea. We should always bear in mind that the nature of the tea weed and the art of tea curing combine to render it entirely feasible to extract by a proper infusion of tea those healthful and invigorating constituents which make it a nerve tonic and food, and to leave behind the dregs, the harmful principles which constitute the terror of the anti-tea reformers. The proper drawing of tea rests on the differences in solubility of the above groups of ingredients. Those that are beneficial are more readily soluble in water than those which are deleterious to health. Hence, to satisfactorily draw tea, it should be infused with boiling hot water poured upon it and allowed to stand for not exceeding five minutes in a warm place, but carefully avoiding the possibility of any further boiling; it should then be strained and served hot or cool if making ice tea. The dregs should never be used again except for sweeping floors. It is a poor and perhaps dangerous tea that requires longer infusion. The best teas do not require more than three or four minutes to get the best results, and the liquor should be rather weak to render prominent the fine, delicate qualities. Beware of all astringent teas that pucker the mouth and rasp the throat; they are dangerous. The raspiness of the liquor indicates simply the prevalence of the deleterious ingredients without giving any proof of the presence of the beneficial constituents, which make tea drinking profitable. A commercial tea for which is recommended a longer boiling than five minutes, has probably been made from the cheap, large and coarse leaves that are deficient in the readily soluble and valuable constituents. The Pinehurst tea experimentation has received most valuable and generous assistance from the United States Department of Agriculture in the past, and if at present this aid is confined to supplying the services of an expert scientific assistant and a meteorological observer and colaborator, and the furnishing of special machinery for perfecting the cultivation and curing of tea, is because further assistance is unnecessary. For the present the problem of how commercially and profitably to produce tea in South Carolina continues to be carefully studied at Pinehurst, and aside from the purely experimental, hence costly and oftentimes disappointing investigations, methods for practical application have been developed and put into successful use. It has been demonstrated that on suitably situated, fertile, well-drained, but almost flat lands, tea gardens

raise from the seed of originally excellent quality and adapted to this climate, will produce 250 pounds (the turning point as regards profit) or more of dry, good to excellent tea, which find an appreciative public and remunerative market.

Yours very truly,

CHAS. U. SHEPARD,
Proprietor of Pinehurst.

MATTING RUSH.—The grower of the matting rush referred to herein by Dr. Galloway in his report writes me as follows of the successful 1908 experiment :

Jacksonboro, S. C., Oct. 22, 1908.

Col. E. J. Watson, Columbia, S. C.

Dear Sir: I am today sending to you by express about one yard of all-American-made matting. The straw from which this matting was made was grown on my plantation on Pon Pon river, and is the first successful growth obtained in America.

The Bureau of Plant Industry, through Mr. David Fairchild, agricultural explorer in charge of foreign explorations, imported into the United States from Japan a few roots, at great expense, of two varieties of Japanese matting straw, *Juncus Effusus* and *Cyperus Tegileformus*. These roots were wintered in California during the year 1906, and last fall were distributed to Texas, Louisiana and South Carolina, a half-acre of each variety being planted in each State. The plants were set out from the imported roots and great care was taken in fertilizing and watering these experiments.

The *Juncus Effusus* did not do well this year, conditions being somewhat against it, but the *Cyperus Tegileformus*, being a much stronger plant, grew off readily. These roots were set out in the rice lands and were harvested on July 6 to 10, and shipped to the "Goodale Matting Company," Kennebunk, Maine. Mr. R. H. Sawyer, general manager of their factories, where this matting was made up, writes: "You have no fault to find with your first experiment at raising this grass, and you have the odd distinction of having the first rolls of matting made from American grass ever produced by power looms in the United States."

I thought you would be interested in this experiment, which puts South Carolina in the field as producing the first all-American grown

matting in the United States. I will also call your attention to article in *The News and Courier* of Oct. 19th on the subject.

Yours very truly,

W. E. HASKELL, JR.

P. S.—If you see fit you may place this sample on exhibit at the State Fair.

W. E. H.

DAIRY DIVISION WORK.—Some notes on the work that the Dairy Division of the United States Department of Agriculture has done in South Carolina during the past two years, furnished by Mr. B. H. Rawl, in charge Dairy Farming Investigations:

The object of the work is to stimulate the dairy industry and show the farmers by actual demonstration how to make the dairy a profitable part of the farm practice in the State. To do this, one man, J. E. Dorman, was put in the field. During the past two years he has visited the farms of more than one hundred dairymen in the State and given all the general information that he could relative to feeding and breeding dairy cattle, growing and preserving feed, construction of dairy buildings, manufacturing, handling and marketing of dairy products, and general business methods in connection with dairy farming. The benefits that have been derived from these visits are shown by the improved conditions now found on many of the farms.

Aside from the work above mentioned, which may be termed general work, a number of farms have been visited once each month. The object of this work was to put these farms on a profitable business basis. One difficulty at a time is taken up as the owner's condition and knowledge will permit, and when the farm gets on a satisfactory basis it demonstrates not only the possibilities for dairying in the State, but also exactly how a successful dairy should be managed.

DAIRY BUILDINGS.—Our farmers usually have very indefinite ideas as to suitable buildings for dairy purposes. Many buildings are dark, damp and otherwise unsanitary, when for the same cost very suitable buildings could often have been provided. The field man is furnished by the Dairy Division with plans for silos, barns, dairy houses, etc., to be used by the farmers; and 14 silos, 7 dairy barns and 7 dairy houses have up to date been built under the direction of the field man, as follows.

Silos built :

E. D. Legare	Charleston, S. C.
W. D. Byrd	Laurens, S. C.
R. G. Harris	Woodruff, S. C.
W. H. Barton	Simpsonville, S. C.
J. H. Bowden	Anderson, S. C.
T. C. Willoughby	Florence, S. C.
J. E. Pettigrew	Florence, S. C.
R. F. Smith	Easley, S. C.
F. H. Hyatt	Columbia, S. C.
B. M. English	Columbia, S. C.
M. R. Jeter	Columbia, S. C.
A. S. White	Camden, S. C.
W. I. Herbert	Newberry, S. C.
Jo. Wilbur	Newberry, S. C.

Barns built :

T. B. Higgins	Easley, S. C.
C. J. Ellison	Easley, S. C.
J. H. David	Dillon, S. C.
W. C. Pickens	Easley, S. C.
T. C. Willoughby	Florence, S. C.
R. G. Harris	Woodruff, S. C.
D. M. Crosson	Leesville, S. C.

Dairy houses :

E. E. Perry	Easley, S. C.
R. L. Perry	Easley, S. C.
C. H. Carpenter	Easley, S. C.
E. L. Day	Easley, S. C.
J. A. Shanklin	Pendleton, S. C.
J. H. Bowden	Anderson, S. C.
W. D. Byrd	Laurens, S. C.
I. B. Cannon	Newberry, S. C.
W. P. Jacobs	Clinton, S. C.
A. Cleveland	Spartanburg, S. C.
W. C. Pickens	Easley, S. C.
J. G. Anderson	Rock Hill, S. C.
C. H. Carpenter	Easley, S. C.
R. L. Perry	Easley, S. C.

Special attention has been given to silo construction, because one of the things that our people must learn before they can hope to be

successful in dairying is how to raise and preserve an abundance of good feed on the farms and then how to feed it freely to good cattle. Under the average conditions in the State the silo is a necessity on the dairy farm.

HERD RECORDS.—The average farmer of the State has but little conception of the difference in quality of dairy cattle. With the average herd, therefore, no attempt has been made to improve the standard of production, and as a consequence almost all of the herds in the State contain a large per cent. of unprofitable animals; yet the owners breed these unprofitable animals and keep their offspring in the herd just as readily as the offspring of the most profitable cows. No man can hope to succeed while following such practice.

Any man of average intelligence can improve his herd if he will try. The first thing to be done is to determine definitely which animals are profitable and which are unprofitable. This is done by keeping records of each animal in the herd, so that the unprofitable animals can be disposed of, and also to prevent the offspring of unprofitable cows from being retained in the herd. Herd records have been introduced on the farms of the following men:

Herd records:

E. D. Legare	Charleston, S. C.
D. M. Crosson	Leesville, S. C.
J. A. Shanklin	Pendleton, S. C.
J. D. Smith	Pendleton, S. C.
J. H. Bowden	Anderson, S. C.
T. B. Higgins	Easley, S. C.
R. L. Perry	Easley, S. C.
C. H. Carpenter	Easley, S. C.
W. D. Byrd	Laurens, S. C.
A. B. Barksdale	Laurens, S. C.
A. F. Cleveland	Spartanburg, S. C.
Jo. Wilbur	Newberry, S. C.

SOME NOTABLE EXAMPLES OF IMPROVEMENTS—Work was started with W. D. Byrd, Laurens, S. C., in March, 1907. At this time he was milking 10 cows, and during that month made 160 lbs. of butter. Changes were made in feeding and handling the cows, giving them closer and more individual attention, and better

methods in the manufacture of the butter were introduced. These improvements resulted in almost doubling the output. In March, 1908, he sold from 11 cows 345 lbs. of butter.

Mr. J. D. Smith, Pendleton, S. C., began herd record work in August, 1907, with 42 cows, making 560 lbs. of butter during the month. After keeping herd records and disposing of his inferior cows for one year, his herd, which had been reduced to 22 head, produced during August, 1908, 537 lbs. of butter. This increase in the average per cow for the month from 13.5 pounds to 25 pounds of butter is not due entirely to the weeding out of the poor cows, but to some extent to the closer attention given to the cows remaining in the herd. It must not be inferred that the above mentioned herds were originally among the worst herds in the State, for they were really among the best; and the results here shown can be duplicated in practically every herd in the State.

In connection with the above report I feel warranted, in view of Mr. Rawl's interest in the development of his native State, of particularly directing the attention of the General Assembly to the following letter I have received from him:

UNITED STATES DEPARTMENT OF AGRICULTURE.

BUREAU OF ANIMAL INDUSTRY.

Washington, D. C.

November 19, 1908.

Mr. E. J. Watson, Commissioner of Agriculture, Columbia, S. C.

Dear Sir: While in conversation with you during the State Fair you requested that I send you a brief report of the work we have done in the State of South Carolina. I am, therefore, inclosing herewith a brief outline of that work which I hope will serve your purpose, and will be the means of showing the possibilities of this line of work in the State of South Carolina. One point in connection with this work that I wish to call to your attention, which is not referred to in the report, relates to the possibilities of this work being supported locally, in order that it may be developed to an extent necessary to make it adequate to meet the needs of the people. This department in beginning this work in localities where it is not otherwise being done hopes to produce results that will show to the people the merits of the work and its possibilities, and that these

results will then be used as a means of establishing the work on a local basis. Now, it can not be expected that this department will definitely continue this work, for when it becomes evident that there is no possibility for the work to receive the attention of local institutions and local financial support, then the results above mentioned which we are seeking, are not longer possible, and the work is no longer justifiable in this department. In connection with this work, if you see fit to do so, I should be glad to have you emphasize these facts and for that reason I have made no mention of them in the outline of the work, thinking some comments from you would be more suitable.

If there is an indication that the work will receive support, which support as a rule must come gradually, this department is inclined to continue its assistance in the work so long as such assistance is essential and it decreases its support, however, in proportion as the conditions justify. Other States are supporting this work, and, in pursuing the policies of this department, it is necessary to do this work in such States where best results can be obtained. I mention this not because of any intention to immediately withdraw the work from South Carolina, but this must eventually result unless the State takes the work up and supports it. No work of this kind had been done in North Carolina until we began there two years ago. This present season North Carolina has supplemented our work with \$1,000; under similar conditions in Mississippi and Georgia the work this year is receiving \$600 in each State. I mention this to show you that other States in the South are beginning to appreciate the work to the extent of giving it their financial support.

I appreciate your kind interest in everything that pertains to the development of our natural resources, and I am therefore calling this to your attention for your consideration. With best regards, I am,

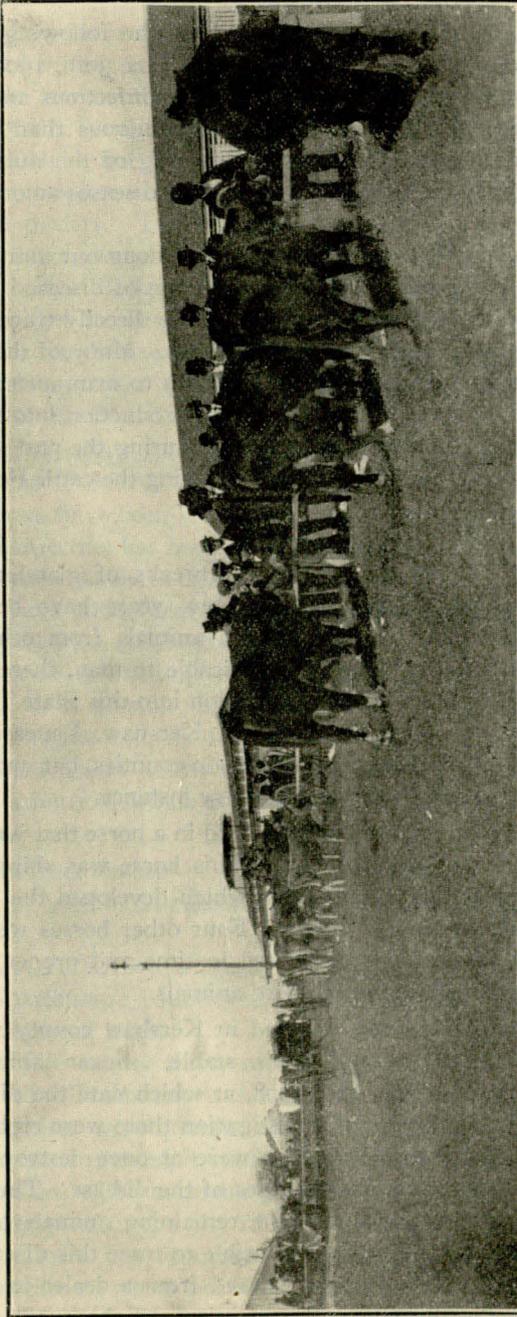
Very respectfully,

B. H. RAWL,

In Charge of Dairy Farming Investigations.

ANIMAL DISEASES.

In view of the fact that the United States Bureau of Animal Industry has been doing considerable work in South Carolina, and in view of the valuable information given therein I incorporate in this report, by permission, the following report made by the State Veterinarian to the Veterinary Inspection Committee of the Board of Trustees of Clemson College:



GOOD CATTLE AT THE 1908 STATE FAIR.

Gentlemen: I have the honor to submit the following report of the State Veterinarian for the year ending June 30th, 1908:

Requests for investigation of outbreaks of infectious and contagious diseases of animals have been more numerous than in several years. This is due to a better understanding of the duties of this office and a greater prevalence of contagious diseases among our live stock.

Careful investigation of these outbreaks among our animals shows the need of a law prohibiting the importation of diseased live stock, as most outbreaks of contagious diseases are directly traced to shipments of diseased animals from other States. Many of these animal diseases are communicable (and often fatal) to man, and every precaution should be taken to prevent their introduction into this State.

A statement of the investigations made during the past year and a report of the work accomplished in eradicating the cattle tick is given below:

GLANDERS.—The majority of outbreaks of glanders investigated by this office during the past few years have been traced directly to the importation of diseased animals from other States. This disease is fatal and also communicable to man, therefore steps should be taken to prevent its introduction into this State.

Glanders was reported in Hampton, Kershaw, Lancaster, Newberry, Spartanburg, Sumter and Anderson counties, but upon investigation this disease was not found in every instance.

In Hampton county glanders developed in a horse that was shipped from the West. It was learned that this horse was shipped in the same car with the horses and mules which developed the disease at Gifford, S. C., two months before. Four other horses were in this stable, but the disease was diagnosed in time and proper measures adopted to prevent infection of these animals.

A more serious outbreak occurred in Kershaw county where the disease first appeared in a dealer's stable. Seven animals died between Jan. 1st and May 22d, 1908, at which date the disease was first reported. At the time of investigation there were eight animals on the premises and three of those were at once destroyed by the owner as they were in advanced stages of the disease. The premises were thoroughly disinfected and the remaining animals tested, but none of these reacted. It was impossible to trace this disease, but it was suspected that an animal purchased from a dealer in Kershaw, S. C., brought the disease to the premises. Subsequent investiga-

tion established the fact that animals in the stables at Kershaw have been affected with glanders and, as exposed animals have been traded in the surrounding counties, further outbreaks of glanders will undoubtedly occur. Every effort was made to trace all animals from these stables, but the results were unsatisfactory, owing to the fact that a complete record of sales and exchanges had not been kept by the dealers. Two diseased animals were traced, however, one to Lancaster county and the other to the southeastern portion of Kershaw county. Both of these animals were destroyed and proper precautions taken to prevent further spread of the disease from these premises, but the disease will probably occur again in this county as many animals were lost and many exposed to the disease before the outbreak was reported.

Dealers at Kershaw state that this disease first appeared in a carload of animals received from St. Louis in September, 1907. All exposed horses have been tested and suspicious cases placed in quarantine. Disinfection has been carefully attended to in every instance, but the disease is liable to again appear, as many animals throughout the county have undoubtedly already been exposed to the disease.

This disease also appeared in Sumter county and although every effort was made, it was impossible to discover where the disease was contracted. It is possible, however, that this horse may have been in contact with the animals destroyed in Sumter during 1907. This horse was tested and destroyed. The stable was thoroughly disinfected and a portion, which could not be disinfected, was torn down and burned.

As to the other reports of glanders, the suspected animals proved to be affected with nasal tumors, distemper, nasal catarrh, etc.

HOG CHOLERA.—Outbreaks of hog cholera occurred in Greenville and Spartanburg counties and in both instances the disease was traced to imported hogs.

In Greenville county thirty-seven hogs died before the outbreak was reported. Treatment was recommended for the sick animals and the premises were quarantined and disinfected. Spread of the disease was thus prevented, and although sixty hogs were exposed, only three died. The outbreak in Spartanburg county occurred at the slaughter pens in the city of Spartanburg and many hogs died before the disease was reported. Investigation was difficult, owing to local conditions, which prevented the proper officials from learning of the arrival of sick hogs at the slaughter pens. This outbreak

was confined to the slaughter pens and no further spread of the disease has been reported.

TUBERCULOSIS.—Two herds, containing eighty-five cattle, were tested with tuberculin and two cows were found affected with tuberculosis.

There is undoubtedly a much smaller percentage of tubercular cattle in this State than in many others, but this disease will spread rapidly unless measures are adopted to prevent the importation of diseased cattle. Tuberculosis is widespread in the North and West and the cattle owners are attempting to free their herds by disposal of all animals which react to the tuberculin test. As this test reveals the presence of the disease before physical symptoms appear, many unscrupulous stock owners sell their diseased but apparently healthy animals to unsuspecting persons who desire to improve their herds. Stock owners throughout this State are now importing animals for breeding purposes and unless active measures are taken to prevent the introduction of diseased cattle our cattle and hogs will soon be as badly affected as the herds in many Northern States. Milk from tubercular cattle is a source of tuberculosis, especially in children, and the importation of these unhealthy animals should be prevented.

HÆMORRHAGIC SEPTICÆMIA.—This disease appeared in Darlington and Oconee counties. In Darlington county six apparently healthy cattle died within two days. There were forty-five cattle on the plantation, but the affected animals were not kept in the pasture with the main herd. The spread of the disease was prevented by the isolation of all exposed animals and the abandonment of the pasture. The outbreak in Oconee county occurred in a herd of yearlings on the college farm. These were in a separate pasture from the herd and precautions were taken to prevent spread of the disease. Of the twelve cattle exposed to the disease, eight died within the first six days, but the remainder recovered with proper treatment.

This disease is caused by a germ, but it is impossible to state how this is carried or how it enters the animal's body. It is believed, however, that the germ enters through the mucous membrane of the digestive or respiratory tract. It was impossible to learn where these outbreaks originated as there was no history of previous outbreaks in these neighborhoods.

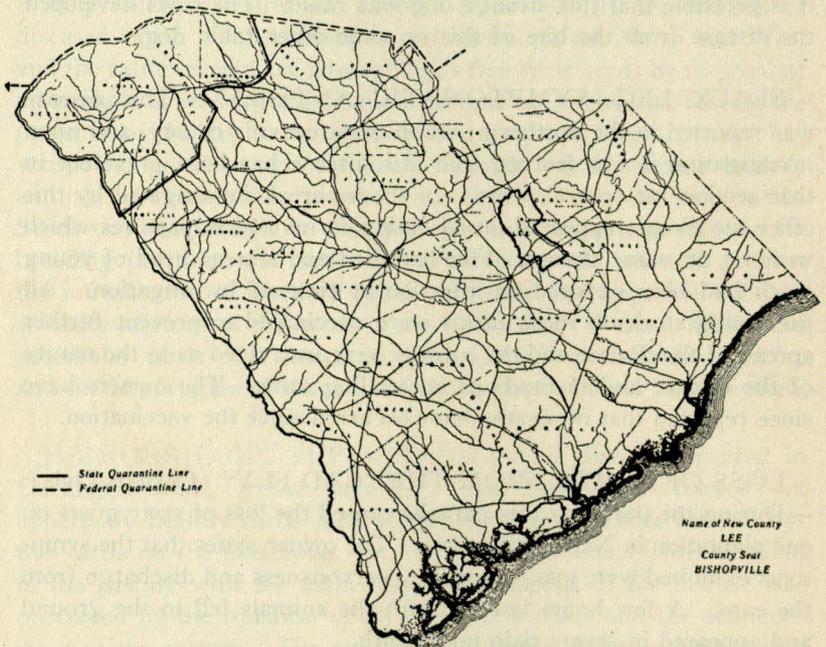
RABIES.—Several outbreaks of this disease have occurred throughout the State during the past year, but only one request for investigation was received by this office. This outbreak occurred in Spartanburg county where four cows died from the disease. These cows were driven to and from the pasture by a shepherd dog, which exhibited peculiar symptoms and suddenly disappeared about two weeks before the first cow was affected. The owner remembered that this dog had a fight with a strange dog some time before and it is probable that this strange dog was rabid. The cows developed the disease from the bite of this or some other rabid dog.

BLACK LEG—SYMPTOMATIC ANTHRAX.—This disease was reported in the northern portion of Greenville county, and upon investigation it was learned that this disease has been prevalent in that section for several years. In the outbreak investigated by this office the disease appeared on adjoining farms and in pastures which were on the same stream. Five had died and sixteen head of young stock had been exposed to infection at time of investigation. All the young stock on these farms were vaccinated to prevent further spread of the disease and the owners were instructed as to the nature of the disease and methods of controlling same. The owners have since reported that no deaths have occurred since the vaccination.

LOSS OF GOATS FROM THE "GAD FLY" (*Oestous Ovis*).—During the past year this parasite caused the loss of sixty goats on one plantation in Newberry county. The owner states that the symptoms exhibited were loss of appetite, nervousness and discharge from the ears. A few hours before death the animals fell to the ground and appeared in severe pain until death.

At the time of the investigation there were three dead animals in the pasture. A careful examination of these carcasses showed that death was caused by the larvæ of the "gad fly" (*Oestous ovis*), which were found in the nasal sinuses and in one instance had pierced the bone and reached the brain.

The "gad fly" deposits the grub on the nostrils and it then works its way up into the nostrils where it remains for about ten months. When fully matured it is expelled by sneezing and again develops into the mature fly. These larvæ caused inflammation of the surrounding tissues and death often results from congestion of the meninges of the brain. Treatment is not satisfactory, but the condition can be prevented by proper precautions. Losses of goats showing



MAP SHOWING AREA QUARANTINED IN 1907.
 (Lee County boundary is not a quarantine line.)

similar symptoms have also been reported in Kershaw and Greenwood counties, but it was impossible to investigate, as all sick animals died before the outbreaks were reported.

STOMACH WORM DISEASE.—During the past year these parasites have not caused as severe losses among sheep and young cattle as in the previous year. This was undoubtedly due to the fact that the season was not as wet as the summer and fall of 1906, and the development of the parasite was consequently retarded.

Severe losses from this disease have been reported in many other States and this parasite seems to be scattered over wide areas. The coal tar creosote treatment, which was considered very successful, does not give satisfactory results. So far as known, there is no remedy that will prove effective against these parasites.

Experiments have been conducted by the Veterinary Division with a view of eradicating the parasite from infested pastures and the result will soon be published.

TEXAS FEVER.—Texas fever has been reported in Dorchester, Florence, Anderson, Greenville, Spartanburg and Pickens counties. In Dorchester county, there were six dead, three sick and sixty exposed at the time of the investigation; and in Florence county, three dead and fifty exposed. The outbreaks in Greenville, Spartanburg and Pickens counties were not investigated by this office, but were investigated by veterinarians in the employ of the Bureau of Animal Industry who are now engaged in tick eradication work in this State. In every instance the development of the disease was due to the fact that ticks were brought into pastures containing cattle that had never carried fever ticks. These cattle being non-immune, are very susceptible to the disease and die within a short time after ticks reach their bodies.

The public is beginning to realize the necessity of eradicating the fever tick and many requests concerning methods of eradication are received by this office.

TICK ERADICATION.—During the past year very satisfactory results have been obtained in the tick eradication work now being conducted in Oconee, Pickens, Greenville and Anderson counties. Since July 1, 1907, nearly 45,000 head of cattle have been inspected and less than 12 per cent. of these were infested with the fever tick. These were quarantined on about 650 premises and the owners have

been given all possible assistance in the work of eradicating the ticks. All quarantined premises are visited at least once every three weeks and these premises are now being released from quarantine as fast as they become free from ticks.

The work in Spartanburg county had to be neglected, owing to the withdrawal of several agents of the Bureau of Animal Industry, but the work already accomplished will greatly assist in freeing this country during the coming summer. As a result of last summer's work the Federal government has provisionally released Oconee, Pickens, Greenville and Anderson counties from quarantine. This gives cattle owners the opportunity of shipping cattle to any portion of the United States after inspection by a Federal inspector, and these counties are also protected by this order from cattle from other quarantined States. Unless prevented by some unforeseen difficulty, these counties will be free from ticks and above the Federal quarantine line by Jan. 1, 1909.

The results of the work and a complete description of the methods employed have been published as Bulletin No. 4, Vol. III. of the Clemson Agricultural College Extension Work.

Tick eradication work will be extended into eight new counties, making a total of twelve counties, this year; namely, Greenwood, Abbeville, Laurens, Union, Chester, York, Cherokee and the southern portion of Spartanburg county.

The following local inspectors are now employed by the State: W. F. Gaillard, Anderson; G. T. Mauldin, Pickens; W. M. Brockman, Greenville, and M. M. Hall, Anderson.

The local inspectors now in the employ of the United States Bureau of Animal Industry are H. W. Moore, Seneca, and H. B. Underwood, Easley. The following local inspectors have also been appointed by the Bureau of Animal Industry and will begin work July 1st.: Robt. L. Cunningham, Chester; John D. Lanford, Yorkville; David E. Holcombe, Yorkville; William A. O'Bryant, Gaffney; William A. Payne, Union; Dolphus A. Collins, Jonesville; George C. McEachern, Laurens; C. C. Myers, Abbeville; J. T. Fowler, Greenwood; Stuart W. Richardson, Abbeville; Theron T. Earle, Spartanburg; Chas. M. Quillian, Spartanburg; James H. Williams, Laurens.

Drs. W. A. Myers and E. M. Nighbert, veterinary inspectors in the employ of the Bureau of Animal Industry, have also been transferred to this State.

CORRESPONDENCE.—The correspondence has nearly doubled during the past year. Tick eradication work necessitates the publishing of circular letters and newspaper articles as well as the writing of many letters to individuals explaining the work and methods of tick eradication most applicable to the different premises. The increasing number of inquiries received concerning non-contagious diseases of live stock indicates an appreciation of services rendered by this office as well as a growth of the live stock industry of the State.

The increased force of inspectors and the extension of the work will greatly add to the clerical work for the coming year.

Respectfully submitted,

M. RAY POWERS,
State Veterinarian.

CATTLE TICK ERADICATION.—The following report of work accomplished in control of Texas or tick fever and eradication of the cattle tick in South Carolina, has been furnished by the State Veterinarian; this work is conducted from the funds of Clemson College:

For several years "Texas or tick fever" has caused the loss of many cattle in this State. Severe outbreaks of this disease are investigated in different portions of the State each year and isolated cases are now of such common occurrence that they are not reported to the State Veterinarian. This disease is transmitted only by the fever ticks and, as the majority of plantations have become entirely free from these parasites (since passage of the Stock Law), the cattle now raised on these farms are susceptible to the disease. The loss of entire herds on tick-free farms is not uncommon after the importation of tick-infested cattle from neighboring premises.

ANNUAL LOSS TO PEOPLE OF THE SOUTHERN STATES FOR WHICH THE TICK IS RESPONSIBLE.—The total annual loss which the cattle tick causes the people of the South has been estimated by competent authorities at over \$40,000,000. This loss is occasioned in many ways, among which may be mentioned shrinkage in milk production, loss on cattle sold north of the Federal quarantine line, checked and retarded growth of Southern cattle, loss from tick fever among cattle brought South, loss of non-immune Southern cattle from tick fever, loss by being barred from Northern stock exhibits, expense incurred by government and States in maintaining quarantine lines, etc.

SOUTH CAROLINA'S ANNUAL LOSS.—In the quarantined area of the United States there are 15,500,000 cattle. Of this number, South Carolina has 355,413 and, as an annual loss of \$40,000,000 has been estimated for this area, South Carolina's proportional loss would be about \$900,000 each year. This loss can be prevented by the eradication of the cattle ticks.

CO-OPERATIVE TICK ERADICATION.—Realizing that the eradication of the cattle tick was the only method by which this great annual loss could be prevented, Congress approved an Act in June, 1906, appropriating funds to enable the Secretary of Agriculture to undertake tick eradication work in co-operation with authorities of the Southern States.

Owing to the lack of necessary laws, it was not possible for this State to begin the work until July 1, 1907.

REPORT OF WORK ACCOMPLISHED IN SOUTH CAROLINA IN 1907.—In accordance with an Act of the General Assembly, approved February 13, 1907, the Board of Trustees of Clemson Agricultural College placed Oconee, Pickens, Greenville and Anderson counties in quarantine and appropriated funds to begin active operations on July 1, 1907. These counties were decided upon because of their favorable location, being bounded on the north and northwest by the Federal quarantine line, and thus protected from reinfestation on these sides.

Ten inspectors (four inspectors and two veterinarians in the employ of the college, and six inspectors and two veterinarians in the employ of the Bureau of Animal Industry) began work in these counties on this date. These inspectors were instructed to make farm-to-farm inspections, examine all cattle and quarantine those premises found infested with fever ticks. They were also instructed to explain to the owners of all infested cattle the object of the work, the law under which the work was being conducted, the method of tick eradication most applicable to their individual premises, and to give the owners all possible assistance in the work.

Four of these inspectors and a Federal veterinarian were retained throughout the winter and the State Veterinarian and his assistant also devoted most of their time to the work.

Daily reports were received from these inspectors, giving names of owners of premises inspected, together with the number of cattle on each farm and the condition of the cattle (infested or free). These

were mailed to the office of the State Veterinarian, where they were kept on file. In this manner an accurate account of the conditions existing in these counties is constantly on file in that office. The progress made by owners of quarantined farms is also known, as inspectors re-inspect the quarantined farms every three weeks and give the cattle owners advice and assistance. The reports received from the inspectors indicate the attitude of the cattle owners, and if the work is neglected, personal letters are mailed them. If this is not sufficient, a veterinarian is then sent to their homes and the work is thoroughly explained. When these methods fail, the cattle owners are prosecuted if they move the quarantined cattle.

The following table shows the number of cattle inspected and the premises quarantined in 1907:

	Cattle Inspected.	Auditor's Returns.	Premises Quarantined.	Cattle Quarantined.
Oconee	7,500	7,249	95	569
Pickens	7,988	6,851	152	791
Greenville	12,236	11,063	206	1,173
Anderson	12,845	12,658	169	1,581

On many of these premises the ticks were eradicated during the fall of 1907, but these premises were not released from quarantine until the following spring, as it was thought that some of these premises might still be infested. As a result of the season's work these four counties were provisionally released from Federal quarantine, thus giving cattle owners the privilege of shipping cattle to any portion of the United States at any time of the year after inspection by a Federal inspector. Many have taken advantage of this, and are now shipping their cattle to the Northern markets without restrictions and thus receiving a better price for their stock than was received heretofore.

WORK ACCOMPLISHED IN SOUTH CAROLINA IN 1908.
—On June 26th, 1908, the Board of Trustees of the Clemson Agricultural College placed eight additional counties in quarantine and appropriated funds to commence work in this area; working in co-operation with the Bureau of Animal Industry. The counties selected were those bordering on counties in which work was conducted in 1907, viz: Abbeville, Greenwood, Laurens, Union, Cherokee, Spartanburg, Chester and York.

Fourteen inspectors in the employ of the bureau and five in the employ of the college were employed in this territory throughout the summer. These men have followed the same methods employed last year, with the exception of inspectors in the four counties in which work was conducted last year. These men were provided with spray pumps and sprayed the larger herds of cattle every eighteen days.

The following table shows the progress made and the number of premises freed and released. Many premises now in quarantine are free from ticks, but must be held until the advent of warm weather to ascertain this positively:

County.	Auditor's Return.	Cattle Inspected.	Premises Quarantined.	Cattle Quarantined.
Abbeville.	5,814	9,873	302	2,647
Greenwood.	5,607	6,993	143	1,491
Laurens.	7,020	8,408	76	708
Union.	4,945	4,187	15	223
Spartanburg.	—	6,095	248	1,454
Cherokee.	5,904	3,175	72	517
York.	8,644	6,276	302	2,255
Chester.	6,082	5,370	151	1,163

Work accomplished during the past year in the area quarantined in 1907:

County.	Premises Released.	New Premises Quarantined.	Premises Now in Quarantine.
Oconee.	45	25	75
Pickens.	86	28	94
Greenville.	110	100	196
Anderson.	129	30	70

Many of these premises will be in condition to release in the spring. Twelve inspectors and one Federal veterinarian as well as the State Veterinarian and his assistant will be employed in these counties throughout the winter. The great obstacle to be overcome is the indifference and ignorance of the cattle owners.

Amount expended:

	Appropriated by Trustees.	Bureau Animal Industry.
July 1, '07—July 1, '08....	\$3,882	*\$12,000
July 1, '08—July 1, '09....	6,900	*24,000

M. RAY POWERS, D. V. S.,
State Veterinarian.

SOIL SURVEY WORK IN SOUTH CAROLINA.

The following special report has been prepared by the office of the Bureau of Soils at my request, and furnished for this report:

The Bureau of Soils of the United States Department of Agriculture began soil survey work in South Carolina in 1903, making surveys of the Abbeville and Darlington areas. In all, eleven soil surveys, aggregating 6,343 square miles, or 4,059,520 acres, have already been completed in South Carolina, and work in three additional areas aggregating 1,694 square miles, or 1,084,160 acres, has been assigned for the fiscal year ending June 30, 1909.

The following list gives the names of the areas surveyed and assigned and the number of square miles covered by each:

Year.	Area.	Square miles.
1902.....	Abbeville area.....	1,006
1902.....	Darlington area.....	595
1903.....	Campobello area.....	515
1904.....	Charleston area.....	352
1904.....	Orangeburg area.....	709
1904.....	Lancaster County.....	486
1905.....	Cherokee County.....	361
1905.....	York County.....	669
1907.....	Lee County.....	411
1907.....	Sumter County.....	587
1907.....	Oconee County.....	652
1908.....	Anderson County.....	756
.....	Saluda County.....	438
.....	Horry County in part).....	500

The work of the soil survey is based upon the principle that there are differences among soils which directly affect plant growth to such a degree that not all soils are equally suited to the production of all

*Approximate.

crops. The soil survey work, therefore comprises the study of the character of the differences between soils and the effects which these differences produce in the production of farm crops.

In the field work of the soil survey the soils are studied to determine their texture or the relative proportion of coarse and fine particles making up the different soils; their structure or the manner in which the different individual particles are aggregated; their organic matter content in its quantity, condition and distribution; their internal natural drainage due to the relation of the soils to underlying clays, sands or gravels; and the contour of their surface in relationship to surface drainage, erosion and the ease or difficulty of cultivation. All of these characteristics of soils operate together to determine the character of the home which the crop or the plant is to find in the soil.

In the classification of the soils, all of the areas of soil material which are found to be closely similar in all of these different respects are classed as the same soil type and given a descriptive name which at once sets the soil aside as an individual suited to the production of definite crops and best managed by definite methods of plowing, cultivating and cropping. Under similar climatic conditions the individual soil type is thus capable of producing similar crops and groups of crops, and under the same conditions of soil management and efficiency in farm business each soil may be expected to produce nearly the same amounts of farm crops.

The individual soil types which constitute the unit of soil mapping may be so closely related to each other in their origin, method of formation, surface configuration and relationships to drainage, that several soils are different from each other only in regard to their texture, being identical or very closely similar in all other respects. Such a group of soils is called a soil series.

In the same way several soil series may be closely related in the character of materials from which they are derived and the different geological processes by which they have been formed. In this case the different soil series would be grouped together to constitute a soil province.

In South Carolina, the work of the soil survey up to the present time, has shown three main subdivisions of the soil into soil provinces. In the eastern part of the State practically all of the soils have been formed from materials carried down and deposited in the ocean at a time when its relative level was higher than it now is. With the elevation of the coastal portion of South Carolina above the tide

level the sands, loams and clays of that section of the State became land surface and they now, in great variety, constitute the soils of that section.

In the central portion of the State the soils have practically all been derived through the operation of atmospheric agencies in breaking down the underlying consolidated rock of that section and a great group of residual soils derived from granites, gneisses and other igneous and metamorphic rocks has resulted.

This group differs in many respects from the group lying in the coastal plain belt to the east.

Again, in the extreme northwestern portion of the State, in the mountain regions, other groups of rocks have been broken down by atmospheric agencies and the soils of the Appalachian province have been formed.

Each of these provinces gives rise to several soil series.

COASTAL PLAINS SOIL PROVINCE.

In the coastal plain region the extreme seaward portion of the State is formed by a group of combined river and marine deposits forming the Sea Islands which have long been famous for their long staple cotton production, for the variety of market garden crops which can be produced under the mild climate of that section and for the rice fields which have been cultivated in the low lying areas.

Farther inland the surface slopes gently up from sea level and broad river bottoms intersect the uplands. Throughout a considerable portion of the uplands in this belt there are extensive tracts of partially drained savannas and pocosons which constitute a reserve supply of land to be drawn upon the agricultural population of the State increases in density. At the inner margin of the coastal plain belt there are low hills and a considerable tract of rolling land. From this variety in conditions several distinct soil series have arisen.

NORFOLK SERIES.—The Norfolk series of soils consist of a group of soil materials having light colored clay or ashy surface soils, underlain with yellow sandy or sandy clay subsoil. The texture of the different members of the series ranges from coarse sand through medium sand, fine sands, sandy loams, loams and silt loam to the heavy clays.

This series of soils contains some of the most valuable trucking soils of the Atlantic and Gulf Coast States, and under favorable climatic conditions the more clayey members of the series are well suited to grass, winter oats and other small grains, also producing

corn to fairly good advantage. The Norfolk fine sand and fine sandy loam constitute excellent bright tobacco soils and a considerable extension in bright tobacco cultivation might be undertaken upon these two soils throughout the coastward region of South Carolina.

ORANGEBURG SERIES.—The Orangeburg series of soils (named from Orangeburg County, South Carolina), contrasts quite sharply in its general characteristics with the Norfolk series. The surface soils are usually light colored, but the subsoils consist of deep red sandy clays. This series also grades into types from the coarser materials to the stiff clay loams and clays. Some of the best upland cotton soils in the Southern States are the Orangeburg fine sandy loam and Orangeburg sandy loam. Certain members of this series constitute also excellent peach soils, and under proper climatic conditions the Cuban filler tobacco can be raised to advantage on the Orangeburg sandy loam.

PORTSMOUTH SERIES.—The soils of the Portsmouth series are all distinguished by dark colored mucky surface soils underlain with yellow or mottled gray and yellow sand or sandy clay subsoils, which are usually very compact. In all localities where natural drainage or artificial drainage is adequate this series of soils is well suited to the production of the later truck crops and certain small fruits like strawberries. The loam member of the Portsmouth series when properly drained and cared for constitutes one of the best corn soils east of the Allegheny Mountains. In the majority of cases all of the soils of the Portsmouth series require well-established drainage before they can be used extensively for the production of staple crops.

It is upon the Norfolk soils of the Sea Island region that there has been such a profitable development of the winter cabbage industry, and it is also principally upon the soils of the Norfolk series that the Sea Island cotton is at present attaining its best development. The latter crop can also be raised to advantage upon the Orangeburg sandy loam.

SOILS OF THE PIEDMONT PROVINCE.

The entire central portion of the State of South Carolina consists of a rolling to hilly country through which the larger streams have cut deep channels frequently bordered by narrow strips of alluvial land. The soils of this entire Piedmont section have been formed by various chemical and mechanical processes which have brought about the disintegration and decomposition of crystalline, igneous

and metamorphic rocks. Active stream erosion has carried from this district a large amount of material in past geological times, which has contributed to the formation of the soils lying in the coastal plain. There remains, however, a thick covering of disintegrated rock, which at the surface has been weathered to form soils of varying texture, depending upon the amount of erosion which is taking place, the depth to which weathering is extended and somewhat upon the original character of the rock from which the soils were derived. In general, however, the processes of weathering have gone to such an extent that original differences which existed between the rocks of the Piedmont plateau have been largely obliterated, and there is a considerable uniformity of soil condition throughout the entire section. In the Piedmont region stream drainage is usually adequate. There are practically no areas of swamps and soil erosion constitutes by far the most important general soil problem which the State or the individual farmer has to meet.

CECIL SERIES.—The principal soil series in the Piedmont section of South Carolina is the Cecil series. The entire Piedmont section is marked by a group of soils having gray to red clay subsoils. These soils are derived through the weathering of igneous and metamorphic rocks and constitute by far the largest proportion of the entire soil province not only in South Carolina, but both to the north and south of that State.

All of the soils of this series are well adapted to general farming crops, and the more clayey members are well suited for the production of cotton, corn, wheat, oats and a larger variety of grasses than is usually grown in the section. The Cecil soils also produce export tobacco and fruit, while the more sand members of the series are well suited for market, garden and truck crops. One of the principal soil problems in connection with this soil province and soil series is the prevention of active soil erosion. It is upon this series of soils in South Carolina and elsewhere through the South that the production of grasses and other forage crops can best be undertaken as a basis for extended dairy and live stock industry.

CHESTER SERIES.—At a few points within the Piedmont section the deep red subsoils of the Cecil series do not appear and the surface soils grade down into light or medium yellow subsoils, giving rise to the Chester series of soils.

PENN SERIES.—There are a few small areas near the South Carolina boundary where igneous and sedimentary rocks of the Newark formation give rise to soils. No large areas of these have been

mapped, and the Penn series derived from these rocks, is not extensively developed nor of particular importance within the State.

APPALACHIAN SOIL PROVINCE.

The extreme northwestern portion of the State is mountainous and rugged and the crystal and semi-crystal rocks of this region have been weathered to give rise to soils differing in some respects from those found in the Piedmont section. With the exception of mountain valleys and coves, this portion of the State is practically non-agricultural. The forest resources of the State and the sources of its water power lie largely within this province.

PORTERS SERIES.—The Porters series of soils includes residual soils in the Appalachian mountain section, derived from igneous and metamorphic rocks. The soils are closely related to those of the Cecil series in the Piedmont section, but need to be classed separately on account of fundamental differences in topographic position. The soils of this series are best fitted to fruit culture, except in the higher and rougher portions, and the best locations for apple orcharding within the State occur on this soil series at medium elevations and under suitable conditions of slope and exposure. The Porters black loam is the most prominent type in this series and the Albemarle Pippin attains its greatest perfection in sheltered coves occupied by this type. The Porters clay also produces the red varieties of apples such as the Wine Sap to perfection. Among general farm crops, wheat, corn, rye and barley are best suited to this series, while cotton is practically eliminated on account of the altitude at which the soils occur and the consequent unfavorable climatic conditions.

The soil surveys thus far made in the State of South Carolina have shown conclusively that while the agricultural development of the State has been making very satisfactory progress during the past decade, there are still almost unlimited opportunities for the occupation of additional areas of South Carolina soil for the production not alone of the general farm crops such as cotton, tobacco, corn, oats and wheat, but also for the production of such highly valuable crops as winter cabbage, potatoes, strawberries, cucumbers and beets in the seaward portion of the State and of various forage crops, including alfalfa, red clover, timothy, orchard grass and other tame grasses in the Piedmont section. The opportunities for apple orcharding in the mountainous section of the State have already been mentioned in the description of the Porters series.

The soil survey work has shown two great problems in the development of the agricultural soils of the State of South Carolina. The first of these is the proper drainage and protection of the swamp lands and savannas lying in the eastern part of the State. Sufficient work of this character has already been undertaken in the State of South Carolina and in other portions of the Atlantic coastal plain to prove beyond question that rich bodies of these swamp soils when properly reclaimed constitute the most valuable of the remaining unappropriated lands in the Eastern and Southeastern States. Upon these soils a great variety of special crops like celery, onions, cabbage, the later varieties of strawberries and other small fruits can be grown, and it would be safe to predict that the undrained swamp lands of the States of South Carolina would be adequate to produce practically the entire corn yield required for the feeding of the work stock employed upon the cotton plantations. Possibly no single member in South Carolina soil conditions would equal in value to the State and individual the proper drainage of these extensive areas of land.

Where in the coastal plain section of the State artesian water can be found at reasonable depths, there are excellent opportunities for irrigation by means of this water in connection with the intensive farming of the sandy loams and sandy soils of the eastern coastal plain region. More intensive cultivation could thus be gained and vegetable and fruit crops of high acreage value could be produced in regions where only a moderate profit is now secured through general farming practices.

As has already been indicated, the principal soil problem in the Piedmont section of the State of South Carolina is that of the prevention of soil erosion. The liability to destructive washing in this section varies with the slope of the land, the character of the soil and subsoil, the character of the crops which are produced, the kind of cultivation (whether crops can be cultivated with the surface soil covered by catch crops during the rainy part of the year), and also to some degree with the time in the year when the greatest amount of rainfall occurs. It has been observed in the course of the soil survey work that a slight rearrangement in the distribution of farm crops upon many of the soils which are most subject to erosion would largely prevent this destructive drain upon the soil. The steeper slopes can either be forested or occupied only by such grass and forage crops as prevent the soil from washing away. The more gentle slopes can be cultivated to tilled crops under the present sys-

tem of contour farming and terracing, although even these slopes would be greatly benefited by the growing during the winter season of protective catch crops which can be turned under to the formation of the organic matter for the soil during the ensuing spring. Erosion in the Piedmont section is not only a matter of vital interest to the farmers of that region, but it also affects the welfare of all farmers owning land along the major stream courses, not only within the Piedmont section, but also in the coastal plain section through which the Piedmont rivers flow to the sea.

The rapid growth of manufacturing cities within the Piedmont section of South Carolina, due to the development of water power would indicate, as has been shown by the soil surveys, the necessity for some change in the agricultural practice of that region. At the present time careful inquiry has elicited the information that only a very small proportion of the garden vegetables, milk products and meat supplies of these manufacturing cities is derived from the surrounding country, the greater proportion being shipped into the State from outside of the territory. It would seem then that additional soil surveys in the vicinities of all the larger cities should be made at an early date in order to call attention to the possibility, the desirability, and even the necessity for producing such supplies within the State for consumption within the State, thus making the city population of manufacturing towns less dependent upon other States for their daily food supply.

The soil survey work is being pushed by the Bureau of Soils as rapidly as possible within the State of South Carolina, considering the demand for the work which exists all over the country, and the necessity for apportioning the expenditures of Federal funds equably among the different States. In this connection it is necessary to state that one of the fundamental purposes of the soil survey work is to study all of the important soil types as they occur throughout a range of several States under different climatic and economic conditions. Through such a study of any soil type, its best agricultural uses under a wide variety of conditions are ascertained, and the information concerning special crops, special methods of soil preparation and special fertilizer and manurial requirements are made available throughout the entire extent of a given soil type. In this way the information secured from the best farmers in several of the States is made mutually available to all of the farmers who are engaged in the handling of each soil type and each is enabled to keep abreast of the times in the management and cropping of his particular farm.

Several of the States are following up the soil survey work through the establishment of branch experiment station farms located upon extensive and important soil types and upon these farms they are making tests of the fertilizer requirements of the soil, the adaptation of special varieties of cotton, tobacco, wheat, corn and other staple crops, and are also studying the proper time and depth for plowing and those other factors of soil management which enter into the successful handling of any soil or farm.

With the extension of soil surveys not only in South Carolina, but throughout the entire South Atlantic section, additional uses will be found for the different soils which exist in considerable variety throughout the region, and it is hoped also that better methods of soil management may be built up, and additional crops and varieties of crops introduced from time to time for the benefit not only of the individual farmers, but of the State in its functions of organized society.

There are still abundant opportunities for the more intensive cultivation of South Carolina soils, and with the soil resources which are now known to exist within the State, a population several times as great as that shown by the last Federal census may easily be supported so far as food products are concerned, and considerable surplussages of raw material from the farms may be contributed to the upbuilding of successful manufacturing enterprise.

The citizens of the State of South Carolina can secure copies of the list of soil surveys herewith given by writing to the Bureau of Soils of the United States Department of Agriculture for the areas of which the maps and reports have been published. In all cases where a soil survey is made within the State 2,000 copies of the map and report are published for distribution by the Representative from the congressional district in which the survey is made, and 500 copies are printed for distribution by each of the Senators from the State. In addition, 1,000 copies of the report are printed for general distribution throughout the United States by the Department of Agriculture at Washington.

These reports as distributed by the Bureau of Soils go to all portions of the country for the information of other citizens of the United States who may desire to invest their funds in South Carolina soils, or to make their homes upon South Carolina lands while pursuing some special branch of agricultural development. Large numbers of reports are thus distributed annually throughout the United States to homeseekers, investors and those in search of reliable

information concerning the soil and agricultural resources of the State.

VIII.—CONCLUSION.

During the last session of the General Assembly a full investigation of the affairs and management of this Department was made and the report submitted by the committee was particularly gratifying to the Commissioner and every one connected with the Department. As a matter of record, the report of the committee is incorporated:

“This committee begs leave to report that it met and organized by electing Senator G. W. Sullivan chairman, and Representative Olin Sawyer secretary.

“That this committee has carefully examined the books, vouchers and papers of the office of the Commissioner and find that they are properly kept, after a plain, simple system, and that the expenditures are properly and wisely disbursed according to law.

“That the annual report of the Commissioner contains much valuable information on the work of the Department, to which we invite the careful attention of the members of the General Assembly.

“We have carefully investigated the work done by the Commissioner and find that his admirable and far-reaching system of advertising the resources of the State is bearing fruit and bringing many inquiries daily from homeseekers, and has already resulted in the planting of some small colonies in the State as well as individuals. We find that many of these inquiries are coming from American-born people, and that the Commissioner is now directing his attention largely to inducing this class of people to come to this State. That your committee has been informed by the Commissioner that he intends to have blanks placed with the clerks of the courts of the various counties of the State for the use and benefit of those who may desire immigrants.

“We find that the Commissioner is now confining his efforts in the foreign fields to inducing immigrants to come to this State from England, and that this work is being done through resident agents in that country.

“Your committee desires to call the especial attention of the members of the General Assembly to the handbook of South Carolina and folder, compiled and edited by Commissioner E. J. Watson, as full and complete with valuable information concerning the great resources of the State. This work is a credit to the energy and

zeal of the Commissioner in his work and will be a splendid advertising agency for the State and the great opportunities it offers to home-seekers, and for the investment of capital.

"We find that the Commissioner is devoting his energies and efforts to the furtherance of the objects and purposes of this Department, and that he deserves much credit for his faithful work and services in this Department.

"All of which is respectfully submitted.

(Signed) "GEO. W. SULLIVAN,

"GEO. K. LANEY,

"On the part of the Senate.

"A. BETHUNE PATTERSON,

"O. C. SCARBOROUGH,

"OLIN SAWYER,

"On the part of the House."

THE STATE'S TAXABLE PROPERTY.

In summarizing South Carolina's industries and the operations of her people in the various spheres of human endeavor, it is proper that the "true value of property" in the State should be given. In 1880 the figure given for this "true value" by careful estimators was \$322,000,000; in 1900 it was placed at \$486,678,048; and this year it is given as \$706,538,986, and is probably greater. As it is, the 1908 value exceeds that of 1900 by \$220,860,938.

The following statement of the valuation of taxable property in the State as returned for taxation and shown by the books of the Comptroller-General is of especial interest:

	1907.	1908.	Increase.
Total taxable property	\$267,438,037	\$271,367,956	\$3,929,919
Railroad property	43,569,271	41,959,377	*1,609,894
Real property	132,273,168	134,536,251	2,263,083
Personal property	91,595,598	94,872,328	3,276,730

The increase in taxable property in 1908 of \$3,929,919 over 1907 is a substantial one.

In presenting this report so fully this year, it has been my endeavor to give to yourself and members of the General Assembly and the people of South Carolina a careful resume of the efforts of

*Decrease.

the people of this State in every sphere of endeavor affecting her present and future prosperity, to make the report reflect the achievements and accomplishments of the year in these respective spheres, and to convey some idea of the wide scope of the work for the upbuilding of South Carolina that this Department is attempting to do. It has been my effort also to carefully watch the course of events and developments in all of these lines of endeavor, and to present to your Excellency and the General Assembly such recommendations as in the light of that observation and experience I deem wise at this period of our material development.

If I have succeeded in presenting what I have outlined above, and in giving a permanent record, statistically, of the advance of the various lines that we have made during the panic year of 1908, I will feel that the labor expended in the preparation of this report has not been wasted.

In conclusion, I wish to say that I have bended my every energy, mentally and physically, to the execution of the onerous duties imposed upon me by the Act creating this Department, and I believe that in the short space of the existence of the Department we have set wheels in motion that promise splendid results to the Commonwealth when another decade has passed into the glorious history of the State. I wish to express to you my sincere appreciation of the hearty support and aid you have continually rendered to me in the discharge of my duties, and I wish to express, through you, to the General Assembly and to the people of the State my sincere thanks for the support and confidence that they have reposed in me as the head of a Department of the Government charged with perhaps more varied and exacting duties than any other in the State.

Respectfully submitted,
E. J. WATSON, Commissioner.

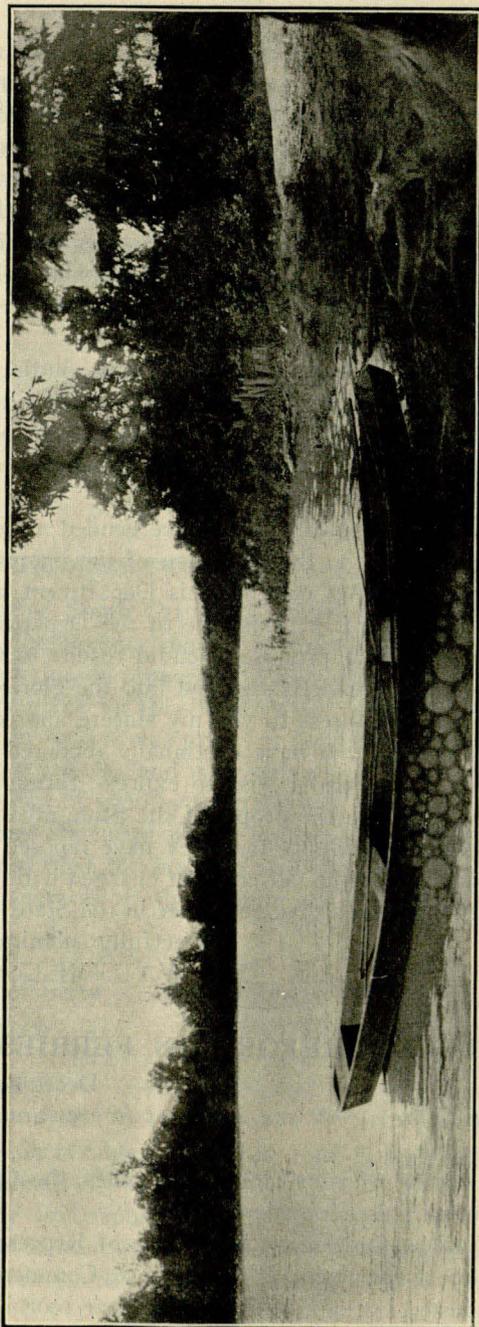
SPECIAL REPORT ON FERRIES.

December 31, 1908.

To the Honorable the Senate and House of Representatives of South Carolina:

At the last session of your Honorable bodies, the following Concurrent Resolution was adopted:

"Be it resolved by the Senate, the House of Representatives concurring, That the Department of Agriculture, Commerce and Immigration be requested to examine during the year 1908 into the conditions existing at McCord's Ferry, joining Orangeburg and Richland



POINT AT WHICH IT IS PROPOSED TO SPAN "DEAD" RIVER WITH CAUSEWAY TO BUCKHEAD ISLAND.

Counties; Garner's Ferry, joining Richland and Sumter Counties, and Ancrum's Ferry, joining Richland and Kershaw Counties, and investigate the possibilities of the establishment of permanent ferries at these points of connection and report to the General Assembly at its next session, indicating the cost of the operation of these three ferries, first, by the county of Richland alone, and, second, jointly by the two counties affected."

In pursuance of this resolution the Commissioner made a thorough investigation into the conditions existing at these abandoned ferries, and has the honor to present this report as to the conditions and his findings as to the possibilities of re-establishment of these connections, and as to the cost of the same as directed.

In the execution of this duty a meeting was held in the State Supreme Court room in Columbia on July 29th, to which were invited all officials and persons interested from the several counties involved. This meeting was for the purpose of getting the views of all those who had given the matter study and thought and who would be directly concerned. There was a good attendance at the hearing, all of the counties involved, except Kershaw, being represented. Much information was obtained, extracts from the report of the proceedings being given below.

On July 31st I spent the entire day in company with parties interested, on a tour of inspection of each of the ferry locations, and, in addition, the old Singleton Ferry near Acton, not, however, visiting the old Ancrum Ferry, having been convinced that it would be of little value and that there was no demand for its re-establishment, except for service to the State Farm. Careful personal inspections of each were made from the shore and by boat on the river courses.

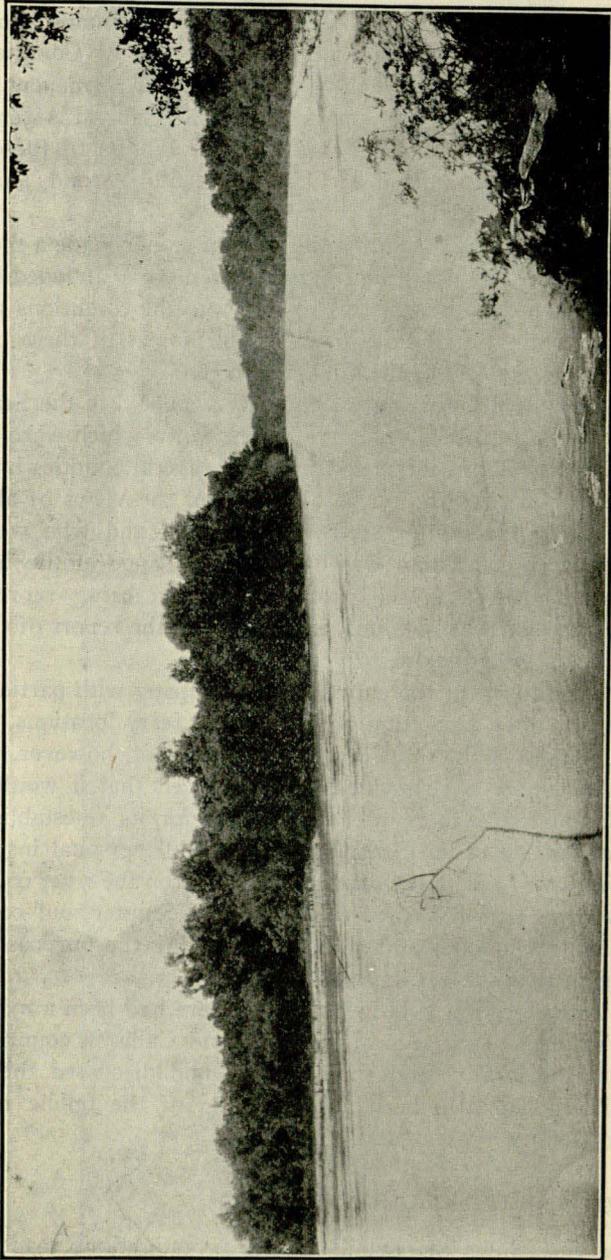
A few days later I visited the county of Sumter and conferred with the county officials and others, abandoning the purpose to hold a hearing in that city.

Prior to the meeting held in Columbia there had been a meeting at McCord's Ferry of citizens of Richland and Calhoun counties, who went over the locality and surroundings and discussed the matter fully. There had also been an inspection of the public roads of Richland County.

FINDINGS AND CONCLUSIONS.

Before furnishing the details of the investigations made, I beg leave to present the following conclusions I have reached:

- I. That it is feasible to open and operate these ferries.



POINT AT WHICH IT IS PROPOSED TO ERECT STEEL BRIDGE.—VIEW IS FROM BUCKHEAD ISLAND SIDE.

2. That at each a steel bridge would be the better undertaking, but it would be most advisable to operate ferries at first, giving the people the opportunity to judge of the value to them of the re-establishment of these public highway lines of transportation.

3. That conditions for operation of a ferry at the old McCord's Ferry are better than at any of the others, by the utilization of Buck Head Island, and the cost would be less.

4. That the swamp conditions on the Sumter side of Garner's Ferry are such as to necessitate the construction of a long stretch of causeway, which would probably prove costly, but not too costly for the benefits to be derived.

5. That the swamp conditions on the Sumter side of the old Singleton Ferry near Acton are much more favorable than at Garner's, and construction of causeway would be much less, and, further, the causeway would connect with a splendid highway at its terminus.

6. That the investigation of all conditions, agricultural and otherwise, leads inevitably to the conclusion that the opening of these arteries of travel is of greatest importance, that immense benefit would accrue by reason of such public highway connections, reducing travel distances in many instances as much as 40 miles, and more, between Columbia and Eastern Carolina points, and that steps should be taken to establish these connections with the least possible delay.

7. That this is a matter for the counties of Richland and Calhoun, in the one case, and of Richland and Sumter in the other; that in the case of Sumter the greater burden of construction would fall upon that county; that each county, in each case, receiving equal benefits, I would recommend that, if the power not now be given by law, such legislation be enacted as will enable these counties, upon petitions of the freeholders, to undertake the establishment of ferries at McCord's and at Singleton's, the expense of construction and maintenance being borne equally by Calhoun and Richland counties in the one instance, and by Richland and Sumter counties in the other.

8. That it is extremely difficult to give exact estimates as to the cost of construction and operation of the ferries, in the absence of examination by engineers and experts, the construction of the causeways necessarily being more or less uncertain quantities. However, sufficient information has been obtained to give a fair idea of the estimated cost of the establishment of a ferry at either of these points. A conservative estimate of the cost of the ferry, including flat-boat and complete installation by the drop-cable system (avoiding interfer-

ence with navigation), telephone service and weather houses, is \$1,500. The cost of maintenance would probably be \$40 per month, which would amount to \$480 per annum. In the absence of trees from which the cable could work, about \$100 per tower would have to be added for two towers for each ferry. It is estimated that the approach to the ferry at McCord's Ferry could be accomplished at a total cost of about \$300, it being necessary to construct a wooden bridge 60 feet wide over "Dead River."

The construction of the causeways leading to the old Garner's Ferry has been estimated by a construction engineer, who has examined the old embankment, to cost not exceeding \$250 per mile, including such wooden bridges as would be necessary to span gaps. This estimate would entail, therefore, a cost on the Sumter side of \$1,250. Other estimates, however, by practical road builders who have examined this approach, indicate that the cost of this causeway would be about \$2,500, and that three wooden bridges would have to be constructed, which would cost practically the same amount. Taking everything into consideration, it seems thoroughly practicable to re-establish the McCord's Ferry at a total cost of not exceeding \$3,000, and Garner's Ferry at a total cost of not exceeding \$6,500. The cost of the establishment of the old Singleton Ferry would probably be several thousand dollars less than that for Garner's Ferry. If bridges were used across the rivers, the Congaree in one instance, and the Wateree in the other, experts from the best steel bridge manufacturing company in this country, who have examined the locality, say that such bridges can be constructed for \$12,000 each.

When your Commissioner first undertook this investigation in pursuance of the resolution, an almost unanimous sentiment for the construction of steel bridges in preference to ferries of any description was encountered. Indeed, in the matter of the Congaree crossing, petitions to freeholders were already in circulation and being freely signed. A month later, however, came the terrific flood, and, since that time, some of the most earnest advocates of the bridge proposition, at this time, are in favor of establishing the ferries, and having the benefits accruing from the reopening of these lines of transportation convince, in time, the people of the wisdom of constructing steel bridges that shall be sufficiently high as not to be affected by any kind of a flood.

Since the earliest days of transportation in South Carolina, and down until the advent of the railroads as a factor in transportation, these ferries were in constant use, being the connecting links on the

main lines of transportation between the capital of the State and Orangeburg, Charleston and the eastern portion of the State—to such points on the Pee Dee as Sumter, Bishopville, Darlington, etc. It is recorded that the McCord's Ferry was in use as early as 1766, and General Greene's army crossed and camped at this ferry in 1781. An examination of the conditions existing in the territory that would be traversed by the opening of these ferries on good public highways is convincing that their prosperity would be greatly enhanced and that the business of adjacent railway lines would be increased by means of branch roads from the main public highway.

Ancrum's Ferry.—The old Ancrum's Ferry crosses the Wateree at a point almost opposite the State Farm, and its reopening would mean a great deal to the farm, for, with the ferry open, the farm would be only 25 miles from Columbia, whereas, in order to get there by public highway, a conveyance must now travel 55 miles. I find, however, no general desire for the opening of this ferry.

Garner's Ferry.—Garner's Ferry, which is almost due east from Columbia, on a direct line to Sumter and thence to all principal points in Lee, Clarendon, Darlington and Florence Counties, is probably the most needed of all proposed public highway lines of transportation, and this statement is true to the old Singleton Ferry, some distance below, which could be used instead of Garner's. In order to go by vehicle from Columbia to Sumter and Clarendon points at present, one must traverse from 40 to 60 miles more than would be necessary should either of these ferries be opened. An automobilist of experience in different parts of this country during the summer passed over this long route going to Manning, and in referring to it stated that he had passed over 15 miles of sand road that "worse than anything he had encountered in the desert of Arizona."

On the Richland side, about one and one-half miles approach would have to be reconstructed, but this could be done by the county chain-gang. A splendid public road leads to within a distance of two miles of this approach. On the Sumter side, four and one-half miles is through the Wateree Swamp. The old causeway is there, but there are several gaps that have been washed from it, and it is grown up in a thick underbrush and timber from long disuse. Once having passed through the swamp, the public road into Sumter is in very good condition, and could be easily improved.

The Old Singleton Ferry.—The old Singleton Ferry, near Acton, which was a private ferry for many years, is very near to the point at which the Atlantic Coast Line crosses the river on its way from

Columbia to Sumter. On the Richland side, no approach would be necessary. On the Sumter side, the old causeway is still there and is not so covered over with forest as the approach at Garner's. The distance through the swamp is about four and one-eighth miles, and the old route runs above the railway. It would probably be very much cheaper to reconstruct this approach, which would join high land and a good road at its terminus passing Wedgefield. The Wateree River is 100 feet wide at this point, and the distance from Columbia to the ferry is 28 miles.

McCord's Ferry.—This is the historic crossing point which was the main artery of transportation between the center of the State and the up-country and Charleston prior to the building of railroads. The old landing on the Richland side is still clearly discernible and near by is an old graveyard where were buried travelers who died at old Mrs. McCord's Tavern. Just before reaching this point the Congaree River separates, one branch going almost due east, and the other in a southeasterly direction, the first going into the Wateree and the whole surrounding an island of considerable dimensions, known as Buck Head Island. The main channel of the river, up to 1852, was the eastern one referred to, but in that year the Congaree broke through in a southeasterly direction and the main channel is now on that side of the island, the other portion being limpid and known as "Dead River." This Dead River is 60 feet wide and the approach and a wooden causeway over it would not have to be more than 100 yards to high ground, the whole approach to the island not costing probably more than \$300 or \$350 in construction. Once on the island, there is a natural roadway embankment subject to overflow only in time of extreme high water, which extends along the island for a distance of one and one-fourth miles to the point at where the main Congaree River would be crossed. The estimate furnished for a bridge to cross at this point calls for 630 feet of bridging. On the Calhoun side the landing would be made directly on high land.

Accompanying this report are two illustrations which show the point of approach from the Richland side to Buck Head Island in the one instance, and the point of crossing the "live" Congaree River from Buck Head to Calhoun County.

With the establishment of good approaches to McCord's Ferry the people living along these lines of transportation on each side of the river would be enabled to avail themselves of the Columbia-Georgetown steamboat line for the shipping of their products to market, and for the shipment at lower rates of commodities they

need. From this viewpoint, the opening of this line of transportation would be of peculiar value to Wedgefield and Sumter and to the towns in the lower portion of Richland County.

Public Sentiment.—I have given above, as concisely as possible, the main facts in regard to the proposition to reopen these lines of communication and to indicate conditions surrounding the approaches as well as some of the possibilities following such reopening. It is only necessary in concluding this report to give you some extracts from testimony taken by your Commissioner in regard to this matter, reflecting the sentiment of the people. These extracts I deem of more importance than any summary that I could possibly give:

W. D. Starling, County Supervisor of Richland County:

I can say as the Supervisor of the county that I believe I voice the expressions of our county when I say we want these ferries. Would shorten the distance many miles to people coming to Columbia. It would give them much better roads than we now have. The estimated cost of a bridge is \$12,000.

On the south side of Garner's is a six-mile swamp. As far as Richland County is concerned, our roads are better than on the other side of the ferry. Ancrum's Ferry joins Kershaw and Sumter at the State Farm, near Ancrum's. The State Farm is 25 miles from here, but they cannot cross the river and have to go to Camden, thence here. People going from here to the State Farm have to go to Camden. Garner's Ferry is about 25 miles from Columbia, on the Stateburg road, and 6 miles from Stateburg.

Mr. Watson: Q. In the light of your knowledge of the general conditions, would, in your opinion, the opening of McCord's Ferry be injurious in any way to the commercial business of Fort Motte and St. Matthews in favor of Columbia? A. I don't think so; it would not affect these places adversely, as they have a better cotton market than we have. They would have a market for certain products—they could get rid of that kind of produce, which otherwise they could not. They have got to go a good way around or take train and come to Columbia.

Q. A man at Garner's Ferry at the Clarkson place would be nearer Columbia than Sumter, would he not? A. I think so; some little.

Q. Have you given any thought at all, seriously, to the probable cost of the ferry, yourself? A. It depends on where you build it. You can put in a ferry for \$1,000, buy cable, reel and flat. At the McCord's Ferry across the Dead River we could probably build a 60-foot bridge for \$300.

Q. Have you made any investigation, or have you any idea at all of the probable cost of the erection of a bridge at Garner's Ferry?

A. We estimated the cost at \$12,000, including the draw. The river is just 95 yards wide. Ancrum's ferry is narrower than Garner's. Bridges are cheaper in the end, and then you have something you can count on. My idea would be to build bridges right at the start. I do not hesitate to say that our county wants these ferries opened.

Q. You think your county is strongly in favor of the opening of these ferries? A. I do.

B. F. Taylor, President Columbia Chamber of Commerce:

The city of Columbia is very much interested in the building of bridges or the establishment of ferries so as to connect Columbia with these agricultural counties. We believe that it will add also materially to the value of the lands along those roads, as they will be main highways for the carrying of products of all kinds of agriculture. In addition to that, by the building of these roads it will unquestionably mean that a larger amount of travel will pass over them by means of automobiles. Everybody will admit that it means bringing farm lands at least 15 miles nearer to the city, and consequently increase the value of those lands. Now, this question of opening ferries was brought up practically at the instigation of Mr. Starling. We found that Columbia was seriously handicapped by the toll charges at Congaree bridge. In investigating the matter we found that we could connect Sumter and Ft. Motte to Columbia by means of ferries or bridges across this river and save somewhere in the neighborhood of 15 miles for Ft. Motte, and 30 or 40 miles for Sumter. We do not think that it will be disadvantageous to any of these counties to be brought in touch with the rest of their neighbors. There is one matter in this proposition of ferries that has to be considered very carefully, and that is the proposition of navigation on these two rivers. The Government is not going to allow any kind of ferries that will interfere with the passage of boats up and down these rivers, but until we can get the people in the notion of building these bridges, we think we can put up a substantial ferry. It is up to these gentlemen from the other counties to assist us by bring about some sort of sentiment so that they can be established by Act of the Legislature. I am satisfied that Calhoun County is much interested in this matter. We are ready to do anything in the world we can towards opening these bridges. At the last session of the Legislature we had an Act passed to authorize the building of bridges across

Broad River, connecting Lexington and Richland County, and we are going to do it. We have not asked them at Lexington to help us, but I believe they will contribute to build the two bridges. The Chamber of Commerce of the city of Columbia is heartily in favor of this matter, and I would like to have it recorded here, as president of that body, that it is unanimously their wish that these ferries or bridges should be established across these rivers. I should think in case of McCord's Ferry, the expense should be borne half and half by the people of Calhoun and Richland Counties, and St. Matthews people will then come to Columbia to do their business. St. Matthews is only two and one-half miles from the river. The entire county, in each case, should bear the expense of the roads. What we want to do is to get this thing started. It is not a proposition simply between Calhoun and Sumter and Richland Counties. Take a man at Pineville, Kingstree, Bishopville and Elliotts and he has to go 35 or 40 miles to go to Camden, and thence come into the city of Columbia. My idea is to make a fight on Garner's and McCord's Ferries and get them started. We have a mile and a half of poor road to go over on this side of the river, but Sumter has about 4 or 5 miles.

John D. Frost, Chamber of Commerce Committee on Bridges, Columbia:

A sub-committee of the Chamber of Commerce has been working here for the last twelve months to get a bridge. I am of the opinion that it would benefit Calhoun more than it would benefit Richland County. Free travel will benefit all sections, it makes no difference where or how.

F. H. Hyatt, President South Carolina Good Roads Association:

If we can get the people to meet each other and join in to put up a first-class ferry for a start, that is as much as we can expect to do in the start. What we want to do is to open up roads along our highways and build bridges between the different counties. I am heartily in sympathy with this movement and stand ready to do anything I can for it at any time.

R. I. Manning, President Sumter Chamber of Commerce:

I came here without having opportunity to confer with our people to any extent, though I did have an interview with our Supervisor

and some of the County Commissioners, and I am sorry to say that this question has not been agitated among our people to such an extent that I could correctly estimate what the sentiment of the people would be, but I do not hesitate to say that I feel we are ready to respond always to any call that looks to the improvement of Sumter or to the adjacent counties. To come down to the facts about this matter, we, I am sure, would favor a proposition looking to the improvement of transportation facilities between Sumter and Richland Counties, but it must be remembered that from the river to Stateburg is six miles and four and one-half is through the swamp, and it would mean an embankment or causeway for most of that distance. The estimated cost is \$2,500. There are three creeks that would have to be bridged in the swamp, estimated would cost about the same amount. It would cost something like \$2,500, exclusive of our portion of the cost of building bridge across the river; about two miles of road would entail heavy grading and heavy work. The question of taxation is one that is quite live in every part of the State, and would suggest that this question be fully taken up with a view of getting all information possible upon it and create a sentiment. The matter has not been discussed to any extent, and I think that education will have to be done before they are going to vote for an additional levy to defray the expenses. I think this matter could be furthered by having the County Commissioners of Sumter take up this matter this summer for improvements in the county themselves.

Q. Would you deem it advisable, then, for me to fix some date to meet Sumter people on this matter? A. Yes, sir. I think it the best thing to be done.

H. H. Cauthen, of Calhoun County:

We want bridges; we are going to have bridges. Now I understand that we can have good bridges by giving a bond for 30 or 40 years. There is great opposition in our county about building bridges and ferries. The best point for crossing is Buck Head. It has to be repaired every two or three years; there is no hill to cross, and it would be cheaper to build the bridge there. You could carry 25 bales of cotton on a good road between here and McCord's Ferry on a motor truck. Any man that is opposed to anything that will benefit Columbia and other cities is not fit to live in the State.

J. M. Bates, of Lower Richland County :

On the 7th of July we had a meeting at Buck Head Island, which is an island on the Congaree of 500 acres, through which the McCord road runs. At this meeting there were at least 25 to 30 representative citizens from Calhoun and Richland Counties. At that meeting we fully discussed the advisability and probability of opening up good roads. At that meeting it was quite apparent to any one that ferries had seen their days. Bridge company representatives present **offered to build a bridge across this river for \$12,000.** We then determined that our best plan in order to push this work—in order to get it in shape—was to agree then and there to appoint two committees, one from Calhoun County, and one from Lower Township in Richland County, to look after building a bridge, and ask the two counties to build the approaches to the bridge. We have gone on with this work and have just had a meeting of the Richland committee today. * * * My proposition is, and I think it is the sentiment of all, that Richland and Sumter build the bridge across Wateree Swamp. In connection with Garner's Ferry, the general idea is that the road should go through Colonel Singleton's place. As to the ferry question, the sentiment of our meeting was that we had a ferry in old man McCord's time and it was never satisfactory. We want something that we can get right in our automobiles here and go through without reducing the speed. The water varies 15 feet. It is impracticable to have a ferry with any degree of comfort. Richland County has one or two bridges now that they rebuild about every two years. We want bridges and we want them bad, and are going to do all we can to get them. I know I am expressing the sentiment of Middle and Lower Townships of Richland County. The road could be run right along the railroad at Colonel Singleton's and shorten the distance considerably.

(Mr. Bates, since the August floods, has been urging the ferries rather than bridges for present purposes.)

Dr. W. W. Ray, of Lower Richland County :

I have to say substantially what Mr. Bates has said. We have not taken under consideration Garner's Ferry at all, but in reference to McCord's Ferry. A majority of the people are in favor of opening up and constructing a bridge. We have not taken under consideration Garner's Ferry at all, and I am afraid if we take on too much we will find the people unwilling to undertake too much. I think we had better let Garner's Ferry alone for the present and take

up only one at a time. I am in favor of taking up the Calhoun matter first. I think that the roads should go through Eastover—through the Singleton country would be best. People would appreciate good roads more. I think we will certainly have a bridge for McCord's. None of the committee are in favor of a ferry. We want a bridge, but I believe if we go to make more taxation on them we are not going to get anything.

S. B. McMaster, Columbia Automobile Club:

The Automobile Association is heartily in favor of opening up these ferries. We have not had any meeting since the meeting of Calhoun and Richland, but I assure you they have the co-operation of the Automobile Association.

Mr. Watson: Q. Would the Automobile Association be willing to join in with any of the expense? A. I think they would; we have about \$2,500 that we are expending on good roads between here and Camden, and I am sure you would receive the hearty support of this Association.

J. K. Hayne, Sr., Fort Motte:

I can only speak for myself and for the meeting we had some time ago in Richland. The sentiment of all the delegates is that we want this road. I think every property owner wants it, and I think we are going to get the other townships interested in it. By opening up that road some people think it will interfere with their trade by carrying it to Sumter or Columbia.

J. A. Peterkin, Fort Motte:

This undertaking would develop as nearly an abandoned country as I ever saw. We prefer bridges. Those who are substantial citizens and pay the taxes want it.

Since the hearing at which these views were expressed I have conferred with leading men in these three counties, including the Supervisor-elect in Richland, and find a pronounced sentiment for the opening of these highways by means of ferries first, leaving the bridge proposition to development as public sentiment grows.

Trusting that this report of the investigations and findings made under the resolution of your Honorable bodies will prove sufficient and acceptable, and believing that the opening of at least two of these ferries will mean much to our agriculture and to our commerce, I trust I may be permitted to express the hope that such action will be taken as will bring about the desired result with the least possible delay.

Respectfully submitted,
E. J. WATSON, Commissioner.

Appendix I.

CLASSIFIED SUMMARY OF EXPENSES.

CONTINGENT FUND.

(Receipts Filed.)

Office rent during session of Legislature.. . . .	\$ 120.00
Subscription to papers and periodicals.. . . .	32.35
Telegraph and cable service.. . . .	133.74
Telephone rent and service.. . . .	80.80
Moving of office (twice).. . . .	26.85
Stationery and office supplies.. . . .	80.90
Traveling expenses of Commissioner Watson.. . . .	877.82
Matting and furniture for office.. . . .	172.35
Expenses of agents abroad.. . . .	700.86
Ice tickets for office.. . . .	9.00
Special services to Department.. . . .	190.00
Advertising on steamship lines and folder cases.. . . .	35.00
Hospital services to ill immigrants.. . . .	116.00
Transportation, deportation and handling of immigrants.. . . .	389.20
Printing and advertising, blanks, circulars and maps.. . . .	605.15
Janitor services.. . . .	162.00
Stamps.. . . .	8.50
Binding publications for library.. . . .	17.50
Membership in Southern States Commissioners of Agriculture.. . . .	35.00
Conveyances to inspect ferries and properties.. . . .	134.50
Supplies furnished needy immigrants.. . . .	61.48
Express charges on advertising matter.. . . .	11.00
Total.. . . .	\$4,000.00

FUND FOR PREPARATION OF STATE HANDBOOK.

(Receipts Filed.—Itemized.)

Balance left from 1907 appropriation for publishing of first edition of 2,000 copies of State Handbook.. . . .	\$3,671.35
Collection of data and statistics.. . . .	\$ 180.00
Payments for printing and publishing.. . . .	2,500.00
Preparing and printing of maps.. . . .	290.00
Express charges on cuts, etc.. . . .	23.13
Photographs for illustrating.. . . .	29.85
Cuts and engravings for book.. . . .	45.40
Stationery and stamps for mailing books.. . . .	437.07
Indexing book.. . . .	48.95
Boxes for shipping Handbooks.. . . .	72.35
Paper, twine and drayage.. . . .	4.95
Extra stenographic work.. . . .	31.55
Supplies furnished.. . . .	8.10
Total.. . . .	\$3,671.35
	\$3,671.35

STATE CORN CONTEST FUND.

To amount appropriated for prizes in State Corn Contest (1908).. . . .	\$500.00
Amount expended.. . . .	.00
Balance.. . . .	\$500.00

Appendix II.

DETAILED STATEMENT OF EXPENSES—SHOWING WARRANTS
ISSUED.

1908.	CONTINGENT FUND.	
Feb. 28.	Appropriation for expenses of Department of Agriculture, Commerce and Immigration..	\$4,000.00
Feb. 28.	Warrant 1.—To Seaboard A. L. Ry. for mileage and Pullman; trip to Washington, D. C., by Commissioner on official business.. . . . \$	28.00
28.	Warrant 2.—To The State Co. for subscription to paper, Jan. 1st, 1908, to Jan. 1st, 1909.. . . .	8.00
28.	Warrant 3.—To Manufacturers' Record for subscription from Feb. 16, 1908, to Feb. 16, 1909, to said paper.. . . .	4.00
28.	Warrant 4.—To Loan & Exchange Bank for two months' rent (Jan. and Feb., 1908) of two offices for Department's quarters.. . . .	80.00
Mar. 2.	Warrant 5.—To Southern Ry. for mileage book—trip of Commissioner Watson to Tampa, Fla., to Immigration Convention.. . . .	25.00
4.	Warrant 6.—To Frank C. Bennett Co. for advertising in National Live Stock Bulletin.. . . .	7.50
5.	Warrant No. 7.—To Henry Romeike for subscription to Clipping Bureau (Jan. and Feb.).. . . .	3.00
5.	Warrant 8.—To R. L. Bryan Co. for office supplies furnished as per attached statement.. . . .	33.40
10.	Warrant 9.—To E. A. Jenkins Motor Co. for livery service in taking prospective home-seekers to inspect lands as per attached statement.. . . .	50.00
10.	Warrant 10.—To Bell Telephone Co. for rent of 'phone and long distance service.. . . .	11.40
13.	Warrant 11.—To Western Union Telegraph Co. for messages sent and received Jan. and Feb.. . . .	16.05
16.	Warrant 12.—To Postal Telegraph Co. for messages sent and received, Jan. and Feb.. . . .	9.20
26.	Warrant 13.—To J. D. Dial for expense of moving office of Department from Skyscraper to State House.. . . .	12.60
28.	Warrant 14.—To The State Co. for office supplies and printing of various pamphlets as per attached statement.. . . .	95.30
April 1.	Warrant 15.—To Postal Telegraph Co. for cables sent as per attached statement.. . . .	10.54
1.	Warrant 16.—To R. B. Calvo for binding publication for preservation in Department's library.. . . .	2.50
1.	Warrant 17.—To Loan & Exchange Bank for rent of offices in Skyscraper for Department, month of March.. . . .	40.00
2.	Warrant 18.—To Jones Carpet Co. for rugs and matting for office in State House as per attached statement.. . . .	9.85
4.	Warrant 19.—To Columbia Ice and Fuel Co. for ice tickets for office.. . . .	1.80

April	30.	Warrant 20.—To W. Wedel for special services rendered Department in handling foreign-speaking prospectors and investors in accordance with Section 4 of Act creating the Department.	190.00
	7.	Warrant 21.—To E. J. Watson, Commissioner, for expenses in New York, Philadelphia and Washington on official business as per attached statement	100.00
	12.	Warrant 22.—To Southern Railway for traveling expenses of Commissioner Watson and W. W. Miller to Charleston, and mileage for official trip north as per attached statement..	78.18
	15.	Warrant 23.—To Roland Williams for janitor services to date.	9.00
	16.	Warrant 24.—To Alex. Thompson for services and expenses to date in advertising resources of South Carolina in England. . .	189.86
	17.	Warrant 25.—To W. F. Martin for livery for taking settlers to country to inspect territory..	5.00
	17.	Warrant 26.—To Jno. Scott for supplies furnished needy immigrants as per bill attached.	8.50
	23.	Warrant 27.—To J. S. Walpole (Atlantic Coast Line) for expense of deportation of two immigrants—Charleston to Rochester.	50.50
	24.	Warrant 28.—To Wheeler Transfer Co. for team to show properties to prospective settlers..	3.50
	27.	Warrant 29.—T. R. B. Calvo for binding publication for preservation in Department's library.	4.00
	29.	Warrant 30.—To Southern Bell Telephone Co. for telephone rent and long distance service	5.75
May	1.	Warrant 31.—To Roland Williams for services as janitor—April 15 to May 1.	9.00
	5.	Warrant 32.—To B. H. Todd (Southern Railway), expense of handling immigrants (English) and traveling expenses of W. W. Miller on official business as per attached statement.	48.15
	5.	Warrant 33.—To Western Union Telegraph Co. for telegrams sent and received as per attached statement.	29.70
	6.	Warrant 34.—To Jas. A. Hoyt for one year's subscription to News and Courier.	10.00
	7.	Warrant 35.—To Southern Bell Telephone Co. for rent of 'phone and long distance service..	9.95
	7.	Warrant 36.—To Gonzales Book Co. for office supplies furnished as per attached statement	3.35
	7.	Warrant 37.—To J. D. Dial for various office supplies as per itemized statement attached	3.55
	8.	Warrant 38.—To Southern Scale & Fixture Co. for two desks and one large book case for Department as per bill attached.	162.50
	9.	Warrant 39.—To Jonesville Mfg. Co. for expenses of handling needy immigrants—bill attached.	15.00
	11.	Warrant 40.—To E. J. Watson for expenses to Washington, Philadelphia and New York on official business as per statement attached.	70.00

May	11.	Warrant 41.—To Alex. Thompson for services as agent in advertising resources of South Carolina in England.	220.00
	15.	Warrant 42.—To Roland Williams for janitor services May 1-15.	9.00
	20.	Warrant 43.—To Jenkins Motor Co. for conveyances to country to examine properties with prospective settlers.	19.00
	20.	Warrant 44.—To Seaboard Air Line Ry. for mileage book and Pullman to Washington for Commissioner on official business to Washington, Philadelphia and New York.	43.00
	22.	Warrant 45.—To Palmetto Ice Co. for ice tickets for office.	1.80
	29.	Warrant 46.—To R. B. Calvo for binding publication for preservation in Department's library.	1.50
	29.	Warrant 47.—To State Co. for office supplies furnished as per attached statement.	3.95
	29.	Warrant 48.—To W. W. Miller for car fare, drayage, foreign exchange, toll and other expenses handling immigrants.	4.40
	29.	Warrant 49.—To L. I. Kaminer for expense of caring for English immigrants awaiting assignments.	141.30
	30.	Warrant 50.—To Roland Williams for janitor services May 15 to 31.	9.00
June	3.	Warrant 51.—To Western Union Telegraph Co. for messages month of May.	4.25
	4.	Warrant 52.—To Southern Bell Telephone Co. for rent of 'phone and long distance service	8.30
	15.	Warrant 53.—To Roland Williams for janitor services June 1-15.	9.00
	30.	Warrant 54.—To Roland Williams for janitor service June 15-30.	9.00
July	1.	Warrant 55.—To Gonzales Book Co. for office supplies furnished as per attached statement	4.00
	3.	Warrant 56.—To R. B. Calvo for binding publication for preservation in Department's library.	1.75
	8.	Warrant 57.—To Bell Telephone Co.—'phone rent and long distance service.	6.55
	8.	Warrant 58.—To Record Pub. Co. for subscription June to Dec. 12, 1908.	2.50
	8.	Warrant 59.—To B. H. Todd (Southern Ry.) for transportation furnished immigrants assigned to up-country.	4.65
	8.	Warrant 60.—To B. W. Kilgore, treasurer, South Carolina's part of expense of reporting and printing proceedings of Columbia meeting of Southern States Association of Commissioners of Agriculture.	35.00
	8.	Warrant 61.—To Columbia Hospital for medical attention given to ill and needy immigrants	18.00
	8.	Warrant 62.—To Western Union Telegraph Co., messages sent and received as bill attached	8.98
	8.	Warrant 63.—To R. L. Bryan Co., office supplies furnished to July 1st.	2.50
	8.	Warrant 64.—To S. W. Henley for five township maps of South Carolina and North Carolina.	9.90

July	15.	Warrant 65.—To Roland Williams for janitor services July 1-15..	9.00
	22.	Warrant 66.—To Munson Supply Co. for typewriter keys—office supplies..	5.00
	25.	Warrant 67.—To R. B. Calvo for binding publication for preservation in Department's library..	1.50
Aug.	2.	Warrant 68.—To Roland Williams for janitor services July 15 to Aug. 1..	9.00
	2.	Warrant 69.—To H. Romeike, subscription to Clipping Bureau..	2.05
	2.	Warrant 70.—To Western Union Telegraph Co. for messages sent and received..	4.31
	4.	Warrant 71.—To B. H. Todd (Southern Ry.), transportation of immigrants going to assignments..	5.75
	5.	Warrant 72.—To Southern Bell Telephone Co., rent of 'phone and long distance service..	6.90
	5.	Warrant 73.—To Postal Telegraph Co., messages sent and received as bill attached.. . .	1.49
	8.	Warrant 74.—To The State Co. for printing of publications of the Department as per attached bills..	402.75
	8.	Warrant 75.—To E. J. Watson, Commissioner, for expenses of official trips to Gaffney, Union, Sumter, Winnsboro and Wateree..	12.90
	10.	Warrant 76.—To E. J. Watson, Commissioner, for expenses official trips to Chattanooga, Tenn., and Stateburg, as per attached statement..	35.00
	10.	Warrant 77.—To W. W. Miller, various expenses of handling immigrants as per attached bills..	1.95
	16.	Warrant 78.—To Roland Williams for services as janitor Aug. 1-15..	9.00
	17.	Warrant 79.—To Southern Express Co. for express charges on box of advertising matter to agent..	2.35
	17.	Warrant 80.—To Alex. Thompson for services in advertising the resources of South Carolina in England..	100.00
	20.	Warrant 81.—To Seaboard Air L. Ry. for transportation (2,000 mileage) of Commissioner on official business..	40.00
	20.	Warrant 82.—To Southern Express Co. for express charges on box of advertising matter sent to agent in England..	4.00
	25.	Warrant 83.—To Palmetto Ice Co. for ice tickets for office use..	1.80
	27.	Warrant 84.—To E. J. Watson, trip on official business to Beech Island, S. C..	5.00
Sept.	10.	Warrant 85.—To Western Union Telegraph Co. for messages sent and received..	10.77
	10.	Warrant 86.—To Southern Bell Telephone Co. for 'phone rent and long distance service..	5.50
	10.	Warrant 87.—To Roland Williams for services as janitor Aug. 15-31..	9.00
	10.	Warrant 88.—To J. D. Dial for office supplies furnished as per itemized bills attached..	3.05
	10.	Warrant 89.—To Palmetto Ice Co. for ice tickets for office..	3.60

Sept.	5.	Warrant 90.—To J. W. Helms for services in advertising resources of State in North and Middle West States..	75.00
	10.	Warrant 91.—To C. M. Scott, ticket agent, for transportation of immigrants to Greenville, S. C.	4.20
	15.	Warrant 92.—To Roland Williams for janitor services Sept. 1-15..	9.00
	17.	Warrant 93.—To A. I. Kaminer for board and lodging of immigrants awaiting assignments—to date..	133.15
	17.	Warrant 94.—To Seaboard Air Line Ry. for transportation furnished immigrants..	17.50
	18.	Warrant 95.—To B. H. Todd (Southern Ry.), for transportation furnished immigrants..	5.60
	19.	Warrant 96.—To Western Plair for carriage service in connection with demonstration farm work..	3.00
	23.	Warrant 97.—To J. W. Helms for services in advertising resources in Middle West, and space at Indianapolis fairs for advertising State..	32.00
	25.	Warrant 98.—To Jonesville Mfg. Co. for advances to sick and needy immigrants as per attached statements..	37.98
	25.	Warrant 99.—To Good Samaritan Hospital for medical attention to two sick and needy immigrants..	20.00
	29.	Warrant 100.—To E. J. Watson, Commissioner, expense incurred by Commissioner while on official business as per attached statement..	5.65
	29.	Warrant 101.—To H. E. Richards, account of livery service to flood territory, Aug. 31st, and to farms in upper Richland county..	9.00
	30.	Warrant 102.—To S. A. L. Ry., transportation of immigrants to assignments..	1.30
	30.	Warrant 103.—To E. A. Jenkins Co., to livery service to farms in county, June 19-July 8-Aug. 1-12-27, for farm demonstration meetings..	35.00
	30.	Warrant 104.—To Roland Williams, janitor services June 15-30..	9.00
Oct.	2.	Warrant 105.—To E. J. Watson, Commissioner, expense trip to Beech Island farmers' meeting..	5.00
	5.	Warrant 106.—To W. W. Miller, various expenses of handling immigrants as per attached statement..	3.60
	7.	Warrant 107.—To Schumacher & Co., passage and expenses of J. Rubenstein to Bremen, Germany, as agent of the Department to advertise resources of the State in Germany..	84.00
	10.	Warrant 108.—To Western Union Telegraph Co. for messages sent and received..	6.43
	13.	Warrant 109.—To Southern Ry. for transportation of immigrants to assignments on farms..	7.00
	13.	Warrant 110.—To E. J. Watson, Commissioner, official trips to Charleston, Walterboro, Greensboro, N. C., statement attached..	20.00
	15.	Warrant 111.—To Roland Williams, services as janitor, Oct. 1-15..	9.00

Oct.	16.	Warrant 112.—To H. E. Richard, livery service to inspect agricultural districts as per attached statement..	10.00
	19.	Warrant 113.—To E. J. Watson, Commissioner, official trip on business to Nashville, Tenn., as per attached statement..	50.00
	24.	Warrant 114.—To Southern Bell Telephone Co., telephone rent and long distance service..	12.90
	28.	Warrant 115.—To Ira Williams, account of trip to Sumter, Camden, Darlington and Bishopville for the Department..	20.00
Nov.	2.	Warrant 116.—To Roland Williams, janitor services Oct. 15-30..	9.00
	4.	Warrant 117.—To Western Union Telegraph Co., messages sent and received, as attached bills..	3.02
	5.	Warrant 118.—To R. B. Calvo for binding publications for preservation in Department's library..	2.50
	11.	Warrant 119.—To C. M. Scott (Southern Ry.) for transportation furnished immigrants..	6.30
	16.	Warrant 120.—To Roland Williams, janitor services Nov. 1-15..	9.00
	18.	Warrant 121.—To E. J. Watson for official trip to Spartanburg, account Country Life Commission..	5.00
	30.	Warrant 122.—To Roland Williams, janitor services Nov. 15-30..	9.00
Dec.	2.	Warrant 123.—To R. B. Calvo, binding publication for preservation in Department's library..	2.25
	3.	Warrant 124.—To Western Union Telegraph Co. for telegrams sent and received..	17.78
	3.	Warrant 125.—To Southern Ry. Co., mileage of Commissioner, transportation of immigrants as per attached statement..	43.80
	3.	Warrant 126.—To E. J. Watson, Commissioner, for expenses of official trip to Southeastern Good Roads Congress in Atlanta..	25.00
	5.	Warrant 127.—To S. A. L. Ry., Pullman berth to Nashville for Commissioner on official business..	3.00
	7.	Warrant 128.—To E. J. Watson, Commissioner, expenses of official trip to New York and Washington as per attached statement.. . .	70.00
	15.	Warrant 129.—To Roland Williams for janitor services Dec. 1-15..	9.00
	15.	Warrant 130.—To H. Y. Romeike, subscription to Clipping Bureau..	1.65
	15.	Warrant 131.—To Jas. L. Watkins for copy of "King Cotton" for Department's library of reference..	1.15
	15.	Warrant 132.—To Postal Telegraph Co. for telegrams sent and received..	2.64
	15.	Warrant 133.—To J. E. Wyman for folder case advertising of State in New York for December, 1908..	25.00
	15.	Warrant 134.—To H. U. Baker for folder case advertising of State in Washington for December, 1908..	10.00

Dec.	15.	Warrant 135.—To Columbia Hospital for hospital attention to two ill and needy English immigrants as per attached bills.	78.00	
	19.	Warrant 136.—To R. L. Bryan Co. for office supplies furnished as per attached bills.	18.70	
	21.	Warrant 137.—To The State Co. for office supplies and printing furnished as per attached statement.	89.70	
	21.	Warrant 138.—To City Hotel for board of two immigrants awaiting assignment.	2.00	
	21.	Warrant 139.—To Gonzales Book Co. for office supplies furnished as per attached statement.	3.40	
	23.	Warrant 140.—To Roland Williams, janitor services Dec. 15-31.	9.00	
	23.	Warrant 141.—To Southern Railway, freight charges as per bill attached.	4.65	
	29.	Warrant 142.—To Bell Telephone Co., rent of 'phone and service.	13.55	
	29.	Warrant 143.—To Western Union Telegraph Co. for messages sent and received.	8.58	
	30.	Warrant 144.—To Southern Railway for mileage for Commissioner and transportation furnished immigrants.	45.25	
	30.	Warrant 145.—To J. D. Dial, moving office to Skyscraper, drayage and stenographic work.	14.25	
	30.	Warrant 146.—To Geo. H. Huggins, P. M., for stamps for office.	8.50	
	30.	Warrant 147.—To R. B. Calvo for binding publications for Department's library.	1.50	
	31.	Warrant 148.—To E. J. Watson, in refund of amounts expended by him personally for expenses to Tampa, Charlotte, Georgetown, Charleston, Philadelphia, Sumter, etc., as per attached statement.	99.99	
		Total.	\$4,000.00	\$4,000.00

FUND FOR THE PREPARATION OF STATE HANDBOOK.

(BALANCE FROM 1907 APPROPRIATION.)

	1908.			
Jan.	1.	Balance left from 1907 appropriation for publishing 1st edition of 2,000 copies of State Handbook.		\$3,671.85
Jan.	1.	Warrant 31.—To C. S. Hammond & Co. for 3,000 maps of State for insertion in State Handbook.	\$ 45.00	
	8.	Warrant 32.—To W. W. Miller for services in collection of data for State Handbook.	70.00	
	9.	Warrant 33.—To Gonzales & Bryan, public printers, for work on account of Handbook as per Sub-Div. 18 of Appr., Oct., 1907.	1,500.00	
	14.	Warrant 34.—To Southern Express Co., express charges on maps for insertion in State Handbook.	1.75	
	21.	Warrant 35.—To T. J. LaMotte for preparing index of Handbook.	40.00	
Feb.	1.	Warrant 36.—To Gonzales & Bryan for printing of Handbook.	1,000.00	
	5.	Warrant 37.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	30.00	

Feb.	8.	Warrant 38.—To W. W. Miller for services in collection data for preparation of Handbook	100.00
	24.	Warrant 39.—To Southern Railway for freight on boxes for mailing Handbooks.	6.57
	26.	Warrant 40.—To Geo. H. Huggins, P. M., stamps for mailing Handbooks.	40.00
	26.	Warrant 41.—To Empire Printing & Box Co. for 1,500 pasteboard boxes for mailing Handbooks.	29.40
	27.	Warrant 42.—To J. D. Dial for cord and paper and drayage on cases for Handbooks.	3.45
Mar.	16.	Warrant 43.—To Shand Engineering Co. for blue prints of Calhoun County.	1.25
	16.	Warrant 44.—To Geo. H. Huggins, P. M., stamps for mailing Handbooks.	40.00
	28.	Warrant 45.—To State Co. for engraving of Georgetown, etc., for Handbook as per attached bills.	10.00
	31.	Warrant 46.—To Geo. H. Huggins, P. M., stamps for mailing Handbooks.	40.00
April	8.	Warrant 47.—To Southern Express Co. for express charges on maps for Handbooks.	10.58
	15.	Warrant 48.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	40.00
	17.	Warrant 49.—To Columbia Photo Studio for photographic work done on State Handbook	4.85
	18.	Warrant 50.—To A. R. Banks for expense of work on Educational chapter of Handbook.	8.95
	29.	Warrant 51.—To Miss E. K. Taber, special services as stenographer in preparation of Handbook.	31.55
May	7.	Warrant 52.—To E. C. Bridgman for 3,000 maps as per attached statement.	190.00
	30.	Warrant 53.—To C. S. Hammond for 4,000 maps for use in Handbook.	55.00
	25.	Warrant 54.—To Geo. H. Huggins, P. M., for stamps for use of mailing Handbooks.	40.00
	29.	Warrant 55.—To E. T. Bouchier, work in preparation of data for State Handbook.	5.00
	29.	Warrant 56.—To F. W. Bradley, work in preparation of data for State Handbook.	5.00
July	8.	Warrant 57.—To R. L. Bryan Co. for supplies furnished for illustrating Handbook.	8.10
	25.	Warrant 58.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	40.00
Aug.	5.	Warrant 59.—To Columbia Photo Studio for developing and printing pictures for illustrating Handbook.	8.50
	8.	Warrant 60.—To The State Co. for making of cuts, for illustrating, and maps for use in Handbook.	35.40
	29.	Warrant 61.—To G. H. Huggins, P. M., for stamps for mailing Handbooks.	40.00
	27.	Warrant 62.—To W. A. Reckling & Son for photographs for use in Handbook.	2.00
Sept.	16.	Warrant 63.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	50.00
Nov.	2.	Warrant 64.—To Southern Express Co. for express charges on cuts borrowed for use in Handbook—Rock Hill, New York, Clemson, Charleston, Spartanburg, Due West, etc.	4.23

Nov. 12.	Warrant 65.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	40.00	
16.	Warrant 66.—To Columbia Photo Studio for developing pictures used to illustrate Handbook	13.25	
Dec. 19.	Warrant 67.—To Empire Printing & Box Co. for 2,000 pasteboard boxes for mailing Handbooks and freight charges.	42.95	
17.	Warrant 68.—To W. S. Stewart for balls twine for boxing Handbooks.	1.50	
18.	Warrant 69.—To Geo. H. Huggins, P. M., for stamps for mailing Handbooks.	20.00	
29.	Warrant 70.—To Geo. H. Huggins, P. M., stamps for mailing Handbooks.	17.07	
Total..	. . . . .	\$3,671.35	\$3,671.35

APPROPRIATION OF 1908 FOR HANDBOOK.

Mar. '08.	Appropriation for publishing 2nd edition of State Handbook of 4,000 copies.		\$3,000.00
June 20.	Warrant No. 1.—State Publishing Co. for work done on 2nd edition of State Handbook.	1,000.00	
July 24.	Warrant No. 2.—State Publishing Co. for work done on 2nd edition of State Handbook.	1,000.00	
Aug. 22.	Warrant No. 3.—State Publishing Co. for work done on 2nd edition of State Handbook.	500.00	
Sept. 8.	Warrant No. 4.—State Publishing Co. for work done on 2nd edition of State Handbook.	500.00	
Total..	. . . . .	\$3,000.00	\$3,000.00