THIRTIETH ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

CLEMSON
AGRICULTURAL
COLLEGE

TO THE

General Assembly of South Carolina

1919
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THE THIRTIETH ANNUAL REPORT
OF THE
Board of Trustees of the Clemson Agricultural
College of South Carolina

December 23, 1919.

General Assembly of the State of South Carolina,
Columbia, S. C.

Gentlemen:

In obedience to the law of this State, the Board of Trustees of Clemson College through myself herewith transmits the annual report of the acts and doing of the College for the fiscal year beginning July 1, 1918 and ending June 30, 1919.

We invite your careful consideration to each and every detail as it is our delight always to acquaint the representatives of the people intimately with the affairs of the College.

We are glad to state that the College is doing a splendid work under its president and present organization and its extension force, all of which fully justifies its establishment, and each year is strengthening in confidence and esteem of all worthy citizens in the State. It is doing a peculiar and legitimate work seeking always a close fellowship and hearty good feeling with all the State Institutions and denominational Institutions founded in the State for the betterment and training of the young people, both male and female. Its detailed statements will fully acquaint you with its financial as well as its educational activities.

The statements contained in this report will show you that we were asked to loan our President for educational activities
among the American Soldiery during the latter part of last winter and early summer, and we are pleased to state that we have a most excellent report made to us by Dr. Kenyon L. Butterfield of the work done by Dr. Riggs during his stay in France. We feel that we should also state that Prof. S. B. Earle who was left in charge of the Institution during the absence of Dr. Riggs handled the situation in a very satisfactory way. He deserves and has our highest esteem for his abilities while Acting President, and I am glad to state to you, the entire success of his work during the last year.

We have paid the notes authorized by the Legislature to assist us in conducting the College during the year 1914 and subsequent years when the income of the College fell below the amount necessary to carry it on in a satisfactory manner.

We wish to extend to the Legislature our sincere appreciation of their cordial support during this period and it is our delight to state to them that the amounts with interest have been fully paid.

As an organized band of South Carolinians for educational activities, the Board of Trustees, through this report, begs to extend to you its cordial greeting and to express the sincere wish that the on-coming session may be not only pleasant but profitably spent for the best interests of the State by your honorable body.

Most respectfully and sincerely,

ALAN JOHNSTONE
President of the Board of Trustees

The Clemson Agricultural College.
REPORT OF THE PRESIDENT OF THE COLLEGE

December 1, 1919.

Hon. Alan Johnstone, President of the Board of Trustees of the Clemson Agricultural College.

Dear Sir:

I have the honor to submit herewith the President's annual report covering the 26th session of The Clemson Agricultural College. The report covers the fiscal year from July 1, 1918 to June 30, 1919, and is intended as the body of your thirtieth annual report to the Legislature.


PART I. A GENERAL STATEMENT

Attendance:

Never in a single year has Clemson housed and instructed so many students as during the fiscal year covered by this report. In all, 1,610 individuals attended, these being distributed as follows:

<table>
<thead>
<tr>
<th>In college classes</th>
<th>825</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section B, Student Army Training Corps (S. A. T. C.)</td>
<td>653</td>
</tr>
<tr>
<td>In Summer School</td>
<td>132</td>
</tr>
<tr>
<td>Total</td>
<td>1,610</td>
</tr>
</tbody>
</table>
Due to the war and the conditions growing out of the unsettled conditions of the country, the year under discussion was the most unusual in the annals of the college. Desirous of aiding in every possible way in winning the war, the college beginning in May opened its doors for the training of men in those trades necessary to the promotion of the military establishments, and also inaugurated special courses during the regular session for college students in the Students' Army Training Corps. These various lines of instruction are covered fully in Part III of this work devoted to the college work.

Influenza Epidemic:

In common with other institutions, Clemson College suffered severely during the influenza epidemic. In all there were 261 cases distributed as follows:

In the collegiate section of the S. A. T. C. 69
In the vocational section of the S. A. T. C. 117
In the non-S. A. T. C. group 75

261

Only one death occurred out of the above total, namely R. L. Atkinson of Chester County, a member of our Senior Class, who died of pneumonia following influenza on October 18th.

The losses in the community were Prof. W. W. Routten, Mrs. B. F. Robertson, and an infant daughter of Prof. W. W. Klugh.

Under the orders of the Sheriff of Oconee County, the college was required to disband all students not in the S. A. T. C. On October 8th, about 400 students went to their homes. This number comprised those not eligible to the S. A. T. C., or not yet inducted into it. They returned to the College on November 4th. Students in the S. A. T. C. section being regular soldiers of the army, were not affected by the Sheriff's orders, but remained at the institution.

The S. A. T. C. was demobilized on December 21st, and this was followed by the restoration of the Reserve Officers' Training Corps provided in the National Defense Act.
Absence of President Riggs in France:

At the request of the Army Overseas Educational Commission, the Board of Trustees at its meeting in November authorized me to go to France to engage in educational work with the American Expeditionary Forces. My absence from college dated from February 8th to June 26th.

Upon my arrival in France, I was appointed as the representative of the Educational Commission in vocational lines of education in the Paris office. Later, upon my own request, I was transferred to field work and made "General Field Representative in Vocational Education," with headquarters at Chaumont. When the War Department took over the work from the Y. M. C. A. and organized the "Army Educational Corps," I was made "Field Organizer in Vocational Education," with headquarters at the A. E. F. University in Beaune, which position I held until the completion of the work on June 7th.

In addition to the above, I was appointed by Brigadier-General Rees on a special committee authorized by G.5 of G. H. Q., consisting of the three Commissioners the President of the A. E. F. University, Col. Reeves, and Brigadier-Generals Rees and Malone, to confer and prepare a report for General Pershing on universal military training coupled with education. While the nature of this report cannot be divulged, I may say without impropriety that the papers brought out and the findings of the Committee must form an important contribution to any plan for universal or limited military training coupled with education, which the people of the United States may inaugurate.

The educational work, like all other work in France, had to be done under great difficulties, under great stress, and consequently at low efficiency. However, as in other lines, the aggregate accomplishment represented a really wonderful achievement.

I cannot speak too highly of Prof. Earle's devotion to the interests of the college during my absence. I felt very sure when I selected him to fill my place that the college would be
in safe hands. Despite the heavy burdens of his regular work, he gave sufficient of his time to the Presidential office to carry the session through to successful completion. Not once while I was in France did I give myself the slightest uneasiness as to the safety of the institution, and this feeling of security enabled me to fully devote my powers to the work which the Board of Trustees had sent me abroad to do.

**PERMANENT ADDITIONS TO COLLEGE PLANT:**

There has been no substantial addition to the college plant during the past fiscal year. The expenditure for additions and improvements totalled only $26,241.74. When it is remembered that the total value of the college plant as reported to the Governor is $2,011,922.24, it will readily be seen that this is too small an amount to expend to keep the laboratories up to date and the college up to normal growth. In the detailed financial statement which occurs in Part II, this matter will be further discussed.

The only substantial addition was the filtration plant which has long been needed in order to insure a safe water supply. $10,000 was expended on this plant during the year under consideration, and $1,750 will be necessary for its completion. The State Board of Health has repeatedly urged the building of this plant in order to still further safeguard the health of the cadets and the college community. Heretofore the community has had to depend upon wells for drinking water, and the cadets upon the continuous supply of constantly tested and approved water from a spring located near the college.

**BOARD OF TRUSTEES:**

The Board held its three regular meetings as prescribed by the By-laws, and an extra meeting early in September in Columbia, to pass upon the report of the State Board of Charities and Corrections in the matter of free tuition. No vacancies occurred in the elected members of the Board.

On July 3, 1918, Senator B. R. Tillman, one of the original life members, died in Washington. The part which Senator
Tillman had in the establishment of Clemson College is too well known to the public to need detailing here. His death leaves only two of the original life Trustees on the Board, Mr. M. L. Donaldson of Greenville and Mr. J. E. Wannamaker of St. Matthews.

Until the very end, Senator Tillman was deeply interested in all that pertained to the progress and welfare of the college, to whose establishment he had given so large an effort, and in whose defense he had taken so many blows. When one reads his speeches of the late 80's, and surveys the present college plant and learns from the record that over half its large student body is pursuing agricultural courses, one has a right to feel that the Senator’s dream of an agricultural college for the farmers of South Carolina has been realized.

Inspections.

Legislative Delegation:

(a) After consultation with Speaker Cothran of the House of Representatives, I invited about twenty members of the Legislature to visit the college on December 4th and 5th. The following accepted our invitation and spent the better part of two days at the College:

W. K. Stringer of Belton; J. L. Mims, Edgefield; E.l. Anderson, Timmonsville; R. M. Cooper, Jr., Wisacky; Jos. A. Berry, Orangeburg; W. J. Gibson, Campobello; R. O. Atkinson, Lowryville; D. J. S. Derrick, Leesville.

I believe that these visitors can give full information to the Legislature in regard to any question which comes before the body concerning Clemson College.

It is the hope of the college to invite every year some members of the Legislature to come to the college so that first-hand information may always be available for their colleagues.

War Department:

(b) The inspection by the War Department was made on April 14th and 15th, 1919, by Lieutenant Colonel Wylie T. Conway, and his report in the main is quite favorable.
Board of Visitors:

(c) Under the revision of Sec. 20 of the By-laws adopted in 1917, members of the Board of Visitors are elected for one instead of two years. This year the Board of Visitors was made up of the following representatives from the seven congressional districts:

1st District, Arthur Young, Charleston; 2nd District, E. A. Padgett, Edgefield; 3rd District, Geo. B. Cromer, Newberry; 4th District, B. E. Geer, Greenville; 5th District, Ira B. Dunlap, Rock Hill; 6th District, Bright Williamson, Darlington; 7th District, D. C. Heyward, Columbia.

The Board elected Hon. D. C. Heyward as Chairman and Mr. Bright Williamson as Secretary. The report of the Board of Visitors is appended in its entirety to this report.

The following quotation is significant of the general tenor of the report:

"It gives us pleasure to say that the college appears to be operated with economy and economy.

It is impossible without a visit to the college to comprehend the magnitude of the institution, the work that has been done, and the improvements that have been made upon the plant itself, and yet there still remains to be made various improvements of a permanent and useful nature. Among those we note that the brick for erecting a hospital—a building so necessary to an institution like Clemson College—have been upon the ground for several years. No progress has been made toward building the hospital, owing to conditions brought about by the war and to the more restricted finances of the institution.

It gave us special pleasure to note the husky, healthy and manly appearance of the student body, and the good deportment and cheerfulness which seem to prevail. It is an inspiring sight to look from the rostrum of the Chapel into the faces of six hundred young men such as we saw, and in whom the future of our State largely lies. It is also a special pleasure to note the heads of the various departments and the entire Faculty were enthusiastic in regard to their departments and to their work, as well as the general welfare of the college. We observed that the agricultural, mechanical and literary departments are in harmony and accord, and coordinate in their work."
With the increasing population of our State and our increasing prosperity, Clemson College is growing in even greater proportions, and its needs and requirements to carry on its work are also correspondingly increasing. Clemson is larger than any of the other colleges of the State, and considering the class of work it is doing, it requires larger appropriations.

Legislation:
The General Assembly showed the same friendly spirit towards the college that it has always evidenced. Three appropriations suggested by the college for public work were made: $30,000 for a continuation of the tick eradication work; $67,994.99 to meet the provisions of the Lever Act; $10,000 for the operating expenses of the Clemson College Live Stock Sanitary Office located in Columbia. All of these appropriations met with the hearty endorsement of the Committees to which they were referred, and were adopted by the General Assembly without opposition. The Legislature recognizes that these appropriations are not asked for in any selfish spirit, because the funds provided are in no sense available for the work of the college. They represent expenditures for public service apart from the local and educational activities of the institution.

The new Budget Act recommended by Gov. Cooper, and passed by the Legislature, while not so intimately affecting our collegiate work which is supported by the fertilizer tax and not by direct appropriation, does directly apply to all the various lines of public service supported by direct appropriation. The college, however, desiring to give the Governor the very fullest cooperation, submitted an inventory comprising 1,720 typewritten pages, and a financial report of approximately 200 typewritten pages. These reports set out in the minutest detail the property of the college and its expenditures for all lines of service.
CHANGES IN THE BY-LAWS:
Sections 17 and 18 of the By-laws were amended so as to make the Agricultural Committee function as the Crop Pest Commission and the Live Stock Sanitary Board, which bodies are provided by law. This was done because the work of the Agricultural Committee, which is also the Experiment Station Board of Control, is very closely related to the regulatory work, all of which are agricultural in their nature.

PART II. A FISCAL STATEMENT

The Treasurer's annual report, which is published as a separate volume, gives the fullest information possible in regard to the collegiate expenditures during the fiscal year July 1, 1918 to June 30, 1919.

In addition to the usual summaries, the Clemson report contains a list of all bills paid by the Treasurer out of college funds.

For the purpose of discussion, the following condensed summary of resources and expenditures is given in such form as to be readily understood, even by one not acquainted with the usual methods of accounting.

RESOURCES

Dr.

Income:

Privilege Fertilizer Tax .......................... $258,477.10 ✓
Interest on Clemson Bequest .......................... 3,512.36 ✓
Interest on Landscript .......................... 5,751.00 ✓
Morrill & Nelson Fund (U. S.) .......................... 25,000.00 ✓
Tuition from cadets .......................... 13,575.73 ✓
Sales, interest, rents, etc. .......................... 9,431.35 ✓

Total ................................................. $315,750.51
EXPENDITURES

Public Service:

Agricultural Education ......................... $ 2,683.02
Scholarships and advertisements .................. 14,514.53
Coast Experiment Station .......................... 2,556.01
Crop Pest Commission .............................. 3,857.17
Fertilizer analysis ................................ 9,819.73
Fertilizer inspection ................................ 20,328.91
Industrial Education ............................... 670.58
Miscellaneous public service ...................... 1,396.01
Pee Dee Experiment Station ....................... 3,353.56
S. C. Experiment Station ......................... 2,720.32
Veterinary inspection .............................. 4,920.90

Total .............................................. $ 63,850.74

College Operating Expenses:

Salaries, insurance, labor, coal, materials, etc. .......... $165,438.01
Equipment for teaching ........................... $ 10,939.56
Improvements and additions to plant ................. 15,302.18— 26,438.01
Sinking fund to repay loan ....................... 10,000.00
Balance to be transferred to reserve fund to insure college finances during season of small fertilizer sales, July 1st to January 1st — 47,220.05— 57,220.05

Total .............................................. $815,750.54

The above statement clearly represents all that is available for the use of the college. The South Carolina Experiment Station receives certain funds from the Federal Government which can be used only for approved lines of agricultural research. Likewise, the appropriations made by the Legislature and by the Federal Government for extension work under the Smith-Lever Act, the State appropriation for tick eradication and live stock sanitary work, can be used only for the specific purposes for which the appropriations have been made. A full statement in regard to the expenditure of these funds occurs elsewhere in this report.
Only the tuition paid by students and which amounts this year to $13,575.73, is available as a college income. The money paid for board, laundry, uniforms, heat, light and water and medical attention, is held in trust by the college and used only for the benefit of the cadets.

Payment of Debt:

It will be recalled by the older members in the Legislature that in January 1916, the college was allowed to borrow $62,400 in order to make good a hundred thousand dollar shortage in the fertilizer tax, due to war conditions. Under the borrowing act, the college has until 1921 to pay this loan. Meanwhile it was carried at the expense of the college and not at the expense of the State. Up to the end of this fiscal year, there had been paid on the debt $21,511.44, and at the writing of this report, December 1st, payment in full has been made. The college is now again out of debt and has kept faith with the Legislature, some of whose members predicted good-naturedly that obligations such as this would never be liquidated.

Reserve Fund:

It will be noticed that the college finished the year with cash on hand in the college account amounting to $57,220.05. This balance is occasioned by the unusually low operating expenses of the college for the fiscal year covered by this report, viz, $165,438.01, due to the fact that during the war we had a good many vacancies on our Faculty which could not be filled, and furthermore, that the Government made a substantial contribution to the salaries of teachers giving S. A. T. C. instruction. Ordinarily, the appropriation for operating expenses of the college is around the two hundred thousand dollar mark.

With the savings of previous years, the total reserve fund amounts to $154,675.10, just about sufficient to carry the college during the first six months of the fiscal year, during which the receipts from the fertilizer tax amounts to not much
more than the cost of inspection and analysis. But for this reserve the college would have to borrow or stretch its credit during the period July 1st to January 1st. If the balance were struck on January 1st, which is the beginning of the State's fiscal year, the reserve fund would in effect likely be non-existent.

In the last chapter of this report there will be found an epitome of the Budget of the Clemson Board of Trustees for the present fiscal year, 1919-1920. A careful study of this will indicate upon how narrow a margin the college must operate in these times of high prices for salaries, labor and all commodities, and how little is left for growth and expansion. The fertilizer tax of approximately $250,000 is needed to carry out this Budget, and only four times (1910-11, 1913-14, 1917-18, and 1918-19) has the $250,000 figure been reached or exceeded.

Audit:

The books and accounts of the Treasurer's office were audited by the State Bank Examiner, Mr. James H. Craig, whose report is appended hereto. The following sentences quoted from the Auditor's report are significant:

"The accounts of the college were carefully examined, and it is my opinion that all funds have been administered with economy, consistent with efficiency. While the total funds handled is quite large, only a comparatively small part of the total expended was for strictly collegiate activities—this in spite of the fact that Clemson is really a collection of highly technical colleges requiring high priced experts and expensive machinery and equipment."

The Auditor's report shows that the Treasurer's office handled in all $1,202,020.11. This very imposing total is made up largely of funds which are of no real value to the college in so far as income is concerned. A condensed statement is as follows:
1. All college expenditures .......................... $ 191,679.75
2. Public service ........................................ 66,850.74
3. Reserve ............................................. 57,220.05

4. Total .................................................. $ 315,750.54

5. Reinvestment accounts .............................. 280,630.94
6. Hatch & Adams Funds (U. S. D. A.) .............. 30,000.00
7. Farm products (Experiment Station) ............. 1,078.58
8. Extension funds ...................................... 113,844.42
9. Cadet Funds (Board, Uniforms, etc.) ........... 224,158.57
10. Personal deposit by cadets ....................... 98,901.87

11. Total .................................................. $1,064,364.92

12. Balance representing reserve, July 1, 1918  .. 137,655.19

13. Total .................................................. $1,202,020.11

Items 9 and 10 are kept entirely separate from the college account and are in no sense available for college expenses.

Regarding Item 5, the Auditor has the following to say:
“For convenience, the college carries a number of side accounts under the general head of reinvestments. Most of these accounts represent merely turnovers, no income to the college resulting from them. Our Exhibit of Reinvestment Accounts merely shows the cash standing of these accounts.”

The last sentence in the above quotation is of considerable importance, because in looking over the Auditor’s statement of reinvestment accounts, some accounts such as the college farm, show a deficit. This deficit is due to the fact that the Treasurer’s books close in the midst of the summer when most of the expense of growing a crop has been incurred and no sale of farm produce had. As an illustration, the Pee Dee Station shows a book deficit of $1,487.22, whereas the Station has assets in unsold cotton amounting to nearly $8,000. In order that the standing of any of the reinvestment accounts might be accurately appraised, it would be necessary to compare the inventories at the beginning and ending of the years, adding thereto bills collectable and deducting outstanding accounts.
Receipts from Tuition:
The activity of the State Board of Charities and Corrections which in 1916 took up the investigation of the financial status of applicants for free tuition, is reflected in the following comparative statement:

\[
\begin{array}{cc}
\text{Tuition Paid by Students} & \\
1913-14 & \$4,850.00 \\
1914-15 & 5,233.00 \\
1915-16 & 4,670.00 \\
1916-17 & 14,243.55 \\
1917-18 & 14,590.00 \\
1918-19 & 13,575.73 \\
\end{array}
\]

Scholarships:
During the first term of the session 1918-19, comparatively few scholarships were filled because members of the S. A. T. C. were not eligible to hold scholarships. However, upon their discharge from the service, scholarships were restored to all men eligible to receive them. Out of a total of 169 scholarships, 117 in the agricultural courses and 14 in the textile courses were filled. There were only six scholarship students in the One Year Course in Agriculture. The expenditures for scholarships during 1918-19, amounting to only $14,544.53, is probably the lowest on record since the establishment of the scholarships. The total available one-year and four-year scholarships is 220.

The status of scholarships is thoroughly unsatisfactory. With the greater demand for money and the many needs for the upkeep and completion of the college plant, it is a question whether the scholarships should be maintained out of college funds in order that a few may be helped to the deprivation of the many. It would seem that these scholarships should be maintained by direct appropriation, if maintained at all. Furthermore, it is not possible for the college to guarantee to young men winning scholarships that the scholarship money will be available during their four-year courses. Obviously it is necessary first of all to maintain and operate the college, and after that is done, there may not be sufficient funds remaining to pay for the scholarships.
PART III. COLLEGIATE WORK.

STANDARD OF ADMISSION:

The State College Association has fixed the standard of admission at 14 units, allowing two conditions. This in effect means an admission standard of 12 units, because there are probably not more than 150 young men every year who complete the high schools of the State. Clemson College has hitherto advertised in its catalog a flat 12-unit standard of admission, without conditions. This statement has been misunderstood and construed to indicate a lower standard here than at other institutions claiming 14 units, despite the fact that Clemson does nearly 25 per cent more work than is required by a standard college for a bachelor's degree. Therefore, in future the college will state its requirements as do other colleges, in order not to be placed at an undeserved disadvantage, although the fact will remain that the majority of its Freshmen students will have presented not more than 12 units for admission. The change of policy will necessitate the setting off of some of the subjects now given in the Freshman Class as conditioned subjects to be taken only by students who present only 12 units upon admission.

ENROLLMENT, ETC.:

Taking the fiscal year as a whole, the following was the enrollment:

(a) In College Courses:

<table>
<thead>
<tr>
<th>Class</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seniors</td>
<td>100</td>
</tr>
<tr>
<td>Juniors</td>
<td>146</td>
</tr>
<tr>
<td>Sophomores</td>
<td>184</td>
</tr>
<tr>
<td>Freshmen</td>
<td>352</td>
</tr>
<tr>
<td>Special and Irregulars</td>
<td>31</td>
</tr>
<tr>
<td>One Year Agricultural Course</td>
<td>12—825</td>
</tr>
</tbody>
</table>

(b) In Summer School: 132

(c) In "Section B," S. A. T. C. 653

1,610
The percentage of the students in the regular college classes taking agricultural courses was 46.4 per cent, and in all other courses, 53.6 per cent. This is a slight decrease in the percentage of agricultural students, and was probably due to the fact that many young men entered the S. A. T. C. purely for military purposes and at the outset the government did not recognize agriculture as one of the courses that could be pursued under the S. A. T. C. regime.

A large number of young men were not admitted because of lack of room, or inability to meet the physical and mental requirements of the S. A. T. C.

Graduates:

On Commencement Day, June 17th, diplomas were awarded to ninety-nine men as follows:

- In Agriculture: 62
- In Mech.-Elec. Engineering: 15
- In Civil Engineering: 6
- In Textile Engineering: 7
- In Chemistry: 5
- In Architecture: 4—99

Of the graduating class as a whole, 62.6 per cent were in agricultural courses.

One Year Agricultural Course:

Certificates were awarded to only nine men in the One Year Agricultural Course. This class was almost obliterated by the fact that admission to the course is restricted to men eighteen years of age or over, and all such men were either called to the colors, or were waiting to be called. The scholastic requirements for the One Year Agricultural Course were not sufficiently high to permit applicants for this course to enter the regular S. A. T. C. courses established by the government.
CERTIFICATES OF MERIT:

Certificates of meritorious agricultural service were awarded to Mr. John W. Geraty for his work with truck, and to Hon. D. C. Heyward for his pioneer work in reclaiming the rice fields land of this State.

RESULTS OF SESSION:

Taking the session of 1918-1919 as a whole, it was probably the most unsatisfactory in the history of the institution. The S. A. T. C., the influenza epidemic, the return of many students after Christmas who had been in the service and had not had the work of the first term, and the return of others who had gotten rusty on their studies, the numerous vacancies in the Faculty and the general feeling of unrest—all conspired to make conditions for satisfactory work most difficult to obtain. In all, the following students were enrolled or inducted during the actual session, omitting those in attendance during the summer only:

- Students inducted into Section A, S. A. T. C. ——— 458
- Soldiers in Section B, S. A. T. C. ———— 223
- Matriculated in non-S. A. T. C. Sections ———— 223

Total —————————————————— 908

The first group represented the students of collegiate grade pursuing regular courses and special courses dictated by the government; the second group were men below collegiate preparation who had been inducted elsewhere and sent here as soldiers to learn trades; the third group represented young men under the age of draft, or who were unfit physically for induction into the S. A. T. C.

THE STUDENT ARMY TRAINING CORPS (S. A. T. C.):

With the inauguration of the S. A. T. C. on October 1st, 1918, our regular curricula were set aside and our authority over the students passed into the hands of the War Department. It was hard for the Faculty and the President to realize that they had any responsibility whatever for the health, welfare and morals of the S. A. T. C. students.
I trust that the results were satisfactory to the War Department,—certainly it is the testimony of practically every college which tried the S. A. T. C. that it was highly unsatisfactory from a collegiate standpoint. This is not intended as a criticism, because in war times it was proper that the emphasis should be put upon the making of soldiers rather than scholars, and the authority shifted to army agencies to which belonged all men within the draft age. A large number of hours required for military training and police work had to be subtracted from the time available for collegiate work, but worse than that, the immediate and continued calls of the War Department for men to be sent to the training camps kept the student-soldiers in a state of uncertainty and expectancy against which it was practically impossible to make substantial headway. The interests of the students were naturally upon military concerns to the exclusion of everything else.

Heretofore under a cadet system, the class hour has been the thing about which all others revolved. Military discipline was not an end in itself, but merely a means to teach and insure promptness, neatness, obedience and proper order. Three to five hours per week of drill and military instruction comprehended all the work, whose aim was strictly military. It may surprise you, as it did me, to know that the discipline of the soldier is not nearly so strict as is cadet discipline, nor are character offenses under army regulations punished with the same severity as under our cadet regulations. The War Department evidently recognizes the fact that there is little connection between moral character and physical courage, and hence such evils as gambling are punished with a light fine instead of by suspension or dismissal as is the custom with our Discipline Committee in dealing with cadets. After the S. A. T. C., there remained some of those evils which the light punishment prescribed by the soldiers’ code tended to encourage, if not actually to establish. It was difficult to get discipline back to old cadet standards, and towards the close of the session, conditions were several times precarious.
The S. A. T. C. was demobilized on December 21st, after a term in which very little substantial college work had been done. After the Christmas holidays there was a considerable reduction in the student body, because of the dropping out of those men who had entered the S. A. T. C. primarily to get quick entry into the war. These losses were in part made up by the return of young men who had been in the service for one or more years.

It was necessary to begin after Christmas practically where we would have begun at the opening of the session, and as a result, only about six months' work was accomplished during the college session.

In fairness to the S. A. T. C., it should be stated that it was rapidly improving in its organization and standards, and but for the influenza epidemic and its brief existence, might have gained for itself a better reputation. Had it lasted through the session as was our understanding when it was inaugurated, it would have doubtless been greatly improved, and very likely not so generally condemned as is now the case. Practically every college in the nation was compelled to go into the S. A. T. C. in order to keep its doors open in the face of the reduced age limit of the draft. Many of these colleges, perhaps the majority, had never had any experience with military training and no sympathy whatever with it. It was a question of accepting the military feature as a means of existence during the period of the war. The divided control between the President and the military officer in charge of the S. A. T. C. made for a condition at most institutions highly unsatisfactory.

At Clemson, where we were accustomed to the military life, and where no friction between the Faculty and the Military Department developed, the S. A. T. C., had a fairer show than at most other institutions. However, even under these favorable conditions, it cannot be said to have been a success.

History of the S. A. T. C. (Section A):

It might be well for the history of this matter to give some of the details of the S. A. T. C. as it was inaugurated here.
Just two years ago, you will recall that the Reserve Officers' Training Corps (R. O. T. C.) was established, under a section of the National Defense Act of 1916. Under this arrangement every student physically qualified for military training received his uniform or commutation therefor. If after two years he entered the advanced course, he received during the Junior and Senior years commutation for subsistence amounting to $108.00 per year. However, the R. O. T. C. was a peace measure and as such, a method of making officer material too slow for war times. Furthermore, the R. O. T. C. was hedged about by certain legislative restrictions which prevented its general application.

To get quicker results and to avoid legal obstruction, the War Department devised on the same basis as the Engineers' Corps and the Medical Corps, the "Students' Army Training Corps," (S. A. T. C.)—as truly a full-fledged corps of the army as any of the others mentioned.

Admission into the corps was by voluntary induction. Once in, a student was as truly a soldier of the United States as if he had been drafted and sent to Camp Jackson. He was entitled to take advantage of insurance and allotment features, to receive uniforms, medical and dental attention, and thirty dollars a month, the pay of a private. Once in the S. A. T. C., the time of the student-soldier was entirely at the disposal of the War Department. So far as college duties went, he was required to study a specified number of hours and to attend classes in certain courses approved by the War Department. Here his contact with the college closed. His health, morals, living conditions and military instruction were in the hands of the War Department's representatives.

The first announcement of the S. A. T. C. was made on May 8th, and this was followed by the rapid design of this experiment. The preliminaries culminated in a series of gatherings of college representatives at the Presidio, Fort Sheridan, and Plattsburg. At these meetings it was made plain that if the colleges desired to continue to exist under the new draft limits, they must accept the S. A. T. C. plans.
In all, about 600 colleges adopted the new system as a means of existence. Many who had never had the military feature, viewed with no little apprehension the prospect of departure from beaten paths. All presidents looked with suspicion on the prospect of a two-headed government, under which all authority over their students must be surrendered to the War Department. However, regardless of fear or tradition, practically every college in the nation embraced the new faith in order to avoid temporary dissolution.

With each college the War Department entered into a temporary contract, agreeing to pay for subsistence and housing on a cost basis, and setting tentative figures at 25 cents per day for housing, and 75 cents per day for subsistence.

In the matter of paying for instruction, they declined to do more than pay to the institution the fees hitherto collected from the students. They declined to pay any part of the cost borne by the State. In our case, they allowed in the temporary contract, 17.7 cents per day, this figure being arrived at by adding to our tuition fee of $10.00, the matriculation fee of $5.00 and the breakage fee of $3.00, and dividing by 270, the estimated number of days in a nine months' session. They would not allow us to include the medical fee of $6.00.

The session opened on September 18. On October 1st, the S. A. T. C. was inaugurated with due ceremonies, prescribed by the War Department. Governor Manning made the address of the occasion. It was hoped that by opening college on September 18, all S. A. T. C. applicants would be ready for induction on October 1st. However, on account of delays on the part of local boards, a good many did not get induction until the middle or latter part of October. For the intervening days, the S. A. T. C. applicants were charged $1.17 per day, which was later refunded by the government. Applicants for the S. A. T. C. were not investigated for free tuition by the State Board of Charities and Corrections, since the government was assuming this cost of a per diem basis. Likewise, no scholarship payments were made to S. A. T. C. men, because the government was paying for subsistence and other expenses to a six months' course, and eighteen-year old men a
nine months' course. At Clemson we offered both the twenty-
four months' course in technical lines and the three, six and
nine months' courses for those anxious to get quickly into the
service. The short courses were designed to make officer ma-
terial in the shortest possible time.

The War Department sent to assist the Commandant, Capt.
McFeely, seventeen lieutenants, an army surgeon and an army
dentist. I requested Capt. McFeely's appointment, believing
that we would have less trouble with him under the new sys-
tem of divided authority than with a new and untried man.
I continued his pay from college funds in order that he might
care for the 200 non-S. A. T. C. men, and in order that we
might have a little hold upon the military situation. Most of
the lieutenants were inexperienced and only moderately ef-
cient. On the whole, discipline under the S. A. T. C. was
less well maintained than during cadet days. The military in-
struction was of course better, because of the incentive to gain
commissions, and because of the large number of assistants
to direct the drilling.

The government allowed a maximum for board of 75 cents per
day for the men in the collegiate section of the S. A. T. C., and
65 cents per day for Section B, the vocational section. The
board of the non-S. A. T. C. students was fixed at 50 cents per
day.

The plan of organization was to keep a master account
against subsistence, heat, light and water, and hospital, and
at the end of each month to pro-rate the total cost between the
S. A. T. C., the vocational section and the non-S. A. T. C. sec-
tion, on a basis of average daily attendance.

Some changes brought about by the S. A. T. C. were quite
interesting. Each student was required to go on "kitchen
police" duty about one day every two or three weeks. In that
capacity he had to wash dishes scrub floors, set tables and do
all the work except cooking hitherto required of the negro
help. The students were required also to police their halls,
toilets and the grounds about their quarters.
I thought it best from the standpoint of democracy, as well as of necessity, to require the non-S. A. T. C. students to perform the same duties as their brothers in the S. A. T. C. We had no complaint from these students and only one or two from parents.

The Naval Section:

Ninety-eight (98) of the collegiate section S. A. T. C. chose the naval service, and were organized as a separate section under immediate command of Ensign L. B. Wannamaker. They were uniformed as naval reserves and received full pay and allowance of seaman on active duty.

We had no contract with the navy, but the navy allowed its men the same rate as was provided in our S. A. T. C. contract.

The Vocational Section S. A. T. C. (Section B):

A word now regarding the vocational section, or Section B, of the S. A. T. C.

Last spring the War Department asked us to train a detachment of about 200 men in an eight weeks' course. They offered to stand all costs for subsistence, housing, teaching and materials used for instruction.

The first detachment, May 15 to July 15, consisted of 220 South Carolinians; the second, July 15 to September 15, of 260 North Carolinians; the third, September 15 to December 1, of 220 Tennesseans.

The contract price on the first detachment was $1.75 per day for subsistence, housing and instruction, and $1.515 per day for the second and third detachments.

In the first detachment, the men were distributed as follows: 80 blacksmiths; 40 auto mechanics; 20 electricians; 40 carpenters; 40 bench workers.

In the second detachment:
80 blacksmiths; 60 auto mechanics; 20 electricians; 20 radio operators; 40 carpenters; 40 bench workers.

In the third detachment:
80 blacksmiths; 20 auto mechanics; 20 radio operators; 20 wheelwrights; 40 mechanic wagoners; 20 topographical draftsmen.
The North Carolina quota was distinctly superior to the South Carolina and the Tennessee quotas.

We organized the school for this vocational work with Prof. Earle as its Director. Some of our teachers in the Engineering Department who were qualified and willing to do this work during their vacations, were given places as teachers. These instructors drew an additional salary from the government during the vacation period. After the session opened, we shifted such men as we could spare and who were qualified to teach the vocational section, over to that work and on to the government payroll. No extra compensation was paid from government sources after the opening of the session to any regular teacher, except in cases where distinctly additional burdens were borne on account of the vocational section, and then only in proportion to the additional work imposed.

Demobilization of S. A. T. C.:

As soon as the armistice was signed the Committee on Education and Special Training of the War Department, under which the S. A. T. C. operated, notified us that we might reduce our military work and practically return to our regular curricula. It was intimated that the S. A. T. C. would be continued to June 30th, the date of termination set in the contract. We were pleased at the prospect, hoping to get back to real college work after Christmas, and yet have the S. A. T. C. students retain the government's help. It seemed to us that nothing less than this was fair, both to the college, which had built up its organization to suit the Department's needs, and to the students, who were depending on the government's help to go through the session. However, the Department notified us later that demobilization of the S. A. T. C. units must be completed by December 21st.

This order brought us a good many complications. S. A. T. C. students had not had their ability to pay tuition passed upon by the State Board of Charities and Corrections. The responsibility for eliminating them from its survey lay with the State Board, as we sent them the complete list. There
seemed no way out but for the State Board to make further canvass.

Students who were in the S. A. T. C. were demobilized just as were other soldiers, and were entitled to receive $60.00 paid other soldiers, and all other perquisites and privileges that accompanied the discharge.

We kept separate accounts against Section A and Section B, later transferring both into main S. A. T. C. accounts. These accounts in the aggregate showed a balance to the college of $17,937.48. This was really not a profit, but represented certain expenses which the government had paid instead of the college. It was a saving rather than a profit, and is one reason why the costs of operating the college during this fiscal year were less than usual.

Scholarships:
As stated elsewhere in this report, the number of scholarships was reduced because of war conditions and the refusal of the government at the outset to permit men in the S. A. T. C. to enter agricultural courses. This ruling was later modified, but not soon enough to prevent a reduction in the numbers taking agriculture. The college maintains 169 four-year scholarships and 51 one-year scholarships. There were in effect during the session of 1918-19, 117 agricultural and 14 textile scholarships in the four-year courses. There were only six scholarships in the one-year agricultural course.

Review of Departments:
The unit of organization in Clemson College is the subject-matter divisions, such as the divisions of Mathematics, Electrical Engineering, Botany, Geology, English, History, etc. These divisions are grouped into six departments as follows: Academic, Agricultural, Chemistry, Engineering, Military and Textile. Each division is presided over by a Chief, and each department by a Director. As will later be explained in greater detail, the Agricultural Department, which performs three separate functions, has three Directors—one to oversee the work of teaching, one the extension service, and the other agricultural research.
The Academic Department.

The Academic Department includes the four divisions of English, Mathematics, Physics, and History and Political Economy. This department is more directly related to the public school system of the State than are the purely technical departments. Upon the student's school preparation depends very largely his progress in the subjects taught by this department. I regret to say that the majority of our students are poorly prepared in the two very important subjects given in all our courses, namely, Mathematics and English. Few high school students have any preparation whatever in Physics or Chemistry. As a result, a good deal of work which should be done in the schools has to be done during the Freshman year in the Academic Department.

With the beginning of this fiscal year, Dr. D. W. Daniel, head of the English Division, was made Director of the Academic Department. Quite an improvement has come about in the department by this permanent arrangement. Hitherto, under the By-laws, the President was ex-officio the head of the Academic Department. It was impossible for him to give active supervision—hence division heads acted in rotation as Directors.

The department suffered severely on account of the war, practically all of its young instructors enlisting in the service. In spite of these disadvantages, the department did excellent work during the year. Prof. Morrison's War Aims Course given to the S. A. T. C. men was particularly notable. I doubt if any college gave a course in this line more satisfactory to the government, or creditable to the college.

Agricultural Department. (Resident Teaching).

The Agricultural Department has had the greatest difficulty in retaining its men against the competition of commercial interests, as well as other colleges and stations. The position at the head of the Animal Husbandry Division remained unfilled throughout the year, in spite of our offer of a salary considerably above that of other divisions. Since the end of
the fiscal year, the position has been filled by the election of Prof. L. V. Starkey of West Virginia.

During the year, the department taught 61 Seniors, 73 Juniors, 56 Sophomores and 75 Freshmen, in addition to some irregular students and students in the one year agricultural course.

For the first time in the history of Clemson College, it was necessary to employ women teachers, and two of the three selected were in the Agricultural Department. Miss Evans in the division of Botany and Miss Stehle in the division of Entomology, have fully justified the wisdom of this innovation. The same may be said of Miss Wolcott, Assistant Professor of Architecture in the Engineering Department.

During the session, substantial development is noted in the dairy herd, but the work in the Animal Husbandry Division has lagged because of lack of equipment and leadership.

The work of preparing teachers in agriculture has gone forward successfully. Last session, eleven Seniors majored in this line, and during the summer school 27 agricultural teachers took courses in Agriculture to prepare themselves to qualify under the Smith-Hughes Act.

The Summer School, which thus far is practically confined to the Agricultural Department, operated from July 15 to August 9, 1918, and enrolled 6 men in cotton grading, 27 teachers in Agricultural Education, 94 boy club winners and 5 miscellaneous—a total of 132.

Taking it as a whole, the work of agricultural teaching under Director Calhoun’s supervision shows steady improvement and is increasingly of a high order.

The Chemistry Department (Teaching).

The Chemistry Department deserves special credit for operating short-handed and yet at a high degree of efficiency. Dr. G. F. Lipscomb was away on leave and returned as Captain, after valuable work in the Chemical Warfare Branch of the service. Mr. W. Schirmer, another instructor, was away from the department in the government service.
The total number of students taught was 376, a smaller number than usual, due to S. A. T. C. and war conditions.

Dr. G. F. Lipscomb, having always shown great promise as a research chemist, was appointed Station Chemist, dividing his time between the work of the Station and the Chemistry Department.

As stated in my report of last year, the Chemistry Department, taking it all in all, is one of the best equipped departments, both as regards men and apparatus, in the college organization.

The Engineering Department.

The Engineering Department deserves special credit for the manner in which it carried out the S. A. T. C. program for vocational work. Director Earle was in charge of all of this army work, and developed it in a manner very satisfactory to the government and to the college.

During the latter half of the session, Director Earle acted as President during my absence in France, and I have expressed elsewhere in this report my appreciation of his service in that capacity.

In the Engineering, as in other departments, inroads of the war were felt. Prof. R. E. Lee, Professor of Architecture, was away in government service in Washington; Mr. M. T. Birch, Instructor in Drawing, was in the aviation service at Long Island; and Prof. W. W. Routten in charge of the Wood Shop Division, was a victim of influenza. It was difficult to replace any men lost during this period, and the department had to do the best it could with the remaining instructors. Despite these many handicaps, the department maintained its high standard of work and efficiency throughout.

The emphasis which is now being placed upon the construction of good roads through the State will be reflected in our instruction in the Civil Engineering Division. Road building will be given special emphasis in our Civil Engineering Course.
The Military Department.

Capt. H. F. McFeely, U. S. A. Retired, succeeded Capt. R. A. Jones as Commandant during the session preceding this report. On September 6, 1918, Capt. McFeely was relieved from his duties as Professor of Military Science and Tactics by the War Department, and on the same date was detailed as Commanding Officer of the S. A. T. C. unit. On December 27th he was relieved as Commanding Officer and again detailed as Professor of Military Science, and on the same date, 1st Lieutenant John B. Olsen was detailed as his assistant. The latter was relieved on February 26th, and replaced by 2nd Lieutenant Thomas C. Jolly.

After the disappearance of the S. A. T. C., and with the beginning of the second term in January, Mr. Sumter A Porter, a Citadel graduate of 1911, and Mr. E. H. Agnew, a Clemson graduate of 1916, were appointed as assistants to the Commandant, and rendered valuable assistance during the remainder of the session. Many officers who had been in the service likewise returned to the corps of cadets, and added considerably to the general military knowledge of the corps.

There was no friction between Capt. McFeely and the President and Faculty of the college. These relations were thoroughly harmonious.

During the summer of 1918, 164 cadets attended the R. O. T. C. camp at Plattsburg. This summer 52 Juniors and 18 Freshmen and Sophomores made up the Clemson quota.

The Treasurer's Office.

As always, the work of the Treasurer and his assistants merits my enthusiastic approval.

The S. A. T. C., Sections A and B, put a very considerable additional burden upon the Treasurer and his assistants, but these burdens were carried out with usual loyalty and efficiency.

In July the State Bank Examiner made a very complete and detailed audit of the books and accounts of the Treasurer's office, and found everything to be in excellent shape and free from error.
PUBLIC UTILITIES:

Under this heading are included the Division of Construction and Repairs, Heat, Light and Water, and Roads. They represent the municipal features, as it were, of the college organization.

The Construction and Repair Division is under the supervision of the College Architect, and has charge of the upkeep of buildings and the erection of new buildings. Very little building was done during the fiscal year, and it was not practical, due to the scarcity of labor, to keep up normal repairs on the various residences. The college buildings were kept in fair condition.

The equipment of the Heat, Light and Water Division was very much increased by the practical completion of the filtration plant, which will supply water of clearness and purity to the entire college community.

The price of coal has steadily increased until our annual consumption of approximately 3,000 tons is costing delivered at the plant, $5.55 per ton. Before the war, the price was around $3.50 per ton.

The campus is under the supervision of the Horticultural Division, and in fact constitutes a part of the teaching equipment of this division. Probably no college in the whole country is blessed with a campus more beautiful naturally than is ours. My only regret is that money is not available to develop it as rapidly and completely as it deserves.

THE COLLEGE FARM:

In spite of labor troubles and overflows, the farm ended the calendar year with a balance of $2,712.42. This balance remained after purchasing a two-ton truck costing $2,444.52 and a tractor costing $1,350.00, and considerable other farm machinery. Because of the scarcity of labor and the high cost of mule feed, it was absolutely necessary to do with machinery many of the processes which had hitherto been done with mules and wagons.
The river bottoms were under water from October 24th to November 30th. The water receded slightly on the 26th, but continuous heavy rains put the river out of bounds again.

The warm weather following the floods of October 24th caused much of the corn to sprout and then to decay. Probably 85 per cent of all the corn on the Clemson bottom of 98 acres was practically ruined. Fifty acres of rye and vetch and thirty acres of crimson clover planted after the loss to the corn on the bottom, were likewise practically destroyed.

In spite of the losses, the farm maintained itself and made for sale 35 bales of cotton on 35 acres, filled three large silos, thrashed out 500 bushels of wheat, 800 bushels of oats and 600 bushels of rye, harvested five cuttings of alfalfa hay, 160 tons of hay of all kinds, 600 bushels of sweet potatoes, and 900 bushels of Lookout Mountain Irish potatoes. Beginning with no hogs fifteen months ago, the farm had on hand at the close of the calendar year 18 brood sows, 85 pigs from two to six months old, and 22,000 lbs. of pork for sale.

Purchase of Land:

On November 1st the college came into possession of 35 acres of land adjoining the Lewis bottom purchased from Mrs. John E. Lewis at $75.00 per acre. The title for this property is made in the name of the State of South Carolina, and not in the name of the Trustees. The land is well worth the price and is particularly needed in order to round up the college boundaries and to make more certain the eventual securing of 17 acres which now indent the college property and owned by the same parties. Upon this 17 acres, the college holds an option.
PART IV. STUDENT LIFE AND INTERESTS

Cost to Students:

It has always been the effort of the college to keep the cost of education as low as possible. With the increase in the cost of provisions and clothing, books, laundry supplies, coal, and every other item that enters into the living expenses, the monthly board has gradually increased to $16.50. A complete statement of the charge is made for all fees and living expenses.

The following is a statement of student charges for the session 1918-19.

Regular Student Expenses—1918-1919.

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniforms (1 blouse, 1 breeches, 2 shirts, 1 hat, belt and leggings)</td>
<td>$45.50</td>
</tr>
<tr>
<td>Breakage (refunded if not required)</td>
<td>3.00</td>
</tr>
<tr>
<td>Medical fee</td>
<td>6.00</td>
</tr>
<tr>
<td>Matriculation and incidental fee</td>
<td>6.00</td>
</tr>
<tr>
<td>Board—9 months at $15.00</td>
<td>135.00</td>
</tr>
<tr>
<td>Laundry—9 months at $1.15</td>
<td>10.35</td>
</tr>
<tr>
<td>H. L. and W.—9 months at $1.35</td>
<td>12.15</td>
</tr>
<tr>
<td>Laboratory fee</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Total for session of 9 months $219.00

Tuition, $40.00, not included in above.

Dividing this by the approximate number of days in the session, 270, gives the average daily cost per student for clothes and other living expenses, 81 cents. This cost is not much greater than would be necessary to maintain a boy at home.

During the S. A. T. C. regime, the War Department furnished uniforms to all men who were inducted into the service. Uniforms for those men not in the S. A. T. C. were purchased under contract from W. C. Rowland of Philadelphia.

All moneys paid in by the cadets for their living expenses are regarded as trust funds to be administered solely in the interest of the students. All such payments are kept in a separate system of accounts, and not one dollar is used for any college purposes. Any balance remaining at the end of
the fiscal year is kept within the account for the benefit of the students.

The following is a complete statement of the entire Cadet Fund for the session 1918-19.

**STATEMENT OF CADET FUND**

<table>
<thead>
<tr>
<th>Item</th>
<th>Receipts</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance, July 1, 1918</td>
<td>$8,458.38</td>
<td></td>
</tr>
<tr>
<td>Subsistence</td>
<td>$117,225.52</td>
<td>$112,738.36</td>
</tr>
<tr>
<td>Heat, Light and Water</td>
<td>9,571.19</td>
<td>9,531.24</td>
</tr>
<tr>
<td>Laundry</td>
<td>11,605.13</td>
<td>10,566.23</td>
</tr>
<tr>
<td>Hospital</td>
<td>4,772.75</td>
<td>4,866.92</td>
</tr>
<tr>
<td>Incidentally</td>
<td>3,803.71</td>
<td>3,461.55</td>
</tr>
<tr>
<td>Uniforms</td>
<td>14,620.25</td>
<td>14,711.96</td>
</tr>
<tr>
<td>Laboratory fees</td>
<td>490.44</td>
<td>490.44</td>
</tr>
<tr>
<td>Diploma fees</td>
<td>337.62</td>
<td>307.90</td>
</tr>
<tr>
<td>Breakage</td>
<td>1,898.98</td>
<td>1,898.98</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td>4,195.06</td>
</tr>
<tr>
<td>Balance, July 1, 1919</td>
<td></td>
<td>* 10,015.33</td>
</tr>
</tbody>
</table>

**Totals** $172,783.97 $172,783.97

*This remains to the credit of this account.*

**CADET PERSONAL DEPOSITS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance July, 1918</td>
<td>$1,065.69</td>
</tr>
<tr>
<td>Cadet Deposits</td>
<td>98,477.85</td>
</tr>
</tbody>
</table>

**Total Deposits** $99,543.54

**Drawn out by Cadets** 98,901.87

**Balance July 1, 1919 (property of Cadets)** $641.67

**RELIGIOUS INFLUENCES:**

Four churches, representing the Presbyterian, Methodist, Baptist and Episcopalian denominations, are located near the college, and cadets worship in the churches of their choice every Sunday morning during the session. Chapel services are held in Memorial Hall every morning except Saturday and Sunday. The college contributes $500.00 to the salary of each of the four resident ministers, and in return they do pastoral work among the students in barracks. The college also contributes
§500.00 to the salary of the general Y. M. C. A. Secretary. Attendance upon chapel and church services is required, except in the case of Catholics and Jews, who are required during church hour on Sunday to remain quietly in a room in barracks.

Recreation:
Play is necessary as well as work in a well rounded college life. The college plant includes, along with class rooms and laboratories, proper facilities for rest and recreation. The Y. M. C. A. Building, with its swimming pool, bowling alley, etc., the Bowman athletic field and Riggs Field, 400 by 1,000 feet, furnish ample facilities for healthful outdoor exercises. Among the principal lines of student activities, in addition to the various lines of athletics, may be mentioned the six literary societies, calss dance clubs and the student publications, The Tiger, The Chronicle and Taps.

PART V. THE PUBLIC SERVICE.

Elsewhere in this report it is shown that $66,850.74 was expended for public service not directly connected with the collegiate work.

The work of Clemson College is not confined to resident teaching. In fact, an agricultural college is a great public service corporation, which must protect and serve the agricultural and industrial people of the State, as well as educate their sons.

The public work of the college includes regulatory work such as is required under the laws governing the movement of live stock, the control of contagious live stock diseases, the protection of buyers against diseased nursery stock and against plant diseases and insect pests, and the inspection and analysis of commercial fertilizers. This public work also includes the diffusion of agricultural information to the farmers and country children, stimulation of the schools by the offer of competitive scholarships, assistance in the school
building program of the Department of Education by furnishing plans, etc., and in general is an effort to carry the benefits of the college to the largest possible number of agricultural people.

The public is every year demanding increased service of the college. On the other hand, the increase in the cost of operating the college leaves less money than ever to meet the increased demands. The only hope in the situation is that the Legislature will make the necessary appropriation to support the public work, leaving the fertilizer tax, as the law requires, to the college for "its erection and maintenance." The college desires to take the leadership in such work, but is unable because of limited means to pay for the actual service.

**Fertilizer Inspection and Analysis:**

Under the State laws, the Board of Trustees is charged with the inspection and analysis of all commercial fertilizers sold within the State. A Committee of Trustees constituting the Board of Fertilizer Control, gives special oversight to this duty. Its personnel is Messrs. R. I. Manning, Chairman, J. E. Wannamaker, S. T. McKeown and Alan Johnstone, ex-officio.

The work of inspection is under the immediate charge of Mr. H. M. Stackhouse, Secretary of the Board of Fertilizer Control, and the analysis is done under the supervision of Dr. R. N. Brackett, State Chemist. A full report of each of these officers accompanies this report.

Mr. Stackhouse reports a sale of 887,065 tons of fertilizer other than cotton seed meal as compared with 850,244 tons in 1917-18 and 146,822 tons of cotton seed meal as compared with 208,755 tons in 1917-18. The total tonnage was 1,033,887.

The total number of official samples collected was 1,301 and of "farmers' samples" 136. Last year's figures were 1,474 and 108 respectively. The total samples analyzed, including waters, ores, etc., were 1,565.

The increase in the number of "farmers' samples" is due to the good offices of the demonstration agents in assisting the farmers to draw samples in accordance with the law. The
number of samples falling below the commercial value was much greater than in 1917-18. The figures are 16.42 per cent and 24.6 per cent. The showing was particularly bad in ammonia and potash. The percent of samples this year falling below the 3 per cent limit was 11 per cent as compared with 7 1/4 per cent in 1917-18.

These and many other interesting facts in regard to the fertilizers sold in South Carolina are contained in the report of the Chief Chemist which is made a part of this report.

The Commission created by Gov. Manning with a view of recommending a complete revision of fertilizer laws, has been continued by Governor Cooper, and should be ready to make a report to the General Assembly at its 1920 session.

Dr. R. N. Brackett, Chief Chemist, Mr. H. M. Staskhouse, Secretary of the Board of Fertilizer Control, and the writer, will act in an advisory capacity to the Commission.

The Crop Pest Commissions

A change in the By-laws of the College constitutes the Agricultural Committee the Crop Pest Commission. This Committee consists of Mr. J. E. Wannamaker, Chairman, Messrs. S. A. Burns, A. F. Lever, B. H. Rawl, and R. H. Timmerman.

The report of the State Entomologist attached hereto makes interesting reading and reveals the increasing scope and importance of the work of controlling insect pests and plant diseases. The presence of the boll weevil in South Carolina, with the need of controlling the movement of cotton seed and establishing quarantine and safety zones, increases greatly the responsibility and labors of the State Entomologist.

The sweet potato borer, so fatal to the potato crop of Florida and some parts of Georgia, the pink boll worm, a worthy peer of the boll weevil in its destructiveness to cotton, the European corn borer and the citrus canker—all threaten the agriculture of our State if not kept outside our borders. Only the greatest vigilence regarding inter-State shipments can prevent the introduction of these destructive insects.
During the year the State Entomologist and the State Pathologist issued 54,000 permits for inter and intra-State shipments, 34,000 permits for sweet potatoes, 24,000 for cotton seed and 9,578 for miscellaneous—a total of 131,578 permits.

Veterinary Inspection:

The report of the State Veterinarian is made a part of this report. More and more of the live stock sanitary control work is being done from the Columbia office, a report of which appears among our cooperative projects.

It is gratifying to note that during the year no case of glanders was discovered in the State. The veterinarians investigated the following outbreaks of contagious diseases—twenty-five of hog cholera; seven of black leg; eight of hemorrhagic septemia; twenty of forage preserving; five of contagious abortion; six of rabies; and eight of microbacillosis in swine; two of infectious virginitis; eight of swine plague; six of mycotic stomatitis; twenty-five miscellaneous. The death rate of hogs due to cholera is steadily decreasing, due to the use of the serum and virus treatment and the enforcement of proper sanitary regulations.

The number of horses and mules shipped into South Carolina on health certificates during 1918-19 was 32,772. It is interesting to compare this figure with the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Horses and Mules</th>
</tr>
</thead>
<tbody>
<tr>
<td>1913-14</td>
<td>29,065</td>
</tr>
<tr>
<td>1914-15</td>
<td>1,500</td>
</tr>
<tr>
<td>1915-16</td>
<td>18,207</td>
</tr>
<tr>
<td>1916-17</td>
<td>14,560</td>
</tr>
<tr>
<td>1917-18</td>
<td>35,572</td>
</tr>
<tr>
<td>1918-19</td>
<td>32,772</td>
</tr>
</tbody>
</table>

At the 1918 session of the Legislature, an appropriation of $5,000 was made to establish a live stock sanitary branch office in Columbia. In 1919 the appropriation was increased to $10,000. The work of this office reported elsewhere has grown so rapidly that during this fiscal year the sales of hog cholera serum totalled nearly $30,900. The serum is bought in quantity and sold to the farmers at approximate cost.
Branch Experiment Stations:

The college now operates three experiment stations—one at the college in the typical red clay Piedmont soils; another near Summerville in the coastal plain; and the third at Florence in the rich soil of the Pee Dee section. One more station is needed to be located somewhere in the Sand-hill section of the State. Funds are not available or in sight for establishing this fourth station. A direct legislative appropriation will be necessary if it is to be built in the near future. Such a station ought to be built at once in order that agricultural problems peculiar to this Sand-hill section might be studied before the boll weevil arrives.

The Pee Dee Station:

The work of the Pee Dee Station has progressed satisfactorily during the year. The general crop conditions were good except the tobacco, which was almost a complete failure in the Florence section. The labor situation was very creditable but the experimental work was kept going in a satisfactory manner by the efficient Superintendent, Mr. Currin.

The horticultural work has continued to give valuable data as to the best variety of peaches, plums, grapes and strawberries adapted to the Pee Dee Station.

Breeding work with resistant cottons was continued and very satisfactory results obtained.

In cooperation with the Bureau of Plant Industry, several new and superior strains have been developed. Of these the Dixie Triumph is proving earlier and more productive than any of the other wilt resistant strains. Special attention has been devoted to soil fertility problems. Fertilizer tests with peanuts, tobacco and sweet potatoes have been carried on in addition to general comparative tests.

Trona potash is included with other sources of potash and it is hoped that after the harvesting of the present crop valuable data on this material may be obtained.
In cooperation with the U. S. Department of Agriculture, a very extensive line of experiments with sweet potatoes has been carried on.

Experiment with hog crops were continued. Alfalfa, crimson clover, corn, peanuts, soy beans and rape continued to show the greatest profit of all.

The work of the station is beginning to attract the attention of farmers in other sections, groups coming from adjoining counties to spend a day or more at the station.

A very full report of the work of the station is given in the report of the Experiment Station attached hereto.

The Coast Station:

Mr. Garrison, who had resigned on June 1, 1918, to enter the race for Commissioner of Agriculture, after his defeat applied for reemployment as Superintendent of the Station, and was taken back.

On October 14, 1918, he died with influenza, and his assistant, Mr. Eagerton, died a few days later.

Temporary arrangements were made to carry on the work until another Superintendent could be selected. On January 1, 1919, Mr. J. A. Riley, a Clemson graduate and since graduation one of our most successful demonstration agents, was selected to take charge. Under his management the Station has made good progress, although the labor situation has been acute, and the season, due to excessive rain, most unfavorable.

Agricultural and Textile Scholarships:

As stated elsewhere in this report, the college maintains out of its current funds 169 four-year agricultural and textile scholarships, and 51 one-year agricultural scholarships. This year, due to war conditions, only 137 of these scholarships were taken. Seventy-six, or 61.8 per cent, were held by farmers' sons.

The inquisition to which scholarship applicants are subjected by the State Board of Charities and Corrections, and the smaller proportionate part of the total sessional cost
which a one hundred dollar scholarship represents, are to-
gether steadily working to reduce the number. I hope these
causes will eventually eliminate them altogether, unless we
can have a more speedy relief by legislation.

If there is one course in college which now does not need
subsidizing, it is the four-year agricultural course. With the
increase in the prosperity of our agricultural people and the
high salaried jobs that an agricultural graduate can obtain
the moment he steps out of college, there is absolutely no ex-
cuse for longer giving away from fifteen to twenty thousand
dollars every session, and depriving the entire student body
of the advantages which that expenditure would mean to all.

The one-year agricultural scholarships, of which I think
highly, are increasingly hard to fill. Apparently they fail to
attract ambitious boys who want the regular four-year course,
and they are too long for the fellow who wants merely a
smattering. During the past session, only seven of the 51 ag-
gricultural scholarships in the one-year course were filled.

The war had its effect on all scholarships, but after allowing
for that fact, there was a decided falling off in scholarships.
This does not mean any loss in general attendance, because
we could fill up the college any session without a single schol-
arship being offered.

MISCELLANEOUS:

In addition to the principal lines of public service described
in this chapter, the college renders several minor public ser-
vices. Under the State law, a suitable equipment has been
established in the Textile Department to manufacture State
flags. These are sold at cost.

In the Drawing Division of the Engineering Department,
plans for rural school buildings are prepared and distributed
with cost.

A six weeks' summer school for teachers and boys club win-
ners is held at the college, and is growing in efficiency and
popularity.
PART VI. COOPERATIVE WORK.

Several divisions of the Agricultural Department of the college are working in cooperation with the Bureau of the Federal Department as follows:

(a) **With Bureau of Plant Industry—Division of Botany:**
Cotton wilt work, root knot investigation, plant disease survey, investigation of new corn diseases, plant introduction and acclimation.

(b) **With Bureau of Forestry—Division of Botany:**
Forestry experimental work at the Coast Experiment Station.

(c) **With Bureau of Entomology:**
Slender wire worm investigations, temperature moisture experiments, prevention of spread of cotton insects.

(d) **With Bureau of Plant Industry—Division of Agronomy:**

(At Pee Dee Station) Sweet potato investigations, breeding of peanuts, testing varieties of peanuts, fertilizer experiments with peanuts, variety tests of soybeans, tests of pasture grasses and methods of making permanent pastures.

(e) **With Bureau of Animal Industry—Dairy Division:**
Comparison of different systems of breeding dairy cattle.

(f) **With the U. S. Bureau of Education:**
Agricultural Education in the schools and Industrial Education in mill villages.

(g) **With the States Relations Committee:**
Cooperative Extension and Home Demonstration Work.

(h) **With the Bureau of Animal Industry:**
Cattle tick eradication and tuberculosis eradication in cattle.
The last two important projects involve the necessity of appropriations by the General Assembly, and will therefore be discussed at greater length.

**Cooperative Extension and Demonstration Work:**

The report of the Acting Director of Extension, Mr. D. W. Watkins, is attached to this report and gives a complete outline of the activities, expenditures and prospects of that division.


The principal terms of the Act are in brief as follows:

1. Only a college receiving the benefits of the Land Grant Act of 1861 (the "Land Grant College") can be selected by the Legislature to administer the extension work provided for under the Act. (The Legislature in 1915 designated Clemson College to carry on this work.)

2. The funds arising under the Act cannot be used for educational work done at the college, but only for giving instruction and practical demonstrations in agriculture and home economics to persons not attending the college. (The college is merely the agent to administer the fund—not the beneficiary of it.)

3. For the maintenance of the work, there is permanently appropriated $480,000 per annum, or $10,000 for each State which accepts the provisions of the Act. In addition, there is appropriated $600,000 for the second fiscal year of operation, 1915-16, and for each year thereafter for several years, $300,000 additional, until a total of $1,100,000 is reached. This, with the $480,000 makes a total of $4,580,000 and continues as a permanent annual appropriation. Unlike the initial appropriation of $480,000, the additional appropriations are not equally divided among the States, but are to be allotted annually to each State in the proportion which its rural population bears to the total rural population of the United States based on the last preceding census. They are also conditioned upon provision of an equal sum for maintenance of the work.

For South Carolina, which is entitled to 2.61 per cent of the additional appropriation, the Act would provide approximately the following funds:
<table>
<thead>
<tr>
<th>Year</th>
<th>Federal Appropriation</th>
<th>State Appropriation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914-1st year</td>
<td>$10,000.00</td>
<td>$00,000.00</td>
<td>$10,000.00</td>
</tr>
<tr>
<td>1915-2nd year</td>
<td>25,691.15</td>
<td>15,691.15</td>
<td>41,382.30</td>
</tr>
<tr>
<td>1916-3rd year</td>
<td>38,767.11</td>
<td>28,767.11</td>
<td>67,534.22</td>
</tr>
<tr>
<td>1917-4th year</td>
<td>51,843.07</td>
<td>41,843.07</td>
<td>93,686.14</td>
</tr>
<tr>
<td>1918-5th year</td>
<td>64,919.03</td>
<td>54,919.03</td>
<td>119,838.06</td>
</tr>
<tr>
<td>1919-6th year</td>
<td>77,994.99</td>
<td>67,994.99</td>
<td>145,989.98</td>
</tr>
<tr>
<td>1920-7th year</td>
<td>91,070.95</td>
<td>81,070.95</td>
<td>172,141.90</td>
</tr>
<tr>
<td>1921-8th year</td>
<td>104,146.91</td>
<td>91,146.91</td>
<td>195,293.82</td>
</tr>
<tr>
<td>1922-9th year</td>
<td>117,222.87</td>
<td>107,222.87</td>
<td>224,445.74</td>
</tr>
</tbody>
</table>

4. The Act further provides that the extension work is to be carried on in a manner mutually agreed upon by the Secretary of Agriculture, acting through the States Relations Committee and the College. Before the Federal funds become available, plans for the work must be approved in Washington.

**Financial Support:**

During the fiscal year 1918-19, the State appropriation in support of extension work under the provisions of the Smith-Lever Act, was $54,919.03. This appropriation made at the 1918 meeting of the General Assembly, was not available until the beginning of the federal fiscal year, July 1, 1918, at which time the offsetting federal appropriation of an amount equal to the State appropriation, plus $10,000, became available.

The support of the extension work from State and Federal sources was as follows:

1. State appropriation               $54,919.03
2. Federal appropriation             64,919.03
3. College funds                     7,200.00
4. County appropriations             46,593.95

Total                                    $173,932.01

Twenty-five percent of Items 1 and 2, and practically all of Items 3 and 4 are expended for home demonstration work under the supervision of Winthrop College.

In addition to the above funds, the Federal Department furnished experts and contributed to the salary of specialists, county agents and home demonstration agents, and other phases of the work, to the amount of $171,340.00, making the
total from all sources for extension and home economics work, $345,272.01. The Federal appropriation under the Smith-Lever Act is the property of the college and is administered through our Treasurer’s office. However, the $171,340.00 is not handled by us, but paid out directly by the U. S. Dept. of Agriculture from the National Treasury. This sum is far in excess of any amount hitherto received, or likely to be received in future, and came largely from the emergency appropriation made by Congress to stimulate food production during the war. Ordinarily, only about $40,000 is received outside of the Smith-Lever appropriation.

Organization:

The Agricultural Departments, with its divisions of Agronomy, Animal Husbandry, Botany, Dairying, Entomology, Horticulture, Chemistry and Veterinary Science, is the machinery by which agricultural research, extension and teaching are carried on. Each subject-matter division is under a chief, who is responsible for the successful prosecution of the work in these three lines of service. Prof. W. W. Long is Director of Agricultural Extension Service; Prof. H. W. Barre of Agricultural Research; and Dr. F. H. H. Calhoun of Agricultural Teaching. In each division are grouped the specialists in that line—teachers, research and extension workers.

It is often suggested that the extension service ought to be located at some central point like Columbia. This view arises from a misapprehension of the nature of conducting extension service.

The extension work of the college represents a service of the Agricultural Department, rather than a mere subdivision of it. It means the extending of the benefits of the Agricultural Department of the college beyond the confines of the campus to the people of the State. It is not a separate organization using separate machinery. The extension service in the various lines of work, such as Horticulture, Entomology, Dairying, Live Stock Industry, etc., is planned and carried on by the heads of those subject-matter divisions who act as lieutenants
for the Director of Extension. The Director of Extension cannot himself be an expert in all the various lines of agriculture, and he must depend upon the Agricultural Experiment Station and upon those in charge of the various subdivisions of agriculture for the information given out through the extension service. To locate the office of extension service in Columbia would necessitate duplicating the staff of specialists who now supervise research and teaching, as well as extension work, and would necessitate duplicating equipment as well as men. The specialists at the college are in touch with the county agent in the field, and are called upon for expert advice and for the making of tests which are germane to the demonstration work.

As a matter of fact, only eighteen of approximately eighty-eight officers of the Extension Division, (not counting the women workers) are located at the college. Seven of these are division chiefs (Professors of Horticulture, Dairying, Animal Industry, etc., who supervise the teaching and research as well as the extension work, and handle the technical correspondence in their respective lines), one is the Agricultural Editor, two are assistants in laboratories, and the rest are found in Mr. Long's immediate office, which consists of himself, an Assistant Director, an auditor, a chief clerk and four stenographers.

Already the policy of locating certain specialists where they can be most effective in their work has been carried on. A boll weevil expert is located in the infested low-country counties on the Georgia-Carolina line. At Darlington, Orangeburg, and Spartanburg, specialists in dairying and animal husbandry are located. Marketing specialists and cotton graders are located in several counties. The boys' corn club work is administered from Bishopville. Each of the four district agents in immediate charge of the county agent work is located at a vantage point in his territory, and these four district agents supervise the work of the fifty county agents located in practically all the counties of the State. The work in home demonstration has its headquarters at Winthrop College,
and is under Miss Parrott’s immediate charge. In this work practically the whole force is in the field.

From this statement it appears that extension service is already highly decentralized, there remaining at the college only the directing and clerical agencies.

I think, too, there is a tendency to confuse the Regulatory Work with the Extension Service. Actually there is little—often no—connection between them. Our veterinary service, tick eradication, crop pest control, etc., are in no sense parts of the extension service. The one is primarily regulatory, and the other is primarily educational. As a matter of fact, the Smith-Lever funds cannot be used for doing regulatory work.

When it comes to the regulatory service, it is the policy of the Board to locate the administrative center where the best interest of the work demands it. Several years ago the office of the tick eradication work was moved from Clemson College to Columbia, and just recently “The Clemson College Live Stock Sanitary Office of Columbia” was opened for furnishing hog cholera serum and other veterinary service.

A study of the report of the extension service which is attached hereto gives the salary of agents and other officers in the extension service. At the figures we are now able to pay, it is difficult to retain good men, and it will be increasingly necessary for the counties to put up a part of the cost if the grade of agents hitherto furnished is to be maintained. In this connection, the Board of Trustees has adopted the following resolution relating to the payment of college agents:

“That after deducting the portion that goes to Winthrop College under the Memorandum of Understanding between Clemson College and Winthrop College, and after paying overhead expenses and the cost of specialists, the remainder of the Smith-Lever Fund be apportioned equally to the support of county agents in all counties of the State in which the work is carried on.”

I regret to state that ill health has compelled the Director of Extension, Mr. W. W. Long, to be absent from his post of duty since November 7, 1918. During his five years at the college, Mr. Long had worked indefatigably to establish the ex-
tension work in the affections of the people by its usefulness to them, and his arduous labors impaired his health. At the time I am writing this report, I am glad to be able to say that Mr. Long expects soon to be able to return to active duty.

During Mr. Long's absence, the extension service has been directed by the Assistant Director of Extension, Mr. D. W. Watkins. Mr. Watkins deserves high praise for the excellent manner in which he has carried the many heavy responsibilities of Mr. Long's position, and met the many difficult situations which continually arise in service so vital and so near to the public interest.

Only a reading of the report of the Acting Director of Extension can reveal the valuable service rendered by the Extension Division during the past year when war conditions gave an unusual opportunity for leadership. The mention of only a few of the high spots is possible at this place in the report, but these are sufficient to indicate the scope and variety of the service being rendered to the agricultural people of the State.

<table>
<thead>
<tr>
<th>Description</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of visits by county agents to farmers</td>
<td>40,553</td>
</tr>
<tr>
<td>Number visits by county agents to club members</td>
<td>6,344</td>
</tr>
<tr>
<td>Number of miles traveled by county agents</td>
<td>334,652</td>
</tr>
<tr>
<td>Number of personal calls for service</td>
<td>25,629</td>
</tr>
<tr>
<td>Number of telephone calls for service</td>
<td>16,390</td>
</tr>
<tr>
<td>Number of farmers' meetings held under auspices of county agents</td>
<td>1,130</td>
</tr>
<tr>
<td>Number of meetings of all kinds addressed by agents</td>
<td>1,216</td>
</tr>
<tr>
<td>Total attendance on above meetings</td>
<td>115,097</td>
</tr>
<tr>
<td>Number of field meetings held</td>
<td>303</td>
</tr>
<tr>
<td>Total attendance on field meetings</td>
<td>8,177</td>
</tr>
<tr>
<td>Number of official letters written</td>
<td>26,888</td>
</tr>
<tr>
<td>Number of articles published</td>
<td>1,541</td>
</tr>
<tr>
<td>Number of bulletins distributed</td>
<td>106,411</td>
</tr>
</tbody>
</table>

Some of the results of these efforts are notable. In dairy lines, 130 pure bred bulls and 690 pure bred cows and heifers were brought into the State; 209 pure bred beef bulls and 949 pure bred cows of beef type were imported into the State as a
result of the work of the agents. In hog raising, there was a tremendous interest manifested, and with the assistance of our agents, 2,822 pure bred boars and gilts were purchased. There was even a revival in the sheep industry, 38 rams and 223 ewes being brought into the State. One of the most important single lines of service rendered by the demonstration agents was the giving of the hig cholera serum treatment to hogs. 27,238 hogs were given the single treatment, and the double treatment was administered to 6,477. Also, 3,064 head of cattle were vaccinated to prevent black leg.

In the important matter of fertilizers, eighty-seven counties purchased 12,683 tons of fertilizer cooperatively, at the total cost of $251,250.00, a saving of $22,810 being effected. Six hundred and fifty-three demonstrations were conducted during the year, and 5,579 farmers were induced to use top dressing on growing crops. 4,939 farmers used lime under the direction of the agents.

In horticultural lines, 315 orchard demonstrations were held, involving 62,639 trees. Fifty-three sweet potato storage houses were built in South Carolina, and less than 2 per cent of the potatoes stored therein were lost. Eighty-five thousand No. 3 cans of fruit and vegetables were put up, representing a total value of $14,166.00.

In the line of cotton marketing, grading associations organized in Darlington, Sumter ad Orangeburg have proved of great value. This work was carried on in cooperation with the Bureau of Markets, U. S. Department of Agriculture.

Special efforts are being made in boll weevil area to help farmers to a different system of farming, and also important developments are being made in early maturing varieties of cotton with which to fight the boll weevil. The development of a wilt resistant cotton is one of the special achievements of the extension service. There are now twelve cooperative growers of wilt resistant seed who produce between ten and twelve thousand bushels annually.

Special activity has been manifest in bee culture and in poultry husbandry.
In the boys' club work, 4,872 boys in ages ranging from ten to eighteen years, have been enrolled. These boys have grown products estimated in value at $156,325.67.

In closing this brief reference to the extension activities, attention is again directed to Acting Director Watkins' very complete report covering all phases of the extension service.

**Cattle Tick Eradication:**

The work of cattle tick eradication, begun at the college in 1907, has been greatly accelerated by the annual appropriation of $30,000 made by the Legislature during the past six years.

The entire State was released from federal quarantine in December, 1918, and since that time cattle from South Carolina have been able to move northward without the restrictions which apply to quarantined territory. Release from federal quarantine does not mean that all counties are freed from ticks, but that the majority of cattle owners not in "local quarantine" can ship their cattle to northern markets as free cattle, thereby greatly enhancing their value.

The work of eradication is now confined to the coastal plain counties of Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper and Williamsburg, an area of 8,739 square miles. In these free range counties the only method of eradicating the tick is by dipping every fourteen days. Many of the cattle are practically wild and the work necessarily proceeds with great difficulty and slowness.

The following is a summary of the expenditures for tick eradication work since this was begun by the college on a small scale in 1907.
### Expenditures for Tick Eradication in South Carolina

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Dept. of Agri.</th>
<th>Clemson College</th>
<th>State Appropri’a’n</th>
<th>County Appro’n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907</td>
<td>$5,125.00</td>
<td>$1,860.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1908</td>
<td>15,207.00</td>
<td>4,535.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1909</td>
<td>19,367.00</td>
<td>8,524.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1910</td>
<td>15,915.00</td>
<td>9,960.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1911</td>
<td>12,674.00</td>
<td>10,051.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1912</td>
<td>14,537.00</td>
<td>8,308.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1913</td>
<td>16,146.00</td>
<td>9,369.00</td>
<td>$</td>
<td>1,083.00</td>
</tr>
<tr>
<td>1914</td>
<td>23,143.00</td>
<td>1,497.00</td>
<td>30,000.00</td>
<td>$</td>
</tr>
<tr>
<td>1915</td>
<td>35,479.84</td>
<td>30,000.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1916</td>
<td>38,598.72</td>
<td>30,000.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1917</td>
<td>64,811.65</td>
<td>30,000.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1918</td>
<td>74,102.77</td>
<td>30,000.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1919 (To Nov. 1)</td>
<td>58,701.87</td>
<td>28,675.72</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

**Totals** $393,808.85 $54,104.00 $178,675.72 $1,083.58

**Total From All Sources** $627,671.58

Special attention is called to the generous cooperation which the Federal Bureau of Animal Industry has given to South Carolina in the work of tick eradication. Although the understanding was that they were merely to duplicate the State’s appropriation, it will be noted that since 1914 the aggregate of the federal appropriations greatly exceeds that of the State.

The results obtained fully justify the time and money which have been expended on this work. Prior to 1914, it was estimated that the cattle owners of the State were sustaining an annual loss in the infested areas amounting to over one and a half million dollars due to the effect of ticks. Furthermore, it was not safe to import pure bred cattle with which to improve the native stock. The results accomplished by the Extension Division in bringing in pure bred cattle is predicated upon the work of tick eradication.

The success of the tick eradication work is due largely to the efficiency and tact of Dr. W. K. Lewis, Inspector in charge of the tick eradication work.
It is hoped that at the next legislature it will be possible to reduce the amount of the appropriation from $30,000 to $20,000. Of course the more money appropriated the more rapidly the work will go forward, but it is so necessary to increase the support of general live stock sanitary work that it is thought best to make a $10,000 reduction here in order to promote the interests of the increased appropriation for general live stock sanitary service.

It is generally recognized, I believe, by the farmers of South Carolina that no better investment of funds has ever been made by the Legislature than the annual appropriations for the tick eradication work. It has never been necessary to argue at length before legislative committees on this subject, because an appropriation which would mean so much to the agricultural development of South Carolina, especially in view of the approach of the boll weevil, needs merely to be stated fully.

**The Clemson College Live Stock Sanitary Office of Columbia:**

As live stock development moved further down the State, the Trustees of the college requested the Legislature at the 1919 meeting to appropriate $5,000 with which to open a live stock sanitary office in Columbia. In 1919, the appropriation was increased to $10,000. This appropriation was expended as follows, between January 1st and November 1st, the time of writing this report:
**Expenditures—Clemson College Live Stock Sanitary Office of Columbia. January 1, 1919—November 1, 1919.**

**Tuberculosis Eradication:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$1,900.00</td>
</tr>
<tr>
<td>Traveling expenses</td>
<td>645.04</td>
</tr>
<tr>
<td>Miscellaneous expenses</td>
<td>30.30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,575.34</strong></td>
</tr>
</tbody>
</table>

**Hog Cholera Control Work:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$3,134.16</td>
</tr>
<tr>
<td>Traveling expenses</td>
<td>1,612.00</td>
</tr>
<tr>
<td>Office rent</td>
<td>341.20</td>
</tr>
<tr>
<td>Telephone rent</td>
<td>52.90</td>
</tr>
<tr>
<td>Office equipment</td>
<td>218.65</td>
</tr>
<tr>
<td>Miscellaneous expenses</td>
<td>151.20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$5,510.11</strong></td>
</tr>
</tbody>
</table>

**Total to Nov. 1, 1919**  **$8,085.45**

*Remainder of appropriation of $10,000.00 will be expended during November and December.*

Two principal lines of work were undertaken—the eradication of tuberculosis in cattle and the dispensation of anti-hog cholera serum. The need for this centrally located distributing point for service was instantly recognized by the people of the State, as will be indicated by the following figures:

During the fiscal year 1917-18, the sales of hog cholera serum amounted to $10,994.19. The year covered by this report, 1918-19, the sales were $29,787.94. Some of this serum was dispensed from the Clemson College office, but the increase is practically due to the greater convenience with which the serum could be obtained from Columbia. None of the State appropriation is used for buying the serum, this being sold to the farmers at approximate cost, and the receipts reinvested in more serum. It is often suggested that the serum be dispensed free. Such a plan would not be wise, because if no test of good faith were placed upon the distribution of the serum, it would be impossible to keep a supply on hand. Every farmer would call for it, regardless of whether or not he needed it at the time. As a result, the cost would be enor
mous, even if the serum were obtainable, and much of the serum sent out would be stored away by farmers, and when used, would have lost its potency.

In the line of tuberculosis eradication in cattle, Dr. Lewis reports that between November 1, 1918 and the same date 1919, 235 herds of cattle containing 5,542 head were tested. Out of this number 168 reacted, and were disposed of in accordance with State laws. The importance of this work, not only upon the live stock industry but upon the preservation of human health, is so manifest as to need no argument here. At present there is comparatively little tuberculosis in South Carolina, and if this small amount be stamped out and care exercised to prevent the introduction of tubercular animals, the State will soon be entirely free of this very dangerous disease.

The Legislature will be asked to increase the appropriation for the live stock sanitary work to $30,000, in order that more veterinarians may be available to meet the present overwhelming demand for veterinary service.

**Cooperative Work Under the Smith-Hughes Act:**

The purpose of the Smith-Hughes Act is to stimulate vocational training in the schools of the State. The first requirement of these schools is competent teachers. With the creation of the Division of Agricultural Education two years ago, Clemson College sought to meet the pressing need of training teachers in agriculture and in the trades and industries. Prof. Verd Peterson, the head of the division, acted also as State Supervisor of Agricultural Instruction. During his first year the college paid his salary, and during this year divided the salary equally with the State Superintendent of Education.

The field work of Prof. Peterson and other officers of the division of Agricultural Education is directed by the State Department of Education, and not by the college. With the beginning of the next fiscal year, Prof. Peterson, while retaining his position as head of the division of Agricultural Education, will be moved to Columbia to give his entire time to the
work with the schools. His salary will be paid entirely from State and Smith-Hughes funds. This arrangement is especially desirable because Prof. Peterson will be a connecting link between the schools using teachers and the college in which the teachers are being trained. A full report of the agricultural work will be found in the report of the State Superintendent of Education.

The greatest difficulty which confronts the college work in Agricultural Education is to attract a sufficient number of students into this course. This past session, eleven Seniors majored in Agricultural Education out of a class of ninety-eight men. There should be a larger number than this to meet the demands of the State, and it will be well to consider making a condition apply to the Clemson scholarships as now applies to the scholarships at the University and the Citadel, by which the graduate from a scholarship course will be required to do a certain amount of teaching, or be required to pay back the amount of the scholarship. Such a provision would increase the number of students taking the course in agricultural teacher-training.

Prof. W. G. Crandall, Professor of Agricultural Education, acts as head of the division in Prof. Peterson’s absence and is an excellent man in the position.

Beginning with the session 1918-19, the college offered the services of Prof. C. S. Doggett, Director of the Textile Department, to the Department of Education as Supervisor of Education in trades and industries. Prof. Doggett gives half of his time to this work. In January, Prof. George W. Coggin was appointed Professor of Industrial Education and has given his time principally to work in the field as a teacher-trainer. This work of training has been done during the day and in the evening. Usually, however, the mill authorities have been willing to allow the teachers to be brought together for training during working hours. In order to get teachers who are acquainted with the textile industry and allied subjects, it was necessary to take men who were already trained in these lines and who had education enough to make teachers
of their fellows with the little additional coaching. This is not an ideal arrangement, but is the best that can be had under present conditions.

Prof. Doggett has spent most of his time in the field in organizing evening classes, in textile subjects, and in following up the work of organization by frequent visits. Evening textile classes have been carried on successfully in Anderson, Pelzer, Easley, Greenville, Union, Rock Hill, Columbia and Ware Shoals. In all, thirty classes with an enrollment of 338 men, have been actually carried on, and the average attendance has been 60 per cent. Most of the teachers employed are overseers, although the range is from second-hand to superintendent. The subjects taught have been those pertaining to the textile industry, and have been designed to meet the particular needs of the men in the mills. Wherever college men can be found in the employ of the company, they have been drafted into service.

In South Carolina there are only two main lines of industry—agriculture and textiles. For that reason, the Smith-Hughes work has taken those two general directions. In time it may be desirable to organize for instruction in other lines, but at present that seems hardly necessary.

PART VII. THE SOUTH CAROLINA EXPERIMENT STATION

All agricultural teaching and extension rest upon agricultural research. Therefore, a report of our agricultural college would be incomplete without reference to the work of the Experiment Station.

A complete report of the station is appended to this report. Its careful reading will reward any one interested in the sustained progress of agriculture in South Carolina. A mere reading of the list of experiments indicates a wise selection and a wide range.

The following items are mentioned as illustrative of what is being done
Variety tests with cotton showed a difference of as much as $150.00 per acre profit, the Cook variety yielding best at the Clemson Station, and Kink Triumph making the poorest yield.

Variety tests with corn indicate that Douthit and Garrick yielded best at both the Clemson and the Pee Dee Stations.

Four series, each of which contains forty-five 1-10 acre lots, are being used at the Pee Dee Station for testing different combinations of fertilizers in a three year rotation and with cotton continuously. These tests have now been running for six years and have yielded very valuable results. Nitrogen, phosphoric acid and potash are all essential in fertilizers for this section, and lime in all cases has given negative results.

Fertilizer tests indicated that potash is absolutely essential in the coastal plain soils for cotton, tobacco and truck crops, but not needed in the red clay soils of the Piedmont section. Results with ground phosphate rock indicated that this would have to sell at one-third the price of acid phosphate to be a profitable source of phosphorus, and then only when used in a soil containing an ample quantity of stable manure or other organic matter.

The best hog crops were found to be crimson clover, alfalfa, soy beans, rape and corn.

It was proved conclusively that angular leaf spot of cotton could be controlled by treating the seed with sulphuric acid, and the results were published in Bulletin No. 198.

A complete report has been prepared upon the species of the leafhoppers found in South Carolina, and this was published as Experiment Station Bulletin No. 199.

Results of creosote treatment of fence potss which had been on test for ten years have been compiled and published as Bulletin No. 201. This test shows that creosote when properly applied, will preserve ordinary sap pine poles for longer than ten years. Many of the treated posts are still sound, and indications are that they will last for five years yet. Untreated posts of the same kind lasted only from three to four years.

Important data has been accumulated relative to a method of drying cotton seed that will destroy anthracnose and other
seed-borne diseases, and at the same time increase the germina-
tion of the seed.

A study has been undertaken to determine the influence of
soil, fertilizer and climate on the oil content of cotton seed.

The effect of trona potash and borax on crops when applied to
the soil in different amounts and in different combinations
with other fertilizers, is being investigated. These tests are
being made both in the field and in the greenhouse.

Methods are being worked out for the utilization of the
rotundifolia grape in making grape juice, syrup and jams.

The Chemistry Department of the Experiment Station has
developed an accurate and rapid method for determining borax
in fertilizer mixtures. This method is now being used by fer-
tilizer manufacturers, as well as by research chemists.

Variety testing, breeding work and fertilizer tests which
have been conducted at the Pee Dee Station with peanuts for
four years, have given valuable data with reference to the most
productive strains of peanuts, as well as to the kind of ferti-
lizers which it is best to use under this particular crop. Lime
has not proven beneficial on this type of soil.

PART VIII. THE PRESENT SESSION—1919-1920.

The session of 1919-1920 has opened most auspiciously. The
enrollment in all classes is 864. This number includes 42
young men who have seen service overseas, and about 250 men
eligible to membership in the American Legion. This is a
record truly to be proud of.

PAYMENT OF 1916 LOAN:

On August 14, 1919, the college completed payment on its
loan of $62,400.00 made with the consent of the Legislature in
1916, to tide the college over the first year of the European
War when the fertilizer tax receipts fell off $125,000.00. The
college is now out of debt and has a sufficient reserve to carry
it, without borrowing, for the period July 1st to December
31st, during which time the receipts from the fertilizer tax are
very little, if any, above the expenditures for inspection and analysis.

**Financial Outlook for 1919-1920:**

The following is an epitome of the Budget adopted by the Board of Trustees at its meeting in July. It covers the fiscal year from July 1, 1919 to June 30, 1920:

**Estimated Income**

1919 — 1920

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interest on Clemson Bequest</td>
<td>$3,512.36</td>
</tr>
<tr>
<td>2. Interest on Landscript</td>
<td>5,751.00</td>
</tr>
<tr>
<td>3. Morrill &amp; Nelson Funds (U. S.)</td>
<td>25,000.00</td>
</tr>
</tbody>
</table>

**Total Assured Funds** $34,266.36

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Estimated Tuition</td>
<td>14,000.00</td>
</tr>
<tr>
<td>5. Estimated Misc. Receipts</td>
<td>15,095.00</td>
</tr>
</tbody>
</table>

**Total Income other than Fertilizer Tax** $63,361.36

*6. Assumed Gross Fertilizer Tax* *250,000.00

**Total Estimated Income** $313,361.36

*(6) The average of the fertilizer tax for the past eleven years is $208,215.08. Only in the years 1910-11, 1913-14, 1917-18 and 1918-19 was the $250,000.00 mark exceeded. The largest sum ever received was $276,000.00 in 1913-14.
### Authorized Expenditures—1919 - 1920.

**Collegiate Running Expenses**

1. Insurance .................................................. $5,335.51
2. College catalog ........................................ 550.00
3. Telephone office ....................................... 750.00
4. Expenses Trustees and Board Visitors .......... 1,000.00
5. Ministers and Y. M. C. A. Secretary ........ 3,000.00
6. Contingent and Incidental .......................... 3,000.00
7. Miscellaneous Items, Lyceums, etc. ........... 2,720.20
8. Campus, (labor and supplies) .................. 3,350.00
9. Roads and Hauling, (labor and supplies) .... 5,165.00
10. Nightwatchman, (labor and supplies) ........ 745.00
11. Construction and Repairs, (labor and supplies) 9,438.21
12. Heat, Light and Water, (labor and supplies) 20,585.00
13. Treasurer's office, (labor and supplies) ..... 1,400.00
14. President's office, (labor and supplies) .... 1,950.00
15. Library, (labor and supplies) .................. 700.00
16. Chemistry Department, (labor and supplies) 2,765.00
17. Academic Department, (labor and supplies) 1,282.00
18. Military Department, (labor and supplies) .. 2,180.00
19. Agricultural Department, (labor and supplies) 10,574.03
20. Engineering Department, (labor and supplies) 5,617.00
21. Textile Department, (labor and supplies) ... 2,745.00

**Total, Exclusive of Salaries** .................................. $85,051.95

22. Salaries (Collegiate work only) ................ 134,059.00

**Total, Collegiate Running Expenses** ................. $219,110.95

### Collegiate Equipment

1. Memorial tablets ........................................ $450.00
2. Campus—cement work, etc. .......................... 1,600.00
3. Filter plant completion ................................ 1,750.00
4. Steel safe—Treasurer's office ..................... 175.00
5. Completion of Engineering addition .............. 7,800.00
6. Calf barn—Dairy Division ........................... 3,195.00
7. Hog Barn—Animal Husbandry Division ............. 2,870.78
8. Poultry breeding house ............................... 1,300.00
9. Additional Physics basement room ............... 833.17
10. Misc. additions, etc.—Public buildings ....... 1,255.99
11. Additions to residences ............................ 1,365.30
12. Library books and stacks ........................... 1,275.00
13. Academic Dept., (teaching equipment) .......... 1,395.00
14. Military Department, (teaching equipment) ... 250.00
15. Agricultural Dept., (teaching equipment) ... 4,924.75
16. Engineering Dept., (teaching equipment) ...... 3,637.00
17. Textile Department, (teaching equipment) .... 580.00

**Total, Buildings and Equipment** ......................... $34,656.99
Public State Work

(From Fertilizer Tax)

1. Veterinary inspection ........................................... $ 6,080.00
2. Crop Pest Commission ........................................... 4,770.00
3. Pee Dee Station .................................................. 4,420.00
4. Coast Station .................................................... 3,700.00
5. Agricultural research ........................................... 3,230.00
6. Miscellaneous ................................................... 1,475.00

7. ................................................................. $ 23,675.00
8. Scholarships ...................................................... 22,500.00

9. ................................................................. $ 46,175.00
10. Fertilizer inspection and analysis ......................... 43,725.00

Total .......................................................... $ 89,900.00

Summary

11. Collegiate running expenses ................................. $219,110.95
12. Collegiate building and equipment ....................... 34,656.99
13. Public State Work ............................................. 89,900.00

Total appropriated ............................................. *$343,667.94

14. 8 per cent allowed for lapses and savings ........... 27,493.44

Probable Total Expenditures ................................... $316,174.50

* Salaries equal $157,434.00 of this total.

It will be noted that even after assuming a maximum figure for the fertilizer tax, $250,000.00, the budget of expenditures slightly exceeds the probable income. Some of the appropriations made will have to be scaled down.

Nor does the budget represent the whole story. It is necessary if an efficient Faculty is maintained, to add to salaries at least an additional 10 per cent this session. To do this, some retrenchment must be made or we must look to the State for aid in carrying on the public work.
In the Acts of 1890, the balance of the fertilizer tax over and above the cost of inspection and analysis is pledged to the college "for its erection and maintenance." It was the understanding that this promise absolved the Legislature from the obligation to make annual direct appropriations for the support or building of the college. However, the Trustees have gone further than the Act of 1890 required, and have devoted about $70,000 annually to various lines of Public Service not contemplated in the original bargain. So long as money was available, the Board cheerfully financed such work—in fact, the completion of the college plant has been delayed in order that demands for branch stations, scholarships, and various forms of police and regulatory work might be met.

Since the Act of 1890, for nearly twenty years the college has not asked for or received any appropriation for erecting and maintaining the college, and does not yet ask one dollar for such purposes. However, if the Public Service is to be maintained and extended to meet the demands of our people, money must be forthcoming from some source other than college funds.

It will be necessary for the Legislature to continue the support of certain Public Service lines, and it is also necessary, if the work is to be done, that the Legislature provide funds for extending the live stock sanitary work and the agricultural research work of the institution.

At present our support is predicated upon a fertilizer tax of $250,000.00, the equivalent of a million tons of fertilizer. It is entirely possible, if the scarcity of phosphate rock continues and if the boll weevil causes a shrinkage of credit, that this expectation may not be realized. The reserve which the college carries in order to tide it over the first six months of the fiscal year in which there is practically no income from the fertilizer tax, would of course enable the college to go through the present year, even if the fertilizer tax were considerably reduced, but would leave no margin upon which to begin the next fiscal year.

The college plant is as yet incomplete. The State Board of Health is insisting that we build an adequate hospital for our
cadets. The bricks were delivered for this building just after the war, but we have not dared in these precarious times to spend the money necessary to go forward with the work. We need a gymnasium, a new and larger laundry, an additional building for agricultural teaching, a stock judging pavilion, a beef cattle barn, and even now we need a new dormitory to meet the demand for our increased attendance. Our normal margin over actual operating expenses is not sufficient to continue our building program. For five years past not a single substantial addition in the way of a building has been made to the college plant.

All colleges are put to it to make ends meet in these days of higher salaries and increased cost of labor and materials. Other colleges can go to the Legislature and ask for additional funds to meet these additional costs. However, we must depend upon the Legislature financing some of the Public Work we are doing so as to leave a larger part of the fertilizer tax for the operation of the college as an educational institution.

The college is asking to be relieved of expenditures for veterinary inspection, crop pest commission work, branch stations, agricultural research and scholarships. These aggregate approximately $46,000.00. However, we are suggesting that the Legislature go farther than we have been able to go in meeting the demands of our people for service and give a support to these lines of work commensurate with their importance. The college has been unable to do this. It is the duty of the college to call attention to what it considers necessary to safeguard the interests of our agriculture, remembering that the college is merely the agent of the State in doing the work, and will do its best with whatever funds are provided.

(1) Extension and Demonstration Work, $81,070.95:

Last year the Legislature appropriated for this service $67,994.99. This year the amount required from South Carolina under the Lever Act increases to $81,070.95. (See text of Lever Bill in Chapter VI of this report.)

During the war the extension service was a nation-wide ma-
chine for carrying out the government's program of production and conservation. South Carolina's extension service did its full part in this work.

Now that the war is over, another victory has to be won over another enemy fighting on our own soil—the Mexican Boll Weevil. It is to the extension service that our farmers in boll weevil territory must look for assistance in organizing their agriculture along new and appropriate lines.

The extension and home demonstration has become truly a rural institution in South Carolina, and our people have come to depend upon it. Their appreciation is shown in the increasing funds donated by counties for the support of this work. This State is fortunate in having at least one man and one woman in every county. But as in every other line more money is needed to do even the same work,—salaries must increase to keep good men and good women in the service, and the cost of travel is at a high level.

(2) Cattle Tick Eradication, $20,000.00:

The work of tick eradication has narrowed itself down to the coast counties. Most of these are free range counties, and the only practical method of eradicating the ticks is to drive the cattle up every fourteen days and dip them. The difficulty of the task can be readily appreciated.

This year instead of the usual $30,000 appropriation, we are asking for but $20,000.00. The larger sum could well be used, but since an increase is asked for other lines of live stock sanitary work, we have cut the tick eradication to the lowest practicable figures. The federal government is putting into the work nearly two dollars to our one.

(3) Live Stock Sanitary Work, $30,000.00:

In 1918 the Legislature made the modest appropriation of $5,000 with which to begin "The Clemson College Live Stock Sanitary Office of Columbia." In 1919 the appropriation was increased to $10,000.00. The success of this office was immediate and pronounced. To illustrate—in 1918 the sale of hog
cholera serum was about $10,000.00. In 1919 it was nearly $30,000.00. The difficulty now is to meet the demands made upon the office—not only in its two major lines of work—hog cholera and tuberculosis control and eradication,—but in many others as well.

We are therefore suggesting that the ten thousand dollar appropriation be trebled so that the State can be divided up into districts and veterinarians located at strategical points to render assistance with a minimum of expense and loss of time. A much larger appropriation than $30,000.00 could be advantageously used if the Legislature sees fit to increase our estimate. However, the amount indicated is sufficient to give a year's healthy growth and expansion to the service and care for the expenditure of $6,080.00 hitherto furnished by the college.

(4) Slaughter of Diseased Cattle, $2,000.00:

This appropriation is for the purpose of compensating owners of cattle killed to eradicate contagious diseases. The State laws governing this matter provide for a small but definite compensation in all such cases of slaughter.

Note:—(As before stated, 1, 2, 3 and 4 are well established liens of work to which the Legislature is committed by former appropriations. Those that follow,—5, 6 and 7,—are lines hitherto inadequately supported from the college treasury and for which no State appropriation has been made.)

(5) Agricultural Research, $50,000.00:

The South Carolina Experiment Station is supported by federal funds under the Hatch and Adams Acts. These funds can be expended only for projects in agricultural research approved by the U. S. Department of Agriculture. At present the Station's support amounts to about $30,000.00 which is altogether inadequate under present conditions even to carry on the lines of work already undertaken. It is out of the question with this support to respond to the many calls which are constantly coming in for information and assistance.
More and more are the farmers turning to the college for a solution of their agricultural problems. But lack of funds makes it impossible properly to respond to their requests for help. The effects of "trona potash" might be mentioned as typical of the problems that come up every year for solution. Many others of importance might be mentioned. The following are typical:

(a) The influence of soil, fertilizers and seasons on the oil content of cotton seed. (It would be possible to greatly increase the value of the cotton crop by increasing the amount of oil in the seed, just as the value of the lint has been increased by proper breeding for larger and finer staple.)

(b) The influence of the soil, fertilizers and season on the length and strength of cotton fibre.

(c) The influence of spacing, cultivation and fertilization of early varieties of cotton to get ahead of the boll weevil.

(d) The comparative values of ground phosphate rock and other kinds of phosphatic fertilizers.

(e) The development of suitable pasture grasses for the cut-over pine lands of the coastal plain in order to stimulate beef cattle production.

(f) The relative value of different forage and grain crops in the production of pork.

(g) The determination of the factors responsible for soft pork, which condition causes a loss of thousands of dollars every year to raisers of pork.

(h) Experiments to determine the best methods and the best time for applying poison to kill the boll weevil.

(i) Experiments to determine the best methods of reforesting cut-over pine lands.

In addition to the above, there is a wide field of research with sweet potatoes from the time of planting through harvesting and curing, and including the reduction of diseases which are responsible for a loss of nearly 50 per cent of the crop between the time of gathering and the time of consumption.
In horticultural lines the possibilities of the State have only been touched. Quantities of wholesome food are going unproduced for lack of sufficient knowledge as to the best varieties of small fruits, berries and grapes, and the best methods of utilizing such products.

Another promising field lies in the testing out of foreign importations, many of which may prove adaptable to the soil and climate of South Carolina.

In addition to the above, there are two very important projects which ought to be begun at once.

The first has relation to the boll weevil problem. If any section of South Carolina is well suited to the raising of beef cattle, it is the cut over pine lands of the coastal plain. It is our desire to inaugurate quite an extensive beef cattle demonstration in connection with our Coast Station near Summerville. This will involve the purchase or rental of at least 1,000 acres of coastal plain land and the stocking of this land with necessary beef animals. The success of an experiment of this kind that could be seen by the people would be profound and far-reaching, and would I believe make productive hundreds of thousands of acres of land which are now practically worthless to the State and to the people of the coastal plain. We estimate that even if the land could be bought or rented at a very low figure, this demonstration would cost at the outset not less than $15,000.00.

Another large project which ought to be undertaken immediately is the establishment of a third branch station in the Sand Hill Section of the State. With one Station here at the college, in the red Piedmont clay soils, another in the Coastal Plain and a third in the rich Pee Dee section, there is greatly needed a fourth in order that our agricultural research work may be representative of the principal soil and climatic conditions in the State. The college has for the past six or seven years had this Sand Hill Station on its list of important projects for which funds were lacking. The approach of the boll weevil makes it imperative that work be begun at once, even if on a modest scale. At least $20,000 will be necessary to begin this Station, even if the land be donated.
Agricultural teaching and extension are predicted upon agricultural research. Research is the foundation stone upon which the entire agricultural structure rests. No better investment of $50,000 can be made by the State than to enable the college to supplement its present funds to maintain its greatest organization and present lines of experiments and to extend these into new and important fields.

(6) Work of Crop Pest Commission, $10,000.00:

The Crop Pest Commission is created by Act of the Legislature. Its purpose is to protect our agriculture from plant diseases and insect pests.

Hitherto this work has been supported by a small and inadequate college appropriation, (about $4,000.00). The boll weevil quarantine and control work is only one of many problems. The pink boll worm, equally as serious as the boll weevil, the potato weevil so destructive in Florida and parts of Georgia, the European corn borer, and all kinds of diseased nursery stock must be kept out of South Carolina by adequate quarantine measures.

Perhaps no work that the college has been doing is more important than this. The appropriation asked for is small, but it will bring very large returns in security from dangerous invasions by bugs and bacteria.

(7) Scholarships, $17,000.00:

On page 42 will be found a full discussion of this matter. With its uncertain income, the college cannot guarantee to the young men who win scholarships, their continuation through the promised four years. Then too, the college needs badly for other purposes that will benefit the entire student body the money paid out of the treasury for these scholarships. It is possible that $10,000 would cover the scholarships that are likely to be filled in the future—certainly $17,000 would.

If all state scholarships are not abolished, it is hoped that the Legislature will support the Clemson scholarships from the State Treasury just as other scholarships are supported.
CONCLUSION:

This report will pass through your hands to the General Assembly of South Carolina—that legislative body which during the entire life of the college, a period of twenty-nine years, has never enacted into law a single measure hostile or inimical to the interests of the institution. On the contrary, it has always given its assistance to all worthy plans which had for their purpose increasing the usefulness of the college to the farmers of the State.

The college comes to the General Assembly in no sense as a suppliand, but as a partner in a great constructive work.

It is not asking for any appropriation for itself.

In expressing the hope that the appropriations listed will be made, the college has no selfish interest, but only a desire to aid the State in these lines of public service.

If made, the appropriations will bring definite and substantial returns in the increased prosperity of our agricultural people, and will I am sure merit their approval.

Respectfully submitted,

W. M. RIGGS,
President, Clemson Agricultural College.

P. S. As required by law, I present herewith a list of students who pay tuition, those who do not, and those who hold scholarships.

I attach also reports of the following officers:
1. The Treasurer
2. The Auditor
3. The Board of Visitors
4. The Director of Experiment Station
5. The Director of Extension
6. The Secretary of the Fertilizer Board
7. The Chief Chemist
8. The State Entomologist
9. The State Veterinarian, including report on Tick and Tuberculosis Eradication.
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS.

Abbeville County.

Free Tuition—
Banks, G. C.
Abbeville
Baskin, J. L.
Lowndesville
Ferguson, L. H.
Abbeville
Harper, J. K.
Lowndesville
Wilson, J. W.
Abbeville

Pay Tuition—
North Augusta
Cato, W. L.
Eutaw
Eubanks, J. B.
Aiken
Holly, H. M.
Aiken
Holly, R.
Aiken
Muckenfuss, C. H.
Aiken
Rearden, J. R.
Graniteville
Sawyer, W. S.
Monetta
Tyler, W. P.
Windsor
Tyler, C. L.
Windsor

Scholarship—
Cook, L. H.
Ketchings Mill
Woodward, M. B.
Aiken

Anderson County.

Free Tuition—
Bowan, T. G.
Anderson
E. S. Day
Pendleton
Gilliland, W. A.
Iva
Griffin, C. W.
Anderson
Hall, J. B.
Anderson
Martin, G. H.
Anderson
McGee, R. F.
Starr
Smith, E. R.
Iva
Smith, J. J.
Starr
Smith, J. L.
Anderson
Smith, R. M.
Pendleton
Wiles, F. A.
Honea Path
Wallace, A. B.
Piedmont
Shirley, J. A.
Anderson

Pay Tuition—
Black, J. M.
Anderson
Black, M. J.
Anderson
Clark, J. R.
Anderson
Clatworthy, W. M.
Honea Path
Cobb, W. C.
Anderson
Culbertson, J. A.
Honea Path
Day, R. E.
Pendleton
Garrison, F. B. 1st
Denver
Garrison, L. C., Jr.
Pendleton
Green, S. M.
Anderson
Harris, L. D.
Belton
Herron, R. P.
Starr
Hubbard, W. B.
Anderson
Hudgens, R.
Pelzer
Jones, R. W.
Starr
Lewis J. G.
Williamston
McCown, B. A.
Anderson
McFall, J. W.
Anderson

Albany County.

Free Tuition—
Gallagher, J. M.
Ellenton
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

McGee, S. A. Starr
Mckenzie, F. E. Honea Path
Paget, F. M. Anderson
Pearman, C. G. Starr
Power, A. C. Anderson
Power, R. M. Anderson
Pruitt, E. S. Starr
Pruitt, W. F. Starr
Thomason, J. T. Anderson
Tollison, P. L. Belton
Tripp, T. A. Easley
Watson, L. F. Anderson
Webb, T. J. Anderson
Wilhite, F. T. Anderson
Wallace, W. J. Anderson

Bamberg County.

Free Tuition—
Zeigler, O. J. Bamberg

Pay Tuition—
Cook, J. D. Olar
Kirkland, J. M. Ehrhardt
Neeley, J. E. Olar
Sojourner, D. P. Denmark
Sojourner, J. H. Denmark

Barnwell County.

Free Tuition—
Armstrong, J. B., Jr. Barnwell
Farmer, R. Allendale

Pay Tuition—
Brunson, G. V. Allendale
Green, E. H. Dunbarton
Hair, A. B., Jr. Blackville
Hill, L. W., Jr. Ellenton
Lemon, A. N. Barnwell
Molair, W. L., Jr. Barnwell
Sanders, H. K. Ulmers
Thompson, F. M. Williston
Walker, J. M. Blackville

Beaufort County.

Free Tuition—
Hiers, L. H. Beaufort
Thomas F. E. Beaufort

Pay Tuition—
Keyserling, H. H. Beaufort
Keyserling, H. L. Seabrook
Marscher, A. A. Beaufort
Ricker, G. F., Jr. Beaufort
Worthington, W. C. Frogmore

Scholarship—
Mann, M. E. Beaufort

Berkley County.

Free Tuition—
Shuler, C. L. St. Stephens

Calhoun County.

Free Tuition—
Rast, W. M. St. Matthews

Pay Tuition—
Banks, R. W. St. Matthews
Pearlstein, J. T. St. Matthews
Stoudemire, L. C. Lone Star
Sumner, L. K. Cameron
Wimberly, L. B. St. Matthews

Scholarship—
Crider, E. S. St. Matthews

Charleston County.

Free Tuition—
Bunch, E. T. Charleston
Fraser, H. E.  
Mt. Pleasant  
Jenkins, E. M.  
Edisto Island  
Laurey, H. E.  
Charleston  
McCants, L. A.  
Mt. Pleasant  
Nowell, J. L.  
Charleston  
O'Neill, B.  
Charleston  
Pinckney, J. S.  
Charleston  
Seabrook, E. M.  
Charleston  
Seabrook, T. H.  
Charleston  
Tupper, K. S.  
Charleston  

Pay Tuition—  
Allen, W. S., Jr.  
Charleston  
Boyleston, C. L.  
Charleston  
Carr, S. P.  
Meggett  
Cook, G. F.  
Charleston  
Davis, G. E. R.  
Charleston  
Denaro, J. M.  
Charleston  
Gerate, J. W.  
Yonges Island  
Grice, G. D.  
Charleston  
Leland, R. E.  
McClellansville  
Martin, J. V.  
Charleston  
Mikell, I. J., Jr.  
Edisto Island  
Morrison, H. T., Jr.  
McClellansville  
Morrison, H. W.  
McClellansville  
Morrison, Wm.  
McClellansville  
McDermid, J. A.  
Charleston  

Newton, W. H.  
Charleston  
Perry, F. T.  
Yonges Island  
Rivers, J. D.  
Charleston  
Rustin, R. B.  
Charleston  
Schirmer, R.  
Charleston  
Schwettman, F. W.  
Charleston  
Simmons, T. R.  
Charleston  
Stender, B.  
Charleston  
Ste'nmeyer, G. E., Jr.  
Charleston  

Scholarship—  
Bailey, E. M.  
Martin Point  
Corcoran, A. C.  
Charleston  
Mitchell, C. A.  
Edisto Island  
Robertson, J. H.  
Moultrieville  
Townsend, J. C., Jr.  
Martin Point  
Whaley, E. C.  
Martin Point  

Cherokee County.  
Free Tuition—  
Haas, C. I.  
Gaffney  
Haas, R. D.  
Gaffney  
Hobbs, E. W., Jr.  
Blacksburg  
Hollifield, J. F.  
Cherokee  
Kennedy, H.  
Blacksburg  
Power, C. E.  
Blacksburg  
Shields, H. L. B.  
Cherokee  
Smith, T. D.  
Blacksburg  
Wilk'sn, R. T.  
Gaffney  

Pay Tuition—  
Allison, J. W.  
Blacksburg  
Gaines, R. M.  
Gaffney  
Hamrick, L. A.  
Gaffney  
Jenkins, J. F.  
Gaffney  
Pridmore, R. M.  
Gaffney  
Sarratt, R. C.  
Gaffney  
Turner, T. P.  
Gaffney  

Scholarship—  
Huggin, C. H.  
Gaffney  
Sanders, D. A.  
Richburg  

Chester County.  
Free Tuition—  
Abernathy, W. H.  
Fort Lawn  
Melton, G. H.  
Chester  
Yarborough, J. H.  
Lowryville  

Pay Tuition—  
Anderson, E. T.  
Lowryville  
Cornwell, M. M.  
Chester  
Gage, G.  
Chester  
Stevenson, H. F.  
Richburg  
Stevenson, W. B.  
Richburg  

Scholarship—  
Bankhead, J. B.  
Chester  
Stevenson, D. W.  
Richburg
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Chesterfield County

Free Tuition—
W. H. Thrower
Cheraw
Pay Tuition—
Gregory, G. W.
Jefferson
King, E. B.
McBee
King, J. C.
McBee

Scholarship—
Coward, C. C.
Cheraw
Hartzell, G. W.
Cheraw
Thrower, G. G.
Cheraw

Clarendon County.

Free Tuition—
Burgess, E. A.
Manning
Pay Tuition—
Moody, R. C.
Florence
Timmons, T. N.
Manning

Scholarship—
Felder, J. H.
Silver
Harvin, J. L.
Pinewood
Mahoney, W. M.
Manning

Colleton County.

Pay Tuition—
Hubster, E. G.
Walterboro
Marvin, M. W.
White Hall
Marvin, B.
White Hall
Marvin, R.
White Hall
Metrowan, J. L.
Eberhardt

Ravenel, S. B.
Green Pond
Saunders, H. M.
Walterboro

Scholarship—
DeTraville, A. L.
Walterboro
DuRant, A. L.
Cottageville
DuRant, C. O.
Cottageville
Kinsey, H. M.
Smoak
Rhode, H. L.
Cottageville

Darlington County.

Free Tuition—
Auten, J. F.
Hartsville
Banks, M. L.
Hartsville
DuRant, C. L.
Mont Clare
Erwin, A. R.
Hartsville
Gandy, J. M.
Hartsville
Hoffmeyer, H. F. L. Jr.
Florence
Hoffmeyer, H. G. G.
Florence

Pay Tuition—
Anderson, O. W.
Timmonsville
Boone, S. C.
Hartsville
Boseman, G. R.
Darlington
DeWitt, A.
Darlington
Dick, L. W.
Hartsville
DeBose, G.
Lamar
Goodson, C. G.
Hartsville
Hicks, R. C.
Hartsville
Jordan, E. B.
Lamar

King, H. M.
Hartsville
Lawhon, J. C.
Darlington
Parrott, J. R.
Darlington
Sompayrac, H. P.
Society Hill
Sumner, J. P.
Hartsville
Tillotson, W. E.
Hartsville
Wilkerson, C. F.
Hartsville
Woodham, B. G.
Hartsville

Scholarship—
Butler C. M.
Hartsville
Byrnes, T. H.
Hartsville
Davis, J. G.
McBee
Parrott, E. L.
Darlington

Dillon County.

Free Tuition—
Rogers, J. W.
Dillon

Pay Tuition—
Alford, M. C.
Latta
Atkinson, R. E.
Latta
Baker, O. E.
Nichols
Bethea, L. R.
Latta

Dorchester County.

Free Tuition—
Manigault, E. L.
Summerville
Mimms, P. M.
St. George

Pay Tuition—
Ackerman, T. H.
St. George
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Florence County.

Free Tuition—

Conyers, J. W. 
Timmonsville
Garner, J. F. 
Timmonsville
Hill, G. O. 
Timmonsville
Jones, R. L. 
Timmonsville
Lawhon, W. B. 
Timmonsville
McKenzie, M. A. 
Lake City
Stanley, G. A. 
Claussen

Pay Tuition—

Brown, A. 
Hyman
Cook, W. S. 
Timmonsville
Epps, A. R. 
Lake City
Huggins, C. 
Lake City
King, W. W. 
Lake City
McKenzie, D. W. 
Lake City
Sims, F. M., Jr. 
Timmonsville

Scholarship—

Hinson, L. H. 
Scranton
McCown, M. T. 
Florence
Truett, L T. 
Timmonsville

Georgetown County.

Free Tuition—

Armstrong, H. 
Fountain Inn
Bowman, J. H. 
Greenville
Berry, J. B. 
Greenville
Black, S. A. 
Greenville
Gower, A. G., Jr. 
Greenville
Hellams, J. I. 
Travelers Rest
Scott, V. M. 
Simpsonville

Pay Tuition—

Cobb, J. O. 
Greenville
Cannon, V. L. 
Simpsonville
Cooper, T. B. 
Greenville
Dawes, H. L. 
Greenville
Dillard, R. L. 
Greer
Going, O. F. 
Greenville
Hendrix, W. B. 
Greenville
Hughes, T. T. 
Greenville
Martin, R. L. 
Simpsonville
McHugh, J. F. 
Greenville
Smith, J. S. 
Greenville

Scholarship—

Carr, D. L. 
Piedmont
Kendrick, C. T. 
Greer
Kilgore, A. R. 
Simpsonville
Loftis, C. B. 
Travelers Rest
Poole, J. C. 
Travelers Rest
<table>
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<tr>
<th>County</th>
<th>Students</th>
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<tbody>
<tr>
<td>Greenwood County</td>
<td>Wingo, W. P. Greenwood, C.</td>
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<td>Free Tuition—</td>
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<td>Cohan, B. Greenwood</td>
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<td>Godfrey, L. W. Greenwood</td>
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<td>Hutchinson, W. C. Ninety Six</td>
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<td>Miller, W. H. Greenwood</td>
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<td>Nickers, A. S. Houghes</td>
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<td>Osborne, B. A. Ninety Six</td>
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<td>Walker, M. B. Ninety Six</td>
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<td>Pay Tuition—</td>
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<td>Darkhouse, D. B. Greenwood</td>
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<td>Emerson, G. B. Houghes</td>
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<td>Garrett, W. F. Greenwood</td>
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<td>Graham, R. N. Houghes</td>
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<td>Henderson, T. P. Gaines</td>
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<td>Jennings, J. W. Greenwood</td>
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<td>Parker, W. P. Greenwood</td>
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<td>Payne, H. D. Ninety Six</td>
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<td>Stallworth, W. H. Phoenix</td>
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<td>Snead, L. B. Greenwood</td>
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<td>Townsends, F. A. Ninety Six</td>
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<td>Waue, J. L. Greenwood</td>
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<td>Warner, J. D. Greenwood</td>
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<td>Allen, F. M. Greenwood</td>
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<td>Bradford, Z. B. Greenwood</td>
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<td>Kemp, H. B. Kirksey</td>
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<td>Kennedy, W. J. Greenwood</td>
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<td>Martin, G. C. Ninety Six</td>
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<td>Proctor, W. G. Ninety Six</td>
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<td>Hampton County—</td>
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<td>Carter, H. E. Varnville</td>
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<td>Kittles, T. J. Barnett</td>
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<td>Lawton, A. S. Barnett</td>
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<td>Light, L. M. Brunson</td>
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<td>Miley, L. Brunson</td>
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<td>Moore, J. C. Early Branch</td>
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<td>Rentz, L. G. Varnville</td>
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<td>Riley, G. M., Jr. Garnett</td>
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<td>Rush, T. D. Camden</td>
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<td>Trooper, J. W. Camden</td>
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<td>Lancaster County—</td>
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<td>Pay Tuition—</td>
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<td>Bailes, J. P. Fort Mill</td>
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<td>Stewart, J. A., Jr. Lancaster</td>
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<td>Scholarship—</td>
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<td>Craig, J. A. Lancaster</td>
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<td>Harris, O. P. Fort Mill</td>
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<td>King, J. M. Lancaster</td>
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<td>Potts, R. C. Fort Mill</td>
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<td>Laurens County—</td>
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<td>Free Tuition—</td>
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<td>Armstrong, F. E. Laurens</td>
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<td>Cope, and, G. E. Kenno</td>
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CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Crisp, C. A. Lahians
Leppard, B. T. Laurens
Martin, A. F., Jr. Laurens
Richbourg, S. E. Clinton

Pay Tuition—
Bolt, F. W. Laurens
Boozer, W. M. Kinards
Brooks, J. T. Fountain Inn
Copeland, I. B. Renno
Copeland, J. D. Renno
Dial, F. A. Laurens
Dial, J. C. Laurens
Dunlap, J. H. Laurens
Dunlap, R. T. Laurens
Franks, C. H. Laurens
Fuller, E. P. Laurens
Langston, J. L. Laurens
Roper, C. P. Laurens
Wallace, N. L. Laurens
Wilkes, E. H. Laurens
Wood, H. H. Princeton
Woodside, H. F. Laurens

Washington, W. H. Ware Shoals
Lee County.

Pay Tuition—
Galloway, W. R. Lynchburg
Lemmon, J. A. Elliott
McKenzie, W. J. Bishopville
Player, C. B. Elliott
Wilson, C. E. Rembert

Lexington County.
Free Tuition—
Dowling, J. A. Swansea
Riser, J. H. Leesville

Pay Tuition—
Betchman, H. B. Chapin
Epting, C. V. Peak
Fink, B. L. Batesburg
Mitchell, E. C. Leesville

Scholarship—
Addy, C. S. Leesville
Parler, J. W. Batesburg

Marion County.
Free Tuition—
Brown, J. O. Marion
Herring, L. C. Marion
Mace, S. N. Centenary

Pay Tuition—
Bethea, J. P. Mullins
Hood, H. W., Jr. Mullins

Montgomery, H. D. Marion
Owings, C. A. Marion
Rogers, W. B. Mullins
Soloman, L. Marion
Stackhouse, W., Jr. Marion

Marlboro County.
Free Tuition—
Atkinson, C. N. Blenheim
Miller, J. Bennettsville

Pay Tuition—
Covington, O. F. Clio
Fletcher, H. W. McCall
Hodges, K. B. Brownsville
McLaurin, E. B. McCall
McLaurin, J. F. McCall
Odom, G. F. Clio
Reedy, L. L. Clio
Smith, D. R. Clio

Scholarship—
Howell, L. M. Bennettsville

McCormick County.
Free Tuition—
Bussey, J. C. Parksville
Rankin, T. G. McCormick

Pay Tuition—
Covin, J. O. Willington
Price, M. A. McCormick
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Newberry County.

Free Tuition—
Fellers, E. A.
Prosperity
Pugh, W. C.
Prosperity
Wheeler, H. B.
Prosperity

Pay Tuition—
Berly, R. H.
Pomaria
Hipp, R.
Pomaria
Mills, C. S.
Prosperity
Mills, O. B.
Prosperity
Suher, F. L.
Whitmire
Wallace, F. H.
Kinards
Wise, G. S.
Prosperity

Scholarship—
Aull, G. H.
Pomaria
Folk, M. H.
Pomaria

Oconee County.

Free Tuition—
Cobb, B. C.
Walhalla
Dickson, W. P.
Seneca
England, W. L., Jr.
Westminster
Gordon, W. W.
Clemson College
Mulky, H. B.
Westminster
Seaborn, J. H.
Walhalla

Pay Tuition—
Austin, W. L.
Seneca
Barnette, F. A.
Westminster

Barnette, R. M.
Clemson College
Carter, R. W.
Westminster
Cary, J. L.
Seneca
Chambliss, P. B.
Clemson College
Dalton, C. E.
Seneca
Davis, C. R.
Fairplay
Dorn, W. L.
Westminster
Harrison, G. A.
Walhalla
Martin, S. M.
Clemson College
Marett, W. R.
Fair Play
Moss, J. H.
Walhalla
Schilletter, C.
Clemson College
Schroeder, T. K.
Walhalla
Schroeder, J. H. F.
Walhalla
Stribling, W. J., Jr.
Walhalla
Walker, A. R.
Seneca

Pay Tuition—
Barton, W. B.
Orangeburg
Davis, J. M.
North
Edwins, R. C.
Orangeburg
Edwins, W. D.
Orangeburg
Evans, T. M.
Elloree
Gibson, J. W.
Cordova
Gilmore, W. D.
Holly Hill
Green, J. M., Jr.
Orangeburg
Herbert, D. O.
Orangeburg
Mackey, M. S.
Orangeburg
Parler, S. B.
Elloree
Patrick, G. B.
Bowman
Simmons, T. D.
Rowesville
Smith, T. S.
Springfield
Smoak, L. G.
Cope
Thackston, L. P.
Orangeburg
Till, J. F., Jr.
Orangeburg
Watson, J. M.
Orangeburg
Whetstone, C. H.
North
Whetstone, O. F.
Rowesville

Orangeburg County.

Free Tuition—
Lowman, P. I.
Orangeburg
Traxler, D. W.
Bowman
Zeigler, T. J.
Cope

Scholarship—
Galphin, G. P.
Holly Hill
Rickenbaker, T. D.
Bowman
Whittaker, W. L.
Orangeburg
Wolf, F. U.
North
Wolf, J. J.
North
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Pickens County.
Free Tuition—
Merck, W. L. Calhoun
McHugh, M. L. Clemson College
Parkins, D. F. Liberty
Richbourg, E. B. Liberty
Yongue, C. Pickens

Pay Tuition—
Boiggs, A. K., Jr. Pickens
Boiggs, L. K. Liberty
Freeman, J. F. Pickens
Freeman, J. L. Pickens
Gaines, R. G., Jr. Central
Gaines, H. I. Central
Hendricks, D. Easley
Kay, A. E. Easley
Kay, L. R. Easley
Kelley, D. D. Central
Merritt, M. S. Easley
Pepper, E. F. Easley
Watkins, W. W. Easley
Williams, N. Easley
Wyatt, W. F. Easley

Scholarship—
Jones, J. D. Liberty
Jones, S. C. Easley
Moore, W. D. Seneca

Richland County.
Free Tuition—
Bates, J. M. Wateree
Drew, B. L. Columbia
Dwight, F. M. 1st Eastover

Pay Tuition—
Chappell, L. C., Jr. Lykesland
Childs, L. H. Columbia
Clemens, J. F. Columbia
Coleman, R. L. Bookman
Coles, A. P. Columbia
DuPre E. R. Columbia
Ford, C. R. Columbia
Hollowell, J. R. Columbia
Hollowell, J. G. Columbia
Jones, H. J. Congaree
Kelly, H. C. Congaree
Lachicotte, L. H. Columbia
Madden, L. E. Columbia
Moore, J. S., Jr. Columbia
Price, G. D. Eastover
Quattlebaum, W. M. Columbia
Robinson, H. B. Columbia
Stork, R. B. Columbia
Stork, R. C. Columbia
Taylor, T. Columbia

Scholarship—
Langford, G. S. Blythewood
Rawl, E. H. Columbia
Rawlinson, G. S. Eastover
Riley, E. L. Blythewood
Smith, M. C. Hopkins
Watkins, J. S. Columbia

Saluda County.
Free Tuition—
Merchant, V. E. Chappells
Stanford, Harvey Leesville

Pay Tuition—
Coleman, J. V. Silverstreet
Forrest, H. A. Saluda
Kempson, J. M. Silverstreet
Quattlebaum, C. A. Ridge Springs
Waters, P. B. Saluda

Scholarship—
Bodie, D. D. Batesburg

Spartanburg County.
Free Tuition—
Campbell, C. D. Wellford
Freeman, E. J. Spartanburg
Freeman, R. A. Spartanburg
Mabry, W. L. Spartanburg
Short, J. C. Woodruff
Walker, R. C. Spartanburg
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Pay Tuition—
Alley, W. H.
Spartanburg
Ballenger, A. R.
Wellford
Barnes, W. M.
Spartanburg
Bishop, G.
Inman
Clyde, P. M.
Spartanburg
Cannon, W. S.
Spartanburg
Carrington, J. H.
Spartanburg
Dean, G. B.
Spartanburg
Dunbar, J. Y.
Spartanburg
Dula, A. H.
Spartanburg
Fitzgerald, J. B.
Spartanburg
Foster, H. M.
Roebuck
Grav, J. L.
Woodruff
Hagood, W. McD.
Spartanburg
Halstead, R. T.
Spartanburg
Heffner, L. B.
Spartanburg
McCord, W. L.
Spartanburg
Sams, M. W.
Spartanburg
Scruggs, J. L.
Spartanburg
Smith, A. P.
Pauline
Smith, W. M.
Spartanburg
West, H. J.
Whetstone
Wright, A. A.
Spartanburg

Scholarship—
Cox, G.
Woodruff
Morgan, T. W.
Wellford

Odell, J. H.
Spartanburg

Sumter County.

Free Tuition—
Cain, O. W.
Sumter
Hammond, J. A.
Sumter
Mellette, R. S.
Sumter
Parker, J. M.
Dalzell
Ramsey, N. G.
Wedgefield
Randle, M. B.
Sumter
Wright, E. D.
Wedgefield
Young, S. C.
Rembert

Pay Tuition—
Dwight, R. C.
Wedgefield
Mays, R. P.
Maysville
Pitts, E. M.
Sumter
Pitts, L. A.
Sumter
Robinson, W. M.
Oswego
Ryan, M. S.
Wedgefield
Truluck, J. P.
Motbridge
Truluck, T. D.
Lynchburg
Truluck, W. E.
Motbridge
Wells, W. R.
Sumter

Scholarship—
Dwight, F. M., 2nd
Sumter
Kolb, R. F.
Sumter
Ramsey, W. H., Jr.
Wedgefield
Ryan, J. H.
Wedgefield

Union County.

Free Tuition—
Culp, W. W.
Union
Williams, E. W.
Jonesville

Pay Tuition—
Calvert, B. A.
Jonesville
Calvert, L. F.
Jonesville
Fowler, W. W.
Jonesville
Jeter, M. C.
Santuck
Jones, J. E.
Union
Stewart, J. M.
Rock Hill
Wallace, F. M.
Union
Wallace, W. H.
Union
Young, J. L.
Union

Scholarship—
Murphy, W. B.
Union
Thornton, M.
Lockhart

Williamsburg County.

Pay Tuition—
Gamble, J. P.
Greelyville
Huggins, T. E.
Hemmingway
McCullough, T. G.
Kingstree
Snow, J. J., Jr.
Henry
CLASSIFICATION OF STUDENTS AS REGARDS PAYMENT OF TUITION AND HOLDING OF SCHOLARSHIPS—(Continued)

Scholarship—
Clemmons, S. P.
Greelyville
McKnight, L.
Andrews

York County.

Free Tuition—
Adickes, W.
York
Poag, L. M.
Rock Hill

Pay Tuition—
Bratton, R. B.
McConnellsville
Brice, R. W.
York

Byers, W. B.
Rock Hill
Campbell, T. A.
Tirzah
Gettys, E. F.
York
Glascock, E. P.
Catawba
Kinard, J. P., Jr.
Rock Hill
Logan, F. R.
York
Simsboro, La.
York
Poe, O. S., Jr.
Rock Hill
Quinn, J. W.
York
Reid, C. D., Jr.
Rock Hill
Smarr, R. G.
Bullocks Creek

Scholarship—
Erwin, W. J.
Fort Mill
Harshaw, H. J.
McConnellsville
Hayes, S.
Rock Hill
Hill, W. C.
Rock Hill
Kirkpatrick, M. H.
Sharon
Plexico, R. S.
Rock Hill
Robinson, H. E.
Sharon
Walsh, J. N.
York

Non-Resident Students

V. Chambliss,
Hardinsburg, Ky.
Duggan, I. W.
Clayton, Ga.
Hart, W. L.
Washington, D. C.
Henriquez, C. S.
Jamaica, B. W. I.
Jackson, T. S.
Thomaston, Ga.
Jones, W. F.
Selma, Ala.
Jones, W. R.
Selma
Manning, T. C.
Waldo, Fla.
Meacham, J. F.
Graniteville, Ga.
Melson, H. R.
Genola, Ga.
Moore, J. B.
Cornelia, Ga.
Morecock, E. M.
Buckroe Beach, Va.
McDonald, W. S.
Gainesville, Ga.
McGee, G. W., 1st
Houston, Texas.
McGougan, J. B.
Tabor, N. C.
Palmer, G. D.
Helena, Ark.
Pfeiffer, C. A.
Miami, Fla.
Reddfern, W. M.
Wadesboro, N. C.
Rode, N. F.
Hampton, Va.
Sanders, H. C.
Simsboro, La.
Schenck, J. R.
Greensboro, N. C.
Short, W. J.
Buena Vista, Ga.
Smith, C. E.
Charlotte, N. C.
Spoon, L. P.
Petersburg, Va.
Taylor, F. E.
Macon, Ga.
Zemp, C. H.
Charlotte, N. C.
Report of The Treasurer For The Fiscal Year
July 1, 1918, to June 30, 1919

RESOURCES

DR.
Income—

Privilege Fertilizer Tax $258,477.10
Interest on Clemson Bequest 3,512.36
Interest on Landscrip 5,754.00
Morrill and Nelson Fund (U. S.) 25,000.00
Tuition from Cadets 13,575.73
Sales, Interest, Rents, etc. 9,431.35 $315,750.54

EXPENDITURES

CR.
Public Service—

Agricultural Education $ 2,683.02
Scholarships and Advertisements 14,544.53
Coast Experiment Station 2,556.01
Crop Pest Commission 3,857.17
Fertilizer Analysis 9,819.73
Fertilizer Inspection 20,328.91
Industrial Education 670.58
Miscellaneous Public Service 1,396.01
Pee Dee Experiment Station 3,353.56
S. C. Experiment Station 2,720.52
Veterinary Inspection 4,920.90 $ 66,850.74

College Operating Expenses—

Salaries, Labor, Coal, Materials, etc. $165,438.01
Equipment for Teaching 10,939.56
Improvements and Additions to Plant 15,302.18 26,241.74

Sinking Fund to Repay Loan 10,000.00
Reserve Fund to Insure College Finan-
ces during Season of small Fertilizer
Sales, July 1st to January 1st 47,220.05 57,220.05

Total $315,750.54
The following is a more detailed statement, showing the Expenditures and Cost of the Public State Work, and each Department and Division of the College, under the items appropriated by the Board of Trustees:

**PUBLIC STATE WORK DEPARTMENT**

**Agricultural Education**—
- Freight and Express $39.09
- Stamps, Stationery and Printing 200.31
- Mimeograph Supplies 349.99
- Travel of Supervisor and Assistant 1,433.63
- Clerk and Stenographer 660.00—$2,683.02

**Scholarship and Advertisements**—
- Scholarships and Advertisements $14,544.53—$14,544.53

**Coast Experiments**—
- Salary of Superintendent $1,677.71
- Forestry Experiments 99.05
- Orchard and Vineyard Experiments 122.65
- Hog Grazing Experiments 100.00
- Labor on Ornamental Grounds 17.50
- Labor—Plot Work 99.75
- Repairing Fences 85.75
- Tools and Implements 139.40
- Fencing and Grazing Experiments 149.30
- Repairs to Coast Station Residence 64.90—$2,556.01

**Crop Pest Commission**—
- Salaries $2,000.00
- Labor (Quarantine Work) 535.97
- Tag Loan Fund 168.85
- Expenses of Entomologist and Assistant 807.32
- Expenses of Pathologist 162.00
- Office Supplies, Telegrams, etc. 187.03—$3,857.17

**Fertilizer Analysis**—
- Salaries $7,612.99
- Apparatus 219.11
- Chemicals 746.91
- Gasoline 400.00
- Record books, Postage, etc. 89.20
- Incidents 21.94
- Labor—Janitor 150.00
- Extra Help in Laboratory and Office 289.20
- Emergency Supplies, Labor, etc. 233.34
- Traveling Expenses 57.04—$9,819.74
### Fertilizer Inspection—
- Salaries ........................................... $3,199.92
- Labor—Janitor .................................... 305.00
- Tags and Printing ................................. 7,363.10
- Pay and Travel of Inspectors .................. 7,753.39
- Printing and Mailing Bulletins ............... 115.90
- Freight, Postage and Incidentals ............. 590.43
- Legal Services ................................... 250.00
- Fertilizer Bulletins .............................. 529.00
- Inspectors Cases, Trunks, etc. ................. 222.17—$ 20,328.91

### Industrial Education—
- Travel of Supervisor ........................... $472.09
- One-half Travel of Prof. Indust. Educ'n ....... 166.24
- One-half of Office Expenses .................... 32.25—$ 670.58

### Miscellaneous State Work—
- Travel and Entertainm't of Committees $112.85
- Contribution to Local School .................. 400.00
- Summer School .................................. 129.56
- Deficit State Bankers Association ............ 403.60
- Reimbursement of Laurens County ............ 200.00
- Special Contribution to High School ........ 150.00—$ 1,396.01

### Pee Dee Station—
- Salary of Superintendent ...................... $1,699.92
- Graduate Student Assistant .................... 376.28
- Horticultural Work .............................. 91.66
- Gin and Storage House ........................ 882.64
- Tools and Implements .......................... 199.00
- Hog Houses and Farrowing Pens ............... 104.06—$ 3,353.56

### South Carolina Experiment Station—
- Travel to Sub-Stations ........................ $330.68
- Attending Conventions ......................... 99.74
- Travel and other Expenses incident to War Emergency Board of Plant Pathology ........ 101.31
- Publication of Bulletins ....................... 300.00
- Breeding Projects ............................... 1,888.59—$ 2,720.32

### Veterinary Inspection—
- Salaries ........................................... $3,365.14
- Travel, Printing and Office Exp. ............. 1,432.91
- Graduate Student Assistant .................... 122.85—$ 4,920.90

### Public State Work Expenditures ............ $66,850.74
### College Work

#### Academic Department

<table>
<thead>
<tr>
<th>Division</th>
<th>Item Description</th>
<th>Amount</th>
<th>Total</th>
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<tr>
<td>English Division</td>
<td>Stationery</td>
<td>$6.75</td>
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<td>History Division</td>
<td>Periodicals for Class Room Use</td>
<td>$48.86</td>
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<td>Printing Exercises</td>
<td>$7.85</td>
<td>$56.71</td>
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<td>Mathematics Division</td>
<td>Repairs to Furniture and Equipment</td>
<td>$51.05</td>
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<tr>
<td>Office and Unclassified Division</td>
<td>Labor—Janitors</td>
<td>$612.01</td>
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<td>Chalk, Erasers, Brooms, Stationery</td>
<td>$139.90</td>
<td>$751.91</td>
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<td>Physics Division</td>
<td>Laboratory Supplies and Repairs</td>
<td>$122.70</td>
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<td>Apparatus for Mechanics and Heat</td>
<td>112.35</td>
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<td>Apparatus for Light and Sound</td>
<td>135.00</td>
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<td>Apparatus for Electricity and Magnetism</td>
<td>312.49</td>
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<td>Apparatus for Wireless Work</td>
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<td>Instrument Cases</td>
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<td>Reference Books</td>
<td>$49.95</td>
<td>$1,095.56</td>
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<td>Salaries</td>
<td>Salaries—Professors and Assistants</td>
<td>$26,008.46</td>
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<td>Department Expenditures</td>
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<td>$27,970.44</td>
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### Agricultural Department

#### Agricultural Education Division

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<td>Typewriter</td>
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<tr>
<td>Office Equipment</td>
<td>$114.87</td>
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<tr>
<td>Cases for Class Work Material</td>
<td>20.00</td>
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<td>Material for Charts, Maps, etc.</td>
<td>30.00</td>
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<tr>
<td>Lantern Slides</td>
<td>25.00</td>
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<td>Psychological Apparatus</td>
<td>$55.45</td>
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#### Agronomy Division

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<tbody>
<tr>
<td>Cement, Gasoline, Oil, etc.</td>
<td>$250.00</td>
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<tr>
<td>Seed, Score Cards, etc.</td>
<td>103.88</td>
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<tr>
<td>Repairs and Parts for Machines</td>
<td>30.00</td>
</tr>
<tr>
<td>Material for Class Work</td>
<td>94.05</td>
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</tbody>
</table>
Laboratory Equipment 93.77
Office Equipment 69.72
Machines for Farm Laboratory 1,580.05
Piping for Water—Machinery Building 28.41—$ 2,249.88

Animal Husbandry Division—
Repairs to Fences 198.17
Janitor—Dairy Building 260.17
Janitor and Miscellaneous Supplies 74.92
Labor, Fertilizers, etc., for Hog Farm— 473.82
Live Stock Registration Book 26.91
Hog Plots, Pastures, etc. 461.49
Tools and Implements 186.59
Hog Houses 478.13—$ 2,160.20

Botany and Bacteriology Division—
Botanical Publications $ 50.92
Glassware and Laboratory Supplies 297.24
Collecting Materials 40.00
Repairs and Replacements 99.80
Stools 37.50
Physiological Apparatus 299.71
Storage Cases 75.00
Microscope Cabinet 40.00
Refrigerator 84.01—$ 1,024.18

Dairy Division—
Freight and Repairs $ 29.32
Glassware and Chemicals 98.20
Labor and Operating Expenses 100.00
Upkeep of Fences 148.82
Small Lab’y Equipment 73.05
Tables for Laboratory 25.00—$ 474.39

Department Library Division—
Cases $ 88.51—$ 88.51

Entomology and Zoology Division—
Class and Laboratory Materials $ 107.79
Labor 142.49
Repairs to Instruments 98.61
Spray Apparatus 100.36—$ 449.25

Geology and Mineralogy Division—
Chemicals and Lab. Supplies and Rep’rs $ 52.03
Labor 30.00—$ 82.03
Horticultural Division—

<table>
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<th>Item</th>
<th>Amount</th>
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<td>Labor</td>
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<td>Fertilizers</td>
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<td>Seeds, Plants, etc.</td>
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<td>Greenhouse Supplies and Repairs</td>
<td>73.88</td>
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<td>Coal for Greenhouse</td>
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<td>Spray Apparatus and Materials</td>
<td>67.73</td>
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<tr>
<td>Feed for Two Mules</td>
<td>297.88</td>
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<tr>
<td>Tools for Class Use</td>
<td>59.17</td>
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<td>Replacing Plants in Greenhouse</td>
<td>52.71—$2,189.80</td>
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Office and Unclassified Division—

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<td>Janitor</td>
<td>$261.66</td>
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<td>Janitor Supplies</td>
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<td>Gasoline</td>
<td>300.00</td>
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<td>Attending Conventions, etc.</td>
<td>97.53</td>
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<tr>
<td>Stationery, Postage, etc.</td>
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<td>Upkeep of Buildings</td>
<td>47.52</td>
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<td>Mimeograph Machine</td>
<td>113.81</td>
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<td>Shades for Windows</td>
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<tr>
<td>Filing Cases</td>
<td>26.75—$1,543.11</td>
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Poultry Husbandry Division—

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<td>Feed</td>
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<td>Class Room Supplies</td>
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<td>Poultry Equipment</td>
<td>849.31—$1,609.91</td>
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AGRICULTURAL DEPARTMENT

Soils Division—

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<td>Supplies and Small Apparatus</td>
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<tr>
<td>Electric Oven</td>
<td>50.00—$149.82</td>
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Veterinary Science Division—

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<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janitor and Extra Labor</td>
<td>$395.60</td>
</tr>
<tr>
<td>Coal</td>
<td>37.73</td>
</tr>
<tr>
<td>Laboratory Supplies for Class Work</td>
<td>61.74</td>
</tr>
<tr>
<td>Gasoline for Gas Machine</td>
<td>67.06</td>
</tr>
<tr>
<td>Veterinary Journals</td>
<td>3.00</td>
</tr>
<tr>
<td>Feed, Drugs, etc.</td>
<td>260.26—$825.39</td>
</tr>
</tbody>
</table>

Salaries—

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries—Professors and Assistants</td>
<td>$23,532.36</td>
</tr>
</tbody>
</table>

Department Expenditures

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Expenditures</td>
<td>$36,673.92</td>
</tr>
</tbody>
</table>
**CHEMICAL DEPARTMENT**

**Chemistry Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apparatus</td>
<td>$729.98</td>
</tr>
<tr>
<td>Chemicals and Supplies</td>
<td>$840.60</td>
</tr>
<tr>
<td>Gasoline</td>
<td>$250.00</td>
</tr>
<tr>
<td>Books, Journals, and Bindings</td>
<td>$107.19</td>
</tr>
<tr>
<td>Labor—Janitor</td>
<td>$140.00</td>
</tr>
<tr>
<td>Incidentalts</td>
<td>$51.52</td>
</tr>
<tr>
<td>Aprons for Laboratory Students</td>
<td>$46.95</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,166.22</strong></td>
</tr>
</tbody>
</table>

**Salaries**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries—Professors and Assistants</td>
<td>$6,247.07</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$6,247.07</strong></td>
</tr>
</tbody>
</table>

**Department Expenditures**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>$8,413.29</strong></td>
</tr>
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**ENGINEERING DEPARTMENT**

**Civil Engineering Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Materials, etc.</td>
<td>$39.33</td>
</tr>
<tr>
<td>Repairs and Replacements to Apparatus</td>
<td></td>
</tr>
<tr>
<td>and Furniture</td>
<td>$108.07</td>
</tr>
<tr>
<td>Complete Plane Table</td>
<td>$255.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$402.40</strong></td>
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</table>

**Mechanical and Free Hand Drawing Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials, Ink, Paper, etc.</td>
<td>$50.00</td>
</tr>
<tr>
<td>Repairs and Renewal of Apparatus</td>
<td>$64.15</td>
</tr>
<tr>
<td>Expenses of Architectural Contest</td>
<td>$25.02</td>
</tr>
<tr>
<td>Subscriptions to Arch. Magazines</td>
<td>$50.89</td>
</tr>
<tr>
<td>Reference Books</td>
<td>$150.00</td>
</tr>
<tr>
<td>Blue Print Frame on Track</td>
<td>$75.00</td>
</tr>
<tr>
<td>Architectural Table</td>
<td>$90.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$505.06</strong></td>
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</table>

**Electrical Engineering Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior Lab'y Supplies</td>
<td>$47.66</td>
</tr>
<tr>
<td>Senior Lab'y Supplies</td>
<td>$60.00</td>
</tr>
<tr>
<td>Repairs and Renewals</td>
<td>$104.00</td>
</tr>
<tr>
<td>Class and Lab'y Notes for Students</td>
<td>$30.00</td>
</tr>
<tr>
<td>Student Assistant</td>
<td>$213.59</td>
</tr>
<tr>
<td>Storage Batteries</td>
<td>$111.90</td>
</tr>
<tr>
<td>Variable Standard Condenser</td>
<td>$108.00</td>
</tr>
<tr>
<td>Tungar Rectifier</td>
<td>$105.00</td>
</tr>
<tr>
<td>Two Hand Tachometers</td>
<td>$110.00</td>
</tr>
<tr>
<td>One Tachoscope</td>
<td>$50.00</td>
</tr>
</tbody>
</table>
Two D. C. Voltmeters .......................... 140.00
Two D. C. Ammeters .......................... 144.00
Two Frequency Meters ......................... 130.00
One Wagner Type Meter ....................... 175.00
One Double Dynamo Set ....................... 698.00
Form K Rotor for above ..................... 90.00
Form M. Rotor for above ................... 175.00
Freight on Machines this Year ............. 91.59—$ 2,183.11

Forge and Foundry Division—
Labor ........................................... $ 355.00
Iron and Steel for Forge .................... 293.12
Repairs and Replacements ................... 68.43
Supplies as Plumbago, Flour, etc. .......... 48.94
Coal for Forge ................................ 249.60
Pig Iron and Brass for Foundry ............ 148.75
Moulding Sand ................................ 57.00
Coke for Foundry .............................. 65.00
Anvils ........................................... 153.60—$ 1,439.44

Machine Shop Division—
Machinist ...................................... $ 306.00
Repairs, Replacements of Tools, etc ........ 93.11
Shop Material .................................. 175.52—$ 574.63

Mechanical Engineering Division—
Laboratory Supplies ......................... $ 76.71
Data Blanks .................................... 15.00
Repairs and Replacements ................... 30.00
Barometer ..................................... 20.00
Air Testing Outfit ........................... 67.50
Gasoline and Kerosene Tanks ............... 21.00
Freight on Machinery bought this Year ...... 8.79—$ 239.00

Office and Unclassified Division—
Labor—Janitor .................................. $ 250.00
Office and Janitor Supplies .................. 199.68
Upkeep of Engineering Building ............. 20.00
Attendance on Conventions ................... 99.99
Incidentals ..................................... 1.59—$ 571.26

Wood Shop Division—
Labor ........................................... $ 384.90
Supplies, Lumber, Hardware, etc. .......... 415.20
Repairs and Replacements of Tools, etc. ... 168.90
Laths and Counter Shafting .................. 422.79—$ 1,391.79
### MILITARY DEPARTMENT

**Office and Unclassified Division—**
- Postage, Stationery and Record Books $388.94
- Premium on Ordnance Bond 90.79
- Military Supplies 155.81
- Upkeep of Band 44.14
- Losses of Federal Property 8.00
- Band Instruments 133.63
- Sabres for Cadet Officers 398.50
- Class Equipment, Maps etc. 28.47
- Rebuilding Target Range 31.40
- College Colors 175.00 — $1,454.68

**Salaries—**
- Salaries—Commandant and Assistants $3,510.19

**Department Expenditures** $4,964.87

### TEXTILE DEPARTMENT

**Carding and Spinning Division—**
- Cotton for Class Use $173.40
- Repairs and Supplies 133.93
- Materials for Cotton Grading 3.16
- Strength and Elasticity Apparatus 477.78 — $788.27

**Dyeing Division—**
- Chemicals and Dye Stuffs $91.86
- Glassware and Laboratory Supplies 146.65
- Miscellaneous Small Lab'y Apparatus 197.18 — $435.69

**Office and Unclassified Division—**
- Janitor and Engineer $395.90
- Gasoline 66.91
- Stationery, Postage, etc. 35.54
- Mill Boy Helper 340.46
<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textile Periodicals</td>
<td>8.00</td>
</tr>
<tr>
<td>Typewriter</td>
<td>97.40</td>
</tr>
<tr>
<td>Desk Chair</td>
<td>10.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$951.51</strong></td>
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</table>

**Weaving Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warp and Filling Yarn</td>
<td>$198.58</td>
</tr>
<tr>
<td>Loom Supplies and Repairs</td>
<td>118.15</td>
</tr>
<tr>
<td>Sampels for Cloth Analysis</td>
<td>4.00</td>
</tr>
<tr>
<td>Knitting Yarns</td>
<td>25.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$345.78</strong></td>
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</tbody>
</table>

**Salaries**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries—Director and Assistants</td>
<td>$4,806.02</td>
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</tbody>
</table>

**Department Expenditures**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td><strong>$7,327.22</strong></td>
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**PUBLIC UTILITIES DEPARTMENT**

**Campus Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>$1,163.18</td>
</tr>
<tr>
<td>Fertilizer, Seed and Manure</td>
<td>345.00</td>
</tr>
<tr>
<td>Feed and Upkeep of Two Mules</td>
<td>389.65</td>
</tr>
<tr>
<td>Tools and Implements</td>
<td>144.30</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$2,042.13</strong></td>
</tr>
</tbody>
</table>

**Construction and Repair Department**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Supplies, Postage, etc.</td>
<td>$50.00</td>
</tr>
<tr>
<td>Repairs and Renewals of Apparatus</td>
<td>24.41</td>
</tr>
<tr>
<td>Tools and Implements</td>
<td>46.53</td>
</tr>
<tr>
<td>Misc. Unforeseen Repairs</td>
<td>538.03</td>
</tr>
<tr>
<td>Inside Painting</td>
<td>200.00</td>
</tr>
<tr>
<td>Repairs to Room No. 18, Agr. Hall</td>
<td>31.81</td>
</tr>
<tr>
<td>New Gym. Floor</td>
<td>716.00</td>
</tr>
<tr>
<td>Plastering and Painting 30 Rooms, Barracks No. 1</td>
<td>1,049.14</td>
</tr>
<tr>
<td>Repairs to Closet Bldg., Barracks 1</td>
<td>510.05</td>
</tr>
<tr>
<td>Step Treads, Barracks 1</td>
<td>105.00</td>
</tr>
<tr>
<td>Alteration Rooms, Barracks 1</td>
<td>132.65</td>
</tr>
<tr>
<td>Repairs to Conductor Pipe, Barracks 2</td>
<td>17.70</td>
</tr>
<tr>
<td>New Roof, Cement House</td>
<td>33.75</td>
</tr>
<tr>
<td>Paint Outside Cement House</td>
<td>17.32</td>
</tr>
<tr>
<td>Reset Stone Steps, Chapel</td>
<td>50.00</td>
</tr>
<tr>
<td>Repairs Inside Calhoun Mansion</td>
<td>4.90</td>
</tr>
<tr>
<td>Kalsomining 1st and 2nd Stories of Dairy Building</td>
<td>119.73</td>
</tr>
<tr>
<td>Painting 1st and 2nd Stories Dairy Building</td>
<td>58.83</td>
</tr>
<tr>
<td>Kalsomining and Painting Basement of</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Amount</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>Dairy Building</td>
<td>146.04</td>
</tr>
<tr>
<td>Inside Kalsomining Engineering Bldg.</td>
<td>21.26</td>
</tr>
<tr>
<td>Kalsomining Fertilizer Building</td>
<td>15.60</td>
</tr>
<tr>
<td>New Roof, Horticultural Barn</td>
<td>133.44</td>
</tr>
<tr>
<td>Painting Outside Seed House</td>
<td>58.66</td>
</tr>
<tr>
<td>Stove Flue Horticultural Greenhouse</td>
<td>28.12</td>
</tr>
<tr>
<td>Painting Clock Dial, Main Building</td>
<td>50.00</td>
</tr>
<tr>
<td>Inside Painting and Kalsomining Trustee House</td>
<td>149.80</td>
</tr>
<tr>
<td>Repairs to Fence, Veterinary Hospital</td>
<td>28.17</td>
</tr>
<tr>
<td>Office Window Screens, Veterinary Hos.</td>
<td>11.54</td>
</tr>
<tr>
<td>Painting Inside Swimming Pool</td>
<td>232.18</td>
</tr>
<tr>
<td>Renew Outside Closet Stairs, Hotel</td>
<td>67.20</td>
</tr>
<tr>
<td>Repairs and Renewals of Locks and Keys, Hotel</td>
<td>49.35</td>
</tr>
<tr>
<td>Repairs to Electric Wiring, Hotel</td>
<td>25.00</td>
</tr>
<tr>
<td>Paint Outside Hotel</td>
<td>100.00</td>
</tr>
<tr>
<td>Inside Painting and Kalsomining, Hotel</td>
<td>202.43</td>
</tr>
<tr>
<td>Repairs to Slate Roofs</td>
<td>18.17</td>
</tr>
<tr>
<td>Repairs to Calaboose</td>
<td>72.59</td>
</tr>
<tr>
<td>Salary of Superintendent</td>
<td>1,236.62</td>
</tr>
<tr>
<td>Connecting Doors, Bracket</td>
<td>19.98</td>
</tr>
<tr>
<td>Folding Doors, Daniel</td>
<td>26.08</td>
</tr>
<tr>
<td>Lattice under House, Henry</td>
<td>76.00</td>
</tr>
<tr>
<td>Bannisters on Porch, Henry</td>
<td>40.00</td>
</tr>
<tr>
<td>Two Partitions</td>
<td>104.74</td>
</tr>
<tr>
<td>Connecting Door, Redfern</td>
<td>18.97</td>
</tr>
<tr>
<td>Close up under Floors, Keitt</td>
<td>27.73</td>
</tr>
<tr>
<td>Bin and Floor, Hotel Coal House</td>
<td>90.00</td>
</tr>
<tr>
<td>Stove Flue in Toilet, Hotel</td>
<td>32.69</td>
</tr>
<tr>
<td>Extra Heating Tank and Piping</td>
<td>75.00</td>
</tr>
<tr>
<td>Close up under Closet, Hotel</td>
<td>11.20</td>
</tr>
<tr>
<td>Three Pairs Outside Steps, Hotel</td>
<td>125.14</td>
</tr>
<tr>
<td>Painting and Changes, Hotel Din’g Rm.</td>
<td>146.31</td>
</tr>
<tr>
<td>Heating and Lighting, Hotel Din’g Rm.</td>
<td>129.80</td>
</tr>
<tr>
<td>Two Inside Cupboards, Hotel Din’g Rm.</td>
<td>48.20</td>
</tr>
<tr>
<td>Partition and Shelves, Fert. Building</td>
<td>86.92</td>
</tr>
<tr>
<td>Well in W. L. H.’s Yard</td>
<td>50.00</td>
</tr>
<tr>
<td>Additions to Sanitary Closets for Servants</td>
<td>200.00</td>
</tr>
<tr>
<td>Partition—Agricultural Hall</td>
<td>100.00</td>
</tr>
<tr>
<td>Student’s Closet—Agricultural Hall</td>
<td>283.90</td>
</tr>
<tr>
<td>Repairs to Hotel Kitchen Chimney</td>
<td>243.64—$8,288.32</td>
</tr>
</tbody>
</table>

Farm Division—

Repairs to Dike                                        $1,000.00—$1,000.00
**Heat, Light and Water Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>$4,106.10</td>
</tr>
<tr>
<td>Materials, Repairs and Extensions</td>
<td>$1,599.92</td>
</tr>
<tr>
<td>Coal</td>
<td>$13,439.83</td>
</tr>
<tr>
<td>Filtration Plant</td>
<td>$8,000.00</td>
</tr>
<tr>
<td>Steam Line to Agricultural Hall</td>
<td>$499.95</td>
</tr>
<tr>
<td>Closets for Barracks</td>
<td>$153.73</td>
</tr>
</tbody>
</table>

**Total**                                                              | **$27,799.53**

**Roads, Sidewalks and Hauling**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor</td>
<td>$972.00</td>
</tr>
<tr>
<td>Feed, Upkeep 6 Mules, Gasoline, etc.</td>
<td>$1,008.00</td>
</tr>
<tr>
<td>Repairs</td>
<td>$100.00</td>
</tr>
<tr>
<td>Upkeep of Campus Roads</td>
<td>$1,800.00</td>
</tr>
<tr>
<td>Salary of Superintendent J. P. L.</td>
<td>$1,200.00</td>
</tr>
<tr>
<td>Cement Work for Campus</td>
<td>$300.00</td>
</tr>
<tr>
<td>Work on Station Road</td>
<td>$150.00</td>
</tr>
</tbody>
</table>

**Total**                                                              | **$5,530.00**

**Watchmen Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries—Watchmen</td>
<td>$548.77</td>
</tr>
<tr>
<td>Supplies</td>
<td>$19.13</td>
</tr>
</tbody>
</table>

**Total**                                                              | **$567.90**

**Department Expenditures**                                            | **$45,227.88**

**MISCELLANEOUS DEPARTMENT**

**Hospital Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utensils, etc.</td>
<td>$30.00</td>
</tr>
</tbody>
</table>

**Hospital Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furniture for Hotel Annex</td>
<td>$595.95</td>
</tr>
</tbody>
</table>

**Library Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magazines</td>
<td>$240.45</td>
</tr>
<tr>
<td>Bindings</td>
<td>$200.00</td>
</tr>
<tr>
<td>Supplies, Cards, Stationery, etc.</td>
<td>$70.84</td>
</tr>
<tr>
<td>Membership dues to Societies</td>
<td>$21.50</td>
</tr>
<tr>
<td>Salaries</td>
<td>$1,349.92</td>
</tr>
<tr>
<td>Books</td>
<td>$1,011.89</td>
</tr>
<tr>
<td>Book Stacks</td>
<td>$70.00</td>
</tr>
</tbody>
</table>

**Miscellaneous Items**

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expenses of Trustees and Board of Visitors</td>
<td>$1,098.29</td>
</tr>
<tr>
<td>Insurance</td>
<td>$5,335.51</td>
</tr>
<tr>
<td>Contingent and Incidental Expense</td>
<td>$1,005.86</td>
</tr>
<tr>
<td>Item</td>
<td>Amount</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Ministers</td>
<td>1,715.38</td>
</tr>
<tr>
<td>Y. M. C. A. Secretary</td>
<td>499.92</td>
</tr>
<tr>
<td>College S. S. Literature</td>
<td>10.85</td>
</tr>
<tr>
<td>College Catalog</td>
<td>620.16</td>
</tr>
<tr>
<td>Annual Report to Legislature</td>
<td>55.75</td>
</tr>
<tr>
<td>Lyceum Lectures, etc.</td>
<td>200.00</td>
</tr>
<tr>
<td>Commencement Expenses</td>
<td>361.94</td>
</tr>
<tr>
<td>Trustees' Medal</td>
<td>25.00</td>
</tr>
<tr>
<td>Upkeep of Telephone System</td>
<td>99.26</td>
</tr>
<tr>
<td>Telephone and Telegraph Operator</td>
<td>399.23</td>
</tr>
<tr>
<td>Chapel Lecture Series</td>
<td>33.46</td>
</tr>
<tr>
<td>Membership—College—National Ass'ns</td>
<td>75.00</td>
</tr>
<tr>
<td>Examination Booklets</td>
<td>191.01</td>
</tr>
<tr>
<td>Salary of Magistrate</td>
<td>41.61</td>
</tr>
<tr>
<td>Telephone Line to Central</td>
<td>400.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 12,168.23</strong></td>
</tr>
</tbody>
</table>

**President's Office Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stamps, Stationery, Supplies, etc.</td>
<td>989.70</td>
</tr>
<tr>
<td>Traveling Fund, Conventions, etc.</td>
<td>354.47</td>
</tr>
<tr>
<td>Emergency Labor</td>
<td>250.00</td>
</tr>
<tr>
<td>Salaries, President, Registrar, and Stenographer</td>
<td>7,504.20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 9,098.37</strong></td>
</tr>
</tbody>
</table>

**Special Items Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinking Fund to Redeem Loan</td>
<td>$ 10,000.00</td>
</tr>
<tr>
<td>Reserve Fund to Insure College Finances during season of small Fertilizer Sales, July 1st to January 1st</td>
<td>47,220.05</td>
</tr>
<tr>
<td>Purchase of Lewis Land</td>
<td>2,578.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 59,798.05</strong></td>
</tr>
</tbody>
</table>

**Treasurer's Office Division**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Books, Postage Stationery, etc.</td>
<td>674.78</td>
</tr>
<tr>
<td>Emergency Assistance</td>
<td>589.67</td>
</tr>
<tr>
<td>Premium on Treasurer's Bond</td>
<td>62.50</td>
</tr>
<tr>
<td>Treasurer's Annual Report</td>
<td>191.18</td>
</tr>
<tr>
<td>Audit of Treasurers' Books</td>
<td>285.00</td>
</tr>
<tr>
<td>Salaries—Secretary, Treasurer and Two Bookkeepers</td>
<td>4,383.31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$ 6,186.44</strong></td>
</tr>
</tbody>
</table>

**Department Expenditures**

<table>
<thead>
<tr>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$ 90,841.64</strong></td>
</tr>
</tbody>
</table>
### SUMMARY

**Expenditures by Departments**

<table>
<thead>
<tr>
<th>Department</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public State Work</td>
<td>$66,850.74</td>
</tr>
<tr>
<td>Academic</td>
<td>$27,970.44</td>
</tr>
<tr>
<td>Agricultural</td>
<td>$36,673.92</td>
</tr>
<tr>
<td>Chemical</td>
<td>$8,413.29</td>
</tr>
<tr>
<td>Engineering</td>
<td>$27,480.54</td>
</tr>
<tr>
<td>Military</td>
<td>$4,964.87</td>
</tr>
<tr>
<td>Textile</td>
<td>$7,327.22</td>
</tr>
<tr>
<td>Public Utilities</td>
<td>$45,227.88</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>$90,841.64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$315,750.54</strong></td>
</tr>
</tbody>
</table>
Report of State Bank Examiner


To Honorable Robert A. Cooper, Governor,
    Columbia, S. C.

Sir:

Complying with an act of the Legislature requesting annual audits of all State Institutions by the Bank Examiner’s Department, I have audited the books, accounts and vouchers of the Treasurer of Clemson Agricultural College, as to receipts and disbursements, for the fiscal year July 1st, 1918 and June 30th, 1919, inclusive, ascertaining all book balances as shown by records in office, and reconciling same with bank balances and cash in office, as of June 30th, 1919.

The report shows in condensed form the financial operations of the college for the period named, and in subdivided form, the financial status of its coordinating departments, as indicated on the title page.

Respectfully submitted,

JAS. H. CRAIG,
State Bank Examiner.

GENERAL REPORT

The accounts of the college were carefully examined and it is my opinion that all funds have been administered with economy, consistent with efficiency.

While the total funds handled is quite large, only a comparatively small part of the total expenditure was for the strictly collegiate activities—this in spite of the fact that Clemson College is really a collection of highly technical colleges, requiring high priced experts and expensive machinery and equipment.

During the period audited, expenditures for the college proper amounted to $191,679.75, including improvements and additions to plant and equipment for teaching in the sum of $26,241.74. Public service shows an expenditure of $66,850.74. Extension work shows an expenditure of $113,844.42. Agricultural research work shows an expenditure of $31,078.58.

The College Treasurer handled during the year $172,783.97 of cadet funds and $98,901.87 of student deposits, a total of $271,685.84. This fund is administered solely for the benefit of the students.
An account to which attention is directed in the “Index” on the title page of this report under the general head of “Reinvestment”, is of special interest, inasmuch as the general balance in these accounts goes to swell the apparent expenditures of the college, without actually doing so.

For convenience, the college carries a number of side accounts under the general head of “reinvestments”. Most of these accounts represent merely turn-overs, no income to the college resulting from them.

Our exhibit of reinvestment accounts merely shows the cash standing of these accounts.

The item “Reserve Fund” represents the money necessary to carry the college during the first half of their fiscal year, July 1 to December 31, during which time there are practically no receipts from the fertilizer tax. The $15,837.40 under the account, “Clemson S. A. T. C.”, represents salary payments, etc., made by the college which were refunded by the Government.

The total expenditure under “Reinvestments” amounts to $303,736.13, the value of this account to the college is actually a little less than the Reserve Fund plus the refund by the Government under the S. A. T. C. contract.

The clerical condition of the College Treasurer’s office was found to be in excellent shape and free from errors in final balances. The funds of the college are appropriated on the “Budget System” in which careful consideration is given to every item of appropriation asked for.

In conclusion, I desire to thank the College Treasurer and his efficient help for their kindness and readiness to aid in every way a thorough audit of the institution. I desire also to thank the Trustees and officers of the college for the many courtesies and accommodations extended while in their midst.

EXHIBIT “A”

COLLEGE ACCOUNT

RESOURCES

Privilege Fertilizer Tax  $258,477.10
Interest on Clemson Bequest  3,512.36
Interest on Landscript  5,754.00
Morrill and Nelson Fund (U. S.)  25,000.00
Tuition from Cadets  13,575.73
Sales interest, rents, etc.  9,431.35—$315,750.54
EXPENDITURES

College Operating Expenses—
Salaries, Labor, Coal, Material, etc — $165,438.01
Equipment for teaching — 10,939.56
Improvement and Additional Plant — 15,302.18 — $191,679.75

Public Service—
Agricultural Education — $ 2,683.02
Scholarships and Advertising — 14,544.53
Coast Experiment Station — 2,556.01
Crop Pest Commission — 3,857.17
Fertilizer Analysis — 9,819.73
Fertilizer Inspection — 20,328.91
Industrial Education — 670.58
Miscellaneous Public Service — 1,396.01
Pee Dee Experiment Station — 3,353.56
S. C. Experiment Station — 2,720.32
Veterinary Inspection — 4,920.90 — 66,850.74

Reserves—
Sinking Fund to repay loan — 10,000.00
Against contingent of shortage in Fertilizer Sales — 47,220.05 — 57,220.05

$315,750.54

EXHIBIT “B”

ADAMS AND HATCH FUNDS

RESOURCES
Balance Farm Products July 1, 1918 — $ 1,009.41

Receipts—
Adams Fund — $ 15,000.00
Hatch Fund — 15,000.00
Farm Products — 3,926.61 — 33,926.61

Total Resources — $ 34,936.02
DISBURSEMENTS

Salaries ........................................... $ 16,705.68
Labor .................................................. 5,390.38
Publications ........................................ 628.21
Postage and Stationery .............................. 641.06
Freight and Express ................................ 267.51
Heat, Light and Water .............................. 601.76
Chemical and Laboratory ......................... 606.40
Seeds, plants and supplies ....................... 926.18
Fertilizer ........................................... 1,148.75
Feed Stuffs ........................................ 1,190.75
Library ............................................. 182.17
Tools, machinery and appliances .................. 335.69
Furniture and fixtures ............................ 635.25
Scientific apparatus and specials ............... 1,202.77
Live stock .......................................... 405.93
Traveling Expenses ................................. 20.00
Contingent Expenses ............................... 190.09
Buildings and land --------------------------- $ 31,078.58

Balance July 1, 1919 ............................... 3,857.44

$ 34,936.02

EXHIBIT "C"

EXTENSIVE WORK

Receipts—
Balance July 1, 1918 .............................. $ 294.85
Federal Appropriation ............................ $ 64,919.03
State Appropriation .............................. 54,919.03 $ 119,838.06

Total available .................................. $120,132.91

Disbursements—
Salaries ........................................... $ 78,660.39
Labor .................................................. 378.07
Publications ........................................ 5,645.42
Stationery, and small printing ................... 2,397.12
Postage, telegraph, freight, etc. ............... 1,250.70
Heat, light and water ............................ 46.62
Supplies ........................................... 546.05
Library ............................................. 298.82
Tools, machinery and appliances 264.02
Furniture and Fixtures 3,343.41
Scientific apparatus and specimens 189.60
Live stock 45.00
Travel 20,604.20
Contingent (office rent) 176.00—$113,844.42

Balance July 1, 1919 6,288.49

$120,132.91

EXHIBIT “D”

<table>
<thead>
<tr>
<th>Receipts</th>
<th>Expenditures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance July 1, 1918 $ 8,458.38</td>
<td>$112,738.36</td>
</tr>
<tr>
<td>From Subsistence 117,225.52</td>
<td>9,531.24</td>
</tr>
<tr>
<td>Heat, Light and Water 9,571.19</td>
<td>10,566.23</td>
</tr>
<tr>
<td>Laundry 11,605.13</td>
<td>4,772.75</td>
</tr>
<tr>
<td>Hospital 4,772.75</td>
<td>4,866.92</td>
</tr>
<tr>
<td>Incidental 3,803.71</td>
<td>3,461.55</td>
</tr>
<tr>
<td>Uniforms 14,620.25</td>
<td>14,711.96</td>
</tr>
<tr>
<td>Laboratory Fees 490.44</td>
<td>490.44</td>
</tr>
<tr>
<td>Diploma Fees 337.62</td>
<td>307.90</td>
</tr>
<tr>
<td>Breakage 1,898.98</td>
<td>1,898.98</td>
</tr>
<tr>
<td>Miscellaneous 4,195.06</td>
<td>10,015.33</td>
</tr>
<tr>
<td>Balance July 1, 1919</td>
<td>$172,783.97</td>
</tr>
</tbody>
</table>

$172,783.97

CADET DEPOSITS

| Balance July 1, 1919 | $ 1,065.69 |
| Deposits 98,477.85 |

Total 99,543.54
Checks paid 98,901.87

Balance July 1, 1919 641.67
EXHIBIT "E"

CONDENSED STATEMENT

Sources of College Revenue and Operating Expenses for Year, July 1, 1918 and June 30, 1919, Inclusive

**INCOME**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance July 1, 1918 (Cadet Deposits)</td>
<td>$1,065.69</td>
</tr>
<tr>
<td></td>
<td><strong>$7,319.47</strong></td>
</tr>
</tbody>
</table>

**College Receipts—**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privilege Fertilizer Tax</td>
<td>$258,477.10</td>
</tr>
<tr>
<td>Morrill Fund</td>
<td>25,000.00</td>
</tr>
<tr>
<td>Clemson Request</td>
<td>3,512.36</td>
</tr>
<tr>
<td>Landscript Fund</td>
<td>5,754.00</td>
</tr>
<tr>
<td>Miscellaneous (Transfer)</td>
<td>9,431.35</td>
</tr>
<tr>
<td>Tuition (less refunds $619.05)</td>
<td>13,575.73—$315,750.54</td>
</tr>
</tbody>
</table>

**Received Under Federal Legislation—**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith-Lever Fund (U. S.)</td>
<td>$64,919.03</td>
</tr>
<tr>
<td>Smith-Lever Fund (State)</td>
<td>54,919.03</td>
</tr>
<tr>
<td>Hatch Fund (U. S.)</td>
<td>15,000.00</td>
</tr>
<tr>
<td>Adams Fund (U. S.)</td>
<td>15,000.00</td>
</tr>
<tr>
<td>S. C. Experiment Station Reinvestment</td>
<td>3,926.61—$153,764.67</td>
</tr>
</tbody>
</table>

**Reinvestment Fund**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reinvestment Fund</td>
<td>$399,872.56</td>
</tr>
<tr>
<td>Cadet Fund</td>
<td>226,835.02</td>
</tr>
<tr>
<td>Cadets Deposits Personal</td>
<td>98,477.85</td>
</tr>
</tbody>
</table>

**Total Funds Available**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Funds Available</td>
<td><strong>$1,202,020.11</strong></td>
</tr>
</tbody>
</table>

**EXPENDITURES**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>College</td>
<td>315,750.54</td>
</tr>
<tr>
<td>Cadet Fund</td>
<td>224,158.57</td>
</tr>
<tr>
<td>Hatch Fund</td>
<td>15,000.00</td>
</tr>
<tr>
<td>Adams Fund</td>
<td>15,000.00</td>
</tr>
<tr>
<td>Farm Products</td>
<td>1,078.58</td>
</tr>
<tr>
<td>Smith-Lever Fund (U. S.)</td>
<td>62,940.17</td>
</tr>
<tr>
<td>Smith-Lever Fund (State)</td>
<td>50,904.25</td>
</tr>
<tr>
<td>Reinvestment</td>
<td>280,630.94</td>
</tr>
<tr>
<td>Cadet (Checks Paid)</td>
<td>98,901.87—$1,064,364.92</td>
</tr>
</tbody>
</table>

**Balance July 1, 1919**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance July 1, 1919</td>
<td><strong>$1,202,020.11</strong></td>
</tr>
</tbody>
</table>
## RECONCILING WITH BANK BALANCES

<table>
<thead>
<tr>
<th>Bank Name</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Bank of Sumter</td>
<td>13,000.00</td>
</tr>
<tr>
<td>Bank of Greenwood</td>
<td>8,000.00</td>
</tr>
<tr>
<td>Bank of Anderson</td>
<td>23,000.00</td>
</tr>
<tr>
<td>F. &amp; M. Bank, Anderson</td>
<td>25,459.52</td>
</tr>
<tr>
<td>Pickens Bank</td>
<td>3,000.00</td>
</tr>
<tr>
<td>Palmetto National</td>
<td>37,500.00</td>
</tr>
<tr>
<td>Exchange, Newberry</td>
<td>8,000.00</td>
</tr>
<tr>
<td>Farmers, Abbeville</td>
<td>8,000.00</td>
</tr>
<tr>
<td>Peoples Savings, Abbeville</td>
<td>8,000.00</td>
</tr>
<tr>
<td>National, Abbeville</td>
<td>3,000.00</td>
</tr>
<tr>
<td>Bank of McCormick</td>
<td>8,000.00</td>
</tr>
<tr>
<td>American, Greenville</td>
<td>8,000.00</td>
</tr>
<tr>
<td>National, Newberry</td>
<td>20,500.00</td>
</tr>
<tr>
<td>Bank of Troy</td>
<td>1,500.00</td>
</tr>
<tr>
<td>Union Savings, Bennettsv'e</td>
<td>13,000.00</td>
</tr>
<tr>
<td>Bank of Pendleton</td>
<td>41,657.80</td>
</tr>
</tbody>
</table>

**Total Cash**: $230,258.99

**Less checks outstanding, (list exhibited)**: 92,603.80

**Balance**: $137,655.19

(Six-point Table goes here.)
## EXHIBIT "F"

### REINVESTMENT

<table>
<thead>
<tr>
<th>Accounts</th>
<th>Balances July 1, '19</th>
<th>Overdrafts July 1, '19</th>
<th>Receipts July 1, '19</th>
<th>Expenditures</th>
<th>Balances July 1, '19</th>
<th>Overd. July 1, '19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Husbandry</td>
<td>$366.17</td>
<td>$1,413.10</td>
<td>$3,065.26</td>
<td>$3,704.04</td>
<td>$2,061.98</td>
<td></td>
</tr>
<tr>
<td>Beef Cattle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadet Breakeage</td>
<td>145.55</td>
<td></td>
<td>1,839.78</td>
<td>1,531.47</td>
<td>162.76</td>
<td></td>
</tr>
<tr>
<td>Cadet Exchange</td>
<td></td>
<td></td>
<td>2,314.31</td>
<td>2,277.25</td>
<td>71.06</td>
<td></td>
</tr>
<tr>
<td>Board of Health</td>
<td>33.06</td>
<td></td>
<td>267.44</td>
<td>228.00</td>
<td>57.45</td>
<td></td>
</tr>
<tr>
<td>Clemson S. A. T. C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coast Station</td>
<td>1,950.58</td>
<td></td>
<td>2,995.05</td>
<td>2,516.06</td>
<td>1,532.16</td>
<td></td>
</tr>
<tr>
<td>Creamery Sinking Fund</td>
<td>12.66</td>
<td></td>
<td>111.81</td>
<td>124.47</td>
<td>158.50</td>
<td></td>
</tr>
<tr>
<td>Dairy</td>
<td></td>
<td>2,767.06</td>
<td></td>
<td>19,382.34</td>
<td>7,618.02</td>
<td></td>
</tr>
<tr>
<td>Engineering Building</td>
<td>158.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farm</td>
<td>4,928.83</td>
<td>21,942.37</td>
<td>18,891.40</td>
<td>1,679.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hauling</td>
<td>832.65</td>
<td>6,618.02</td>
<td>4,105.71</td>
<td>1,679.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat, Light, &amp; Water</td>
<td></td>
<td></td>
<td>2,191.84</td>
<td>2,191.84</td>
<td>303.33</td>
<td></td>
</tr>
<tr>
<td>Hog cholera serum</td>
<td>563.18</td>
<td></td>
<td>29,324.76</td>
<td>29,421.61</td>
<td>303.33</td>
<td></td>
</tr>
<tr>
<td>New Hospital</td>
<td>.59</td>
<td></td>
<td>.75</td>
<td>303.33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hotel</td>
<td>80.70</td>
<td>17,571.98</td>
<td>18,084.47</td>
<td>1,34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ins. Sinking fund</td>
<td>7,605.85</td>
<td></td>
<td>5,309.39</td>
<td>16,113.36</td>
<td>503.19</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td></td>
<td></td>
<td>5,338.42</td>
<td>5,338.42</td>
<td>1,34</td>
<td></td>
</tr>
<tr>
<td>New Laundry</td>
<td>435.53</td>
<td></td>
<td>1,013.91</td>
<td>2,050.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mig. of Flags</td>
<td>141.37</td>
<td></td>
<td>15.33</td>
<td>2,050.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>403.60</td>
<td>4,219.81</td>
<td>3,816.21</td>
<td>126.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norris Medal</td>
<td>18.60</td>
<td>91.00</td>
<td>48.25</td>
<td>61.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pec Deo Station</td>
<td>253.69</td>
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Report of Board of Visitors

Darlington, S. C.,
May 22, 1919.

To the Honorable, the Board of Trustees, Clemson College:

Gentlemen:

The undersigned members of the Board of Visitors, in accordance with a law of the State, after due notice, visited Clemson College on the 7th and 8th of May.

In the brief time which we devoted to the work, it must be understood that we were not able to go minutely into details, and that our inspections and observations were more or less cursory.

We arrived at Clemson about noon of the 7th, and at once took up the duties of the Board. Hon. D. C. Heyward was elected Chairman and Bright Williamson Secretary of the Board. By a well arranged itinerary, which occupied every moment of the time we were at the College, we were able to visit the farm and various departments, to make an inspection of the barracks and various buildings and to examine the methods of accounts and book-keeping.

It gives us pleasure to say that the College appears to be operated with efficiency and economy.

It is impossible without a visit to the College, to comprehend the magnitude of this institution, the work that has been done, and the improvements that have been made upon the plant itself, and yet there still remains to be made various improvements of a permanent and useful nature. Among those we note that the brick for erecting a hospital—a building so necessary to an institution like Clemson—have been upon the ground for several years. No progress has been made toward building the Hospital owing to conditions brought about by the war and to the more restricted finances of the institution.

It gave us special pleasure to note the husky, healthy and manly appearance of the student body and the good deportment and cheerfulness which seem to prevail. It is an inspiring sight to look from the rostrum of the chapel into the faces of six hundred young men such as we saw and in whom the future of our State largely lies. It is also a special pleasure to note the heads of the various departments and the entire faculty were enthusiastic in regard to their departments and to their work, as well as to the general welfare of the College. We observed that the Agricultural, Mechanical and Literary Departments are in harmony and accord, and co-ordinate in their work.
With the increasing population of our State and our increasing prosperity, Clemson College is growing in even greater proportion and its needs and requirements to carry on its work are also correspondingly increasing.

Clemson is larger than any of the other Colleges of the State, and, considering the class of work it is doing, it requires larger appropriations.

We inspected the barns and stables just after several heavy rains, which prevented them from showing up in their best conditions. The live stock were not all pure breeds and were perhaps not up to the standard which some would expect to find at a great College. We found the cows largely grades and to class along more practical lines, such as are possible to attain, and which prevail throughout the State. From this herd the Live Stock department is endeavoring to, and no doubt will, breed a herd of its own up to a high standard of efficiency. For many reasons we are inclined to think that this course is more desirable and practical, as it will serve as an example to the people of the State as to what can be accomplished under conditions that may prevail throughout the State rather than to purchase and begin at a great expense with only registered stock, which would entail a cost prohibitory and impracticable for many.

We note that some of the work of the institution, such as sending out cholera serum, is done from Columbia, and we commend those who have instituted this convenience. We believe that the benefits and efficiency of the filed and extension work of the Live Stock and Agricultural Departments of the College would be still further promoted by establishing necessary subordinate departments for each of these branches in Columbia, where those engaged in this work could report, consult and receive supplies and where our people could apply for advice and relief. Clemson College is very inaccessible from a large portion of our State, and much could be saved in expense, energy and time to those engaged in this work, and also to our people. This would overcome many disadvantages now suffered, and commend the great work of Clemson to our people.

We believe that farmers in the State should be encouraged to make individual and cooperative experiments on their own farms with the help of the County Demonstration agent under the direction of the Agricultural Department of the College. We believe that such experiments, well planned and directed with a view of investigating and determining important farm problems under actual farming conditions, will result in the practical solution of many vexing farm problems. Such experiments should include the use of different fertilizers on various soils, the variety of standard crops best suited to certain character of soils and conditions in different
parts of our State, and the proper distance that crops should be planted under varying conditions. Results of such experiments will not only be beneficial to the farming interests of our State, but will establish for the College a greater reputation of usefulness and due consideration for its existence among the farmers and people of the State.

We recommend that as soon as it is practicable a sub-station be established in that section of the State known as the "Sand Hills" for the purpose of determining the value of such lands, best uses that can be made of them and the best method of development.

We observed that, owing to the isolation of Clemson College, there are no towns or markets of importance in its vicinity. We learned, upon inquiry and without suggestions from others, that the faculty are at a decided disadvantage in procuring necessary supplies, such as groceries and vegetables. The surplus of vegetables and other crops produced by the College that they might use is not always offered for sale to them. In view of the lack of such markets and opportunities for the purchase of such necessary supplies, we believe that it will inure to the benefit of the institution if your board could establish some plan by which they could be supplied at cost through the College.

In the same way, we also observed that, owing to the lack of public accommodation, the faculty cheerfully and hospitably entertain in a large measure a number of the many visitors who annually visit the College from this and other States. The increased cost of living, together with the fact that Professors are not overpaid, may entail an expense upon them which should be borne or provided for by the College. For instance, we note that the College does not possess an automobile or any other means of conveyance, and that such courtesies as are shown visitors in meeting them at trains, taking them over the farm and carrying them back to trains is done by the few Professors who are able to maintain an automobile and at their own expense.

During the absence of the President, Dr. Riggs, who is in Europe, and whose capability and efficiency we all recognize, the affairs of the College under the Acting President, Mr. S. B. Earle, with the assistance accorded him by the faculty, are efficiently managed.

In concluding, we wish to express our thanks to the entire faculty courtesies to us and the opportunity offered for making the inspection as thorough as it was done, and for the personal pleasure of our visit.

Respectfully submitted,

(Signed) Bright Williamson,  (Signed) D. C. Heyward,
Secretary.  Chairman.
Report of the South Carolina Experiment Station

Clemson College, S. C.
December 1, 1919.

Dr. W. M. Riggs, President,
Clemson College, S. C.

Dear Sir:

I have the honor to submit herewith the thirty-second annual report of the South Carolina Agricultural Experiment Station for the fiscal year ending June 30, 1919.

The great world war, which was brought to a successful conclusion during the period covered by this report, had a marked influence upon the research activities of all agricultural institutions. During the first part of the period while the war was still in progress the members of the staff who did not actually enter the army devoted their energies largely to stimulating food production and to other activities which seemed to have an important bearing upon winning the war. After the armistice was signed the problems of reorganizing our work for permanent agricultural development were undertaken, and with the return of some of our staff from army service and war work new and fundamental research problems were undertaken.

The increased cost of labor, supplies, and equipment, in fact everything that is needed in conducting agricultural research, has proved a serious handicap in developing our work to meet the increasing demands that are being made upon us by a constituency which is becoming more appreciative of the value of our work each year. During the war every effort was made to secure the application of every bit of scientific data that seemed to have a bearing on food production and agricultural advancement. This had the effect of using up to a large extent the accumulated data of the research agencies, and also of emphasizing in the minds of the public the value of the results secured by agricultural experimentation. As a result the extension and teaching agencies, as well as a more appreciative public, are now clamoring for information on many of the fundamental agricultural questions which it seems the duty of the Experiment Station to investigate. We appreciate the urgent need of expanding and developing our work to meet these needs and feel all but helpless when we realize that our hands are tied by the lack of adequate funds for conducting much of the fundamental research for which there is such a crying need.
I am giving below a summary of some of the important results accomplished and the important projects undertaken, as well as a general discussion of some of the activities not covered by the reports of the division chiefs, which are attached hereto and make a part of this report.

Agronomy Division

During the year the members of the Agronomy staff have devoted their energies to a careful study of experiments under way and previously conducted by this division, and in initiating a number of new projects. The majority of the old projects have been continued, and, while adverse seasons and shortage of labor have interfered with some of these, satisfactory progress has been made with the majority of the experiments.

Variety tests with field crops conducting at Clemson and at the Pee Dee Station at Florence continue to show striking results with regard to the yields of different varieties of cotton, corn and small grain. At the main station Alabama Cook produced 1890 pounds of seed cotton per acre while King-Triumph produced only 610 pounds, the difference between the best and the poorest variety amounting to 1280 pounds of seed cotton worth about $150.00. At the Pee Dee Station the highest yield—2260 pounds—was made by Wannemaker’s Cleveland Big Boll and the lowest yield—1520 pounds—by Drake’s Dixie, the difference being 740 pounds of seed cotton worth about $80.00. Tests with corn at the main station and at the Pee Dee Station showed Dougit, Garrick and Weekly yielded highest for the season, Dougit yielding 36 bushels at Clemson and 60 bushels at Florence. Similar tests with wheat were conducted at both stations, and the highest yields were made by Fulcaster, Leap’s and Golden Chaff in the order named. Appler oats yielded highest and Fulgaum next highest in the tests this season.

The large number of fertilizer tests previously reported have been continued. The comparison of forty different fertilizer combinations applied at the main station to land planted in cotton every year for fourteen years indicate, first, that a complete fertilizer is necessary for best results; second, it is becoming more and more difficult to secure a stand on the plots which have been poorly fertilized, and, third, diseases are much more prevalent in the plots not fertilized with a well balanced fertilizer. The general comparative fertilizer test at the Pee Dee Station, comprising 180 tenth acre plots and divided into series for a three-year rotation, and for cotton continuously has now been in operation for six years, and the valuable data accumulated are being compiled for publication. The fertilizer tests have been continued at the Coast Station, but our
Drainage system proved inadequate during the exceedingly heavy rains of July and August, and no results were obtained. New and more elaborate experiments have been initiated to further test the comparative value of acid phosphate, Florida soft phosphate and Tennessee hard rock. Tests have also been undertaken with the different sources of nitrogen and potash. Experiments to test the effect of Trona potash and borax on crops were also started in the field at the Pee Dee Station during the summer, and are being continued in the green houses at Clemson.

Breeding work has been started with cotton, corn, rye, wheat, and barley with a view of developing superior strains of these crops.

This division has begun work on three research projects of fundamental importance. These are: “A Study of Inheritance in Oats”; “A Study of the Effect of Stirring Soil on the Moisture Content, Oxidation, Nitrification and Crop Yield” and “An Investigation of the Influence of Variety, Fertilizers, Soils and Climate upon the Oil Content of Cotton Seed.” Satisfactory progress is being made with all of these.

Animal Husbandry Division

The work of this division has been practically at a standstill since the last report was prepared. It has taken us practically a year and a half to find a suitable man to put in charge of the work. With the assistance of Professor W. W. Fitzpatrick, Chief of the Dairy Division, and Mr. C. L. Morgan, Assistant Professor of Animal Husbandry, we have been able to keep the breeding work with horses, cattle, and hogs going, and have conducted tests with hog crops at both of the sub-stations. A small herd of grade beef cattle, headed by a registered Angus bull, has been started at the Coast Station. We have also started some grazing experiments with beef cattle on the cut-over pine lands of the Coast Station.

Professor L. V. Starkey, the new chief of this division, has reported for duty since the end of the fiscal year, and we have every reason to believe that under his leadership and direction all lines of animal husbandry work will make substantial progress in the future.

Botany Division

This division has continued research work with cotton diseases. The Angular Leaf Spot project was completed with the working out of the sulphuric acid treatment as a satisfactory method of controlling this disease. A full report of this investigation was published as Bulletin No. 198. Several unfinished phases of the cotton Anthracnose investigation have occupied our time during the past year. The major problem has been a study of the influence of dif-
ferent factors on the vitality of the anthracnose fungus in cotton seed. We have found that by placing infected seed under a vacuum and reducing the moisture content from 9 per cent to about 2 per cent the fungus is killed and germinating power of the seed not injured. This treatment seems to kill all seed-borne diseases and we are now trying out different schemes for drying, with a view of developing a method that can be used economically on a commercial scale. We have found that the Anthracnose fungus lives during the summer in the nectar glands of cotton leaves and goes from there to the young bolls.

Some progress has been made with the study of the bacterial content of milk. This study was undertaken last summer with a view of determining the behavior and development of bacteria during the handling of milk from the time it is milked until it reaches the consumer. We find at the outset that some of our methods of cleaning and sterilizing cans and other containers are at fault. Cans and buckets can be sterilized by inverting each can over a jet of live steam for one minute, but such pieces as can lids and separator parts can be sterilized thoroughly only when placed in a closed vat and exposed to live steam for from ten to fifteen minutes.

Cooperative work with the Bureau of Plant Industry looking to the control of cotton and cowpea wilt and root knot is being continued, and a large area in Dixie-Triumph, a new and improved strain of wilt resistant cotton, is being grown at the Pee Dee Station for the purpose of producing seed of this valuable new production for distribution among farmers.

Chemistry Division

Owing to the great demand for chemists in war work we were unable to fill the position of chemist immediately after Professor Keitt left September 1st to take up chemical warfare work. Fortunately the majority of the projects under way in this division were completed or of such a nature that they could be discontinued without loss. Soon after the signing of the armistice we succeeded in securing the services of Dr. G. F. Lipscomb as chemist. He was discharged from the army early in January and reported for duty with us on January 10th.

Dr. Lipscomb has developed a new method for determining moisture in soils and agricultural materials, which enables him to determine the nature of the decomposition products given off during the process. The method consists of heating the sample in a vacuum, collecting and analyzing the products given off. This method has been used very successfully by Dr. Lipscomb in reducing the moisture content of cotton seed, thereby destroying such seed-borne
diseases as Anthracnose, Angular Leaf Spot, etc. A paper on this method is ready for publication.

Dr. Lipscomb has worked out a method and devised apparatus for determining moisture content, oxidation and nitrification in soils, and is cooperating with Professor Blackwell in the research project to study the effect of stirring soils on moisture content, oxidation, nitrification and crop yields. He is also doing the chemical work on the project to determine the influence of different factors on the oil content of cotton seed. Dr. Lipscomb has developed a short and accurate method for determining borax in complete fertilizers, and has analyzed about seventy-five samples of fertilizer for borax for farmers. He has also developed a method for the determination of sulphur in pyrite by the reduction of iron with colloidal metals. This is ready for publication.

Dairy Division

The Dairy Division has continued the work of building up a high class purebred herd. Several high class Jersey heifer calves and one Jersey bull, from one of the most productive strains of the breed, were added to the herd. During the past two years practically all of the old and unprofitable cows in the herd have been weeded out, and their places taken by young and more productive individuals. During the year four Jerseys and three Holsteins have qualified for register of merit and advanced registry records. These records range from 450 to 530 pounds of butterfat.

This division is continuing experiments to determine the most economical concentrates to supplement cotton seed meal in a ration for dairy cows in the South, and to determine the relative value of corn silage and sorghum silage for milk production. So far corn silage and sorghum silage seem to be of about equal value for feeding dairy cows.

The study to determine the cost of raising dairy calves is making satisfactory progress. Data are now being kept on twenty-four calves in connection with this experiment.

This division is conducting the following studies on the breeding of dairy cattle: (1) A study of the prepotency of the bulls used on the Experiment Station herd; (2) a comparison of line-breeding and out-crossing as systems of breeding dairy cattle; (3) Line-breeding of Holsteins. The last two of these are being conducted in cooperation with the Dairy Division of the Bureau of Animal Industry of the U. S. Department of Agriculture.
Entomology Division

This division has continued to study the effect of temperature-moisture on insect activity. This is a big problem but some phases of the investigation are now well under way. Among the most important are the following: A study of the correlation between weather conditions and insect outbreaks; a study of the direct influence of temperature-moisture on insect activity; a study of the maximum temperature which the insect can stand under different conditions of humidity; and a study of the conditions under which insects enter hibernation and under which they hibernate most successfully. Additional equipment has been procured for this project during the year. The information obtained during the progress of this project is being used in forecasting outbreaks of some of our destructive insect pests and in devising control measures for combating others.

This division has paid particular attention during the year to the development of beekeeping in this State. It has been found that packing the colonies in such a manner as to protect them against the sudden changes in temperature has resulted in their coming through the winter in much stronger condition and prepared for the principal honey flow, which begins about May 1st. This has resulted in more than doubling the production of individual colonies.

The unusually rapid advance of the boll weevil has made it necessary for Prof. Conradi to give very close supervision to the quarantine regulations governing the movement of cotton seed and other quarantined articles from boll weevil infested into boll weevil free territory. The weevil has now reached Anderson, Laurens and Chesterfield. The Entomologist is cooperating very closely with the county agents and extension specialists in an effort to meet the boll weevil situation. Fortunately his experience with the weevil in Texas and this season in the southern part of this state enables him to forecast with some degree of accuracy what parts of the state will be most liable to sustain severe injury from this pest next year.

Horticultural Division

The major research problem in the Horticultural Division is the study of the factors which influence seed and tuber production in Irish potatoes. Progeny of some of the 19,000 seedlings started last year are now in the third generation, and 81 of the most promising strains have been selected for further experimentation. Observations during the year indicate that drought and high temperature are unfavorable to seed production, and that cross breeding proves more successful if conducted with the fall crop. About
fifty standard named varieties of potatoes were planted in order to select varieties suitable for crossing with the Lookout Mountain variety.

This division has continued to conduct variety tests with vegetables and melons, and has tried out a few new vegetables imported by the U. S. Department of Agriculture. The Chinese rice bean appears to offer advantages as a vegetable, and as a forage and cover crop.

Sweet potato variety and fertilizer tests were conducted, and the sweet potato storage house, which was constructed by the college last year, has been renovated and somewhat modified, and is being used for storing experimental lots of potatoes.

This division is also conducting experiments relative to the utilization of the muscadine grape for the purpose of making unfermented grape juice, flavoring syrup and other products.

Coast Experiment Station

The work at the Coast Station at Drainland has been interrupted during the year by a number of circumstances over which we had no control. In the first place, the former superintendent, Mr. W. D. Garrison, was away from the station during July, August and the first half of September, and soon after he returned he contracted influenza and died on the 18th of October. Mr. Garrison had been at the station as superintendent for about ten years and had very intimate knowledge of all of the work. His death together with the general demoralized condition of everything at this time on account of the influenza epidemic and the scarcity of labor made it impossible to get the experimental plot work harvested properly, so no results were obtained from the fertilizer and variety tests for this season.

Mr. J. A. Riley was appointed Superintendent to succeed Mr. Garrison, and reported for duty on Jan. 1, 1919. Labor conditions have continued to interfere seriously with the operation of this station. This has been particularly true of the experimental work. It has frequently been impossible to secure labor to plant and cultivate the experimental plots at the proper time. Excessive rains during the entire season of 1919 completely ruined practically all of the experiments with field crops at this station. During the early part of the season it was impossible to get the crop cultivated on account of the shortage of labor, and the excessive rains, and later in the season the rains were so heavy and so frequent that the outlets for our drainage system were entirely inadequate for handling the water. On this account water stood on the crops, and they
were so badly damaged in spots that no uniform results could be secured.

We have continued to add to our small beef cattle herd at this station until we now have fifteen cows and calves, and a purebred Angus bull. The bull was given to us by the Buckfield Stock Farm at Yemassee, S. C. Two small pastures, six acres and twelve acres in area, were fenced out of the main pasture and experiments started to test the carrying capacity of the cut-over pine lands. Carpet grass and bermuda grass are already growing in the lots around the barns at this station, and carpet grass is beginning to appear in some of the closely grazed areas of the pasture. We expect to seed parts of the pasture to these plants during the coming winter and spring.

There is urgent need for some extensive experiments with pastures and beef cattle on the typical cut-over pine lands of this region. With the advent of the boll weevil it seems that the agriculture of this region will have to be changed, and there are thousands of acres of cut-over pine lands that should be made to produce something. The natural vegetation that is going to waste every year on this land would support large herds of cattle. Improved iespedeza and carpet grass pastures would support still larger herds. It seems to me that the development of a large beef cattle project at the station is the most urgent experimental problem we have before us. It is hoped that the Legislature will provide funds for this.

Pee Dee Experiment Station

The work at the Pee Dee Station has progressed satisfactorily during the year. The general crop conditions have been good except for tobacco, which was almost a complete failure in this community this season. The labor situation has continued to be very critical, but our efficient superintendent, Mr. R. E. Currin, has so far been able to retain sufficient labor to keep the experimental work going.

The horticultural work has continued to give us valuable data as to the best varieties of peaches, plums, grapes and strawberries. These fruits all do well in this section of the State. Our work indicates that it is necessary to spray grapes three times with Bordeaux mixture during the season in order to keep the fruit trees free from disease. Tests have been made during the past two years of shipping grapes to various points, and the results show that the Delaware, Brighton, Moore’s Early, Concord and Niagara will stand transportation well. When properly packed they remain in the bas-
kets four days in perfect condition, provided they are not mutilated in transit.

Asparagus and onions seem to be well adapted to this section of the State and have proved to be profitable crops.

Breeding work with the resistant cottons is being continued at this station, and very satisfactory results have been obtained. Several new and superior strains have been developed here in cooperation with Mr. L. O. Watson, of the Bureau of Plant Industry. One of these in particular, the Dixie-Triumph, is proving to be both earlier and more productive than any of the other wilt resistant strains. We will have a quantity of seed of this strain for distribution this year.

We are still devoting special attention at this station to soil fertility problems. In addition to the general comparative tests with fertilizers, as mentioned under the Agronomy Division, we are conducting fertilizer tests with peanuts, tobacco and sweet potatoes, and have comparative tests of the different sources of nitrogen and potash. Trona potash is included with the other sources of potash, and we hope to have some results on the value of this material by the end of the season. The test of the different sources of nitrogen includes forms such as cyanamid and several of the other sources manufactured by the government nitrate plants. This test is in cooperation with the U. S. Department of Agriculture, as are also the tests with peanuts and with tobacco.

Breeding work has been undertaken with sweet potatoes in an effort to produce pure and superior strains of some of our standard varieties by hill selection. We have converted one of our tobacco barns into a sweet potato house and are trying out this plan of keeping potatoes this year. We feel that if this method works satisfactorily it will aid to a large extent in providing storage for sweet potatoes grown in this section of the state, where tobacco is one of the main crops.

The experiments with hog crops made satisfactory progress during the year. We have included in the tests this year a number of half-acre plots of peanuts of the different standard varieties and these have been hogged off. Alfalfa, crimson clover, corn, peanuts, soy beans and rape continue to be our most profitable crops for hogs.

We are also conducting culture tests here with cotton and with corn. The tests with corn include comparison of the Williamson plan with other methods of culture. The cotton tests include different methods of planting and cultivating cotton, as well as experiments testing the result of different distances and time of thinning. We are getting data from these tests which we believe will aid in increasing the earliness of cotton.
The work at this station has always attracted a great deal of attention from the farmers in the immediate vicinity of Florence, but, during the past few years especially, the experiments have attracted such wide attention that groups of farmers have been coming in from adjoining counties to spend a day from time to time at the experiment station. When I was at the station in July I met eighty-five farmers who came there from Sumter County to spend a day in looking over the experimental work on the station. Later similar parties came from Lee County, Dillon County and Darlington County. I feel that in this way the work of this station is reaching a large percentage of the farmers in this section of the state, and I know of no other single agency that is doing as much to introduce improved practices in agriculture as the sub-stations.

Publications and Library

During the year three regular bulletins of the Experiment Station series, totalling over 16,000 copies, were issued. The numbers and titles of these are given in the report of the Agricultural Editor, which is a part of this report.

The members of the Experiment Station staff have as usual prepared extension bulletins and news articles giving results of their work in popular form for the public. These have been sent out by the Agricultural Editor.

At the beginning of the fiscal year an up-to-date addressing outfit, including a motor-driven Graphotype machine, for cutting name plates, and a motor-driven Addressograph machine, for addressing purposes, was installed in the mailing room. This equipment provides for easy, rapid and efficient handling of the publications as issued.

During the year a good start was made towards the development of an agricultural library suitable for the use of our research workers and agricultural students. All of the books and pamphlets owned by the Experiment Station have been brought together and are being arranged and cataloged, and every effort is being made to secure complete sets of all state experiment station and U. S. Government bulletins. We now have over 20,000 books and pamphlets in the library.

State Support for Research

There are several important projects that should be undertaken just as soon as possible by the Experiment Station and these are of sufficient size and importance, it seems to me, to justify us in asking for support from the Legislature. The results of agricultural research are being appreciated and utilized by the other agri-
cultural agencies and by farmers themselves now as never before. If our agriculture is to continue to develop along safe and sound lines it seems to me that it is absolutely necessary that the research agencies be developed to such an extent that they can point the way along all lines. If we are to do this we must have very greatly increased facilities. Practically all of the state experiment stations in this country are now securing annual appropriations from their Legislatures for research work. South Carolina has never asked for this. The increased cost of experimentation has placed us in a position now where we cannot make satisfactory progress without additional funds. Since we are an agricultural state it seems perfectly proper for public funds to be used for this purpose. The policy of our government, as stated in a report recently prepared by officers of the States Relations Service, is to ask additional federal support for research work only after the several states have made appropriations in excess of the total of the Hatch and Adams funds, which we are now getting. If this policy is adhered to it means that the only possible way to develop agricultural research in the several states is by state appropriations. There are two projects which our Board of Trustees are already committed to that seem to me of such fundamental importance at this time that we should make every effort to secure appropriations to carry them out. These are the Sand Hill sub-station and the beef cattle project for the Coast Experiment Station.

Sand Hill Experiment Station

There are a number of reasons for asking for the establishment of a Sand Hill station. In the first place, a station established in the Sand Hills would represent a soil type that covers a large area in this state. So far we have conducted no experimental work on soils of this type, and, of course, at present have no facilities for doing such work. The conditions in the Sand Hills are so entirely different from what they are at our other stations that it is hard for us to make recommendations for farming operations that are at all satisfactory for this section. There are some fundamental research problems that could be conducted at a Sand Hill station that we have not been able to make progress with at the other stations. Here we would have almost pure cultures of sand to work with and could undertake research work with soil problems that cannot be conducted on any other kind of soil. There are many crops that seem to do well in the Sand Hills that are not considered particularly profitable in other sections of the state. This would give us facilities for breeding and growing these and for developing them for the use of the poorer portions of our state. The boll weevil situa-
tion, as it faces us at present, could probably better be worked out under conditions such as we would have on a Sand Hill station than at any other place, because conditions can be controlled here better than on many types of soil that are represented at our other stations. It seems to me that there is no other single thing that will add as much to our facilities for serving the entire state as the establishment of such a station.

**Beef Cattle Work**

With the advent of the boll weevil, beef cattle are assuming a much larger place in our agriculture. What work this Station has been able to do along this line has been conducted at Clemson under conditions which are probably not suitable for large developments along this line. It seems to me that if any section of South Carolina is suited to beef cattle production it must be the Coastal Plain section, where we have large areas of cut-over pine lands which produce an abundance of vegetation, which every year goes to waste. I believe that we could profitably utilize this land in the production of beef cattle. In order to conduct tests and make demonstrations along this line and in order to conduct experiments relative to methods of grazing and production of satisfactory pastures, I feel that it is necessary for us to have a large tract of land and some equipment for handling beef cattle. There is available adjoining our Coast Experiment Station a suitable tract of land for such a project. This could be purchased if the Legislature would provide sufficient funds. I feel that this is one of the biggest problems that we have to face in the South today and am very anxious that facilities be provided for it.

Respectfully submitted,

H. W. BARRE,
Director.
Dr. W. M. Riggs,
Clemson College, S. C.

Dear Sir:

I respectfully submit, herewith, the Annual Report of the Extension Service for the fiscal year beginning July 1st, 1918, and ending June 30th, 1919.

The work done by the Extension Service during the fiscal year just closed has been performed under varying conditions. Until the armistice was signed in November Extension activities were largely centered around plans for aiding the people in meeting the war needs of the Government. Since that time the problems of readjustment have largely occupied our minds. During the autumn and winter the worst epidemic of influenza ever known in this country partly paralyzed all human activities. With the coming of spring the farmers in the Southern counties of the state are facing serious activity on the part of the boll weevil. The amount of damage done by the weevil, however, will be largely determined by weather conditions during July and August.

Every campaign and drive to aid in winning the war was greatly strengthened especially in rural communities by the extension agents. In promoting the production of larger food supplies our extension force was the most active agency. A special campaign was started in October to promote a large production of small grain and pork. In spite of the extremely short labor supply and of the influenza epidemic, the June 1st estimated wheat production is two million three hundred and fifty thousand bushels as compared with three million bushels in 1918 and one million eight hundred thousand in 1917. The estimate on oats is ten million six hundred thousand bushels as compared with twelve million in 1918 and six million in 1917.

ADMINISTRATION

A most regrettable circumstance has been the continued illness of Director W. W. Long since last November. All of us have missed his wise council and genius for extension affairs.

The office force has consisted of a clerk, three stenographers and an accountant. Frequent changes have taken place in the personnel of the office force, making the work of administration very difficult.

The following are statements of finances and extension personnel for the fiscal year:
SCHEDULE "A"

Sources of Funds

Federal Smith-Lever Fund ...................................... $64,919.03
State Smith-Lever Fund ....................................... 54,919.03
College Funds .................................................. 7,500.00
Counties ......................................................... 46,593.95
Total ........................................................... $173,932.01

SCHEDULE "B"

Summary Statement of Expenditures, by Projects, Showing Sources of Funds Used—Fiscal Year Ending June 30, 1919.

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<thead>
<tr>
<th>PROJECTS</th>
<th>Total</th>
<th>Federal</th>
<th>State</th>
<th>College</th>
<th>County</th>
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<td>Administration</td>
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<td>Pr'tg &amp; Distrib'n of Pub'c'ns</td>
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<td>County Agents</td>
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<td>Soil Fertility</td>
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<td>Negro Demonstration</td>
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<td>Livestock</td>
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<td>1,291.89</td>
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<td>Dairy</td>
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<td>Agronomy</td>
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<td>Horticulture</td>
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<td>Poultry</td>
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<td>Marketing</td>
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<td>Entomology</td>
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<td>Botany and Plant Pathology</td>
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<td>Boys Club Work</td>
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<td>Rural Sociology</td>
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<td>Cotton Grading</td>
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<tr>
<td>Total Expenditures</td>
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<td>$64,919.03</td>
<td>$54,919.03</td>
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<td>$46,593.95</td>
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</table>
### SCHEDULE "C"

**Summary Statement of Expenditures, by Projects, Showing Classification of Expenditures for Fiscal Year Ending June 30, 1919.**

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<td>Labor</td>
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<td>Printing and publications</td>
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<td>Library</td>
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<tr>
<td>Livestock</td>
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</table>


FORCES IN DEMONSTRATION AND EXTENSION WORK

During Fiscal Year 1918-1919.

(Paid Jointly by Clemson College, the U. S. Dept. of Agriculture, County Funds, etc.)

(Paid jointly by Clemson College, the U. S. Dept. of Agriculture, County Funds, etc.)

W. W. Long, Director of Extension, Clemson College, S. C. ...... $2550.00
D. W. Watkins, Asst. Director and Acting Director, Clemson College, S. C. ...... 9500.00
Wilson Gee, Assistant Director, Clemson College, S. C. ...... 2500.00
A. A. McKown, First District Agent, Rock Hill, S. C. ...... 2300.00
C. A. McFadden, Second District Agent, Manning, S. C. ...... 2900.00
W. P. Stewart, Third District Agent, (Resigned), Simpsonville, S. C. ...... 1900.00
A. B. Bryan, Agricultural Editor, Clemson College, S. C. ...... 1900.00
V. W. Lewis, Animal Husbandman, Clemson College, S. C. ...... 2900.00
D. W. Williams, Agent in Animal Industry, Clemson College, S. C. ...... 1600.00
I. C. Madison, Agent in Animal Industry, Clemson College, S. C. ...... 1500.00
W. J. Shoob, Agent in Animal Industry, Clemson College, S. C. ...... 1600.00
L. W. Summars, Agent in Animal Industry, Orangeburg, S. C. ...... 1600.00
W. W. Fitzpatrick, Professor of Dairy, Clemson College, S. C. ...... Given elsewhere
T. W. Moseley, Dairy Husbandman, Clemson College, S. C. ...... 2300.00
D. D. Elliott, Dairy in Dairying, Clemson College, S. C. ...... 1600.00
H. T. Converse, Agent in Dairy Industry, Laurens, S. C. ...... 1200.00
W. A. Pickens, Agent in Dairy Industry, Sumter, S. C. (Resigned) ...... 1500.00
E. T. McClure, Agent in Dairy Industry, Clemson College, S. C. ...... 1600.00
C. P. Blackwell, Extension Agronomist, Clemson College, S. C. ...... Given elsewhere
F. F. Hall, Extension Agronomist, (corn), Clemson College, S. C. ...... 2200.00
W. E. Stok柔, Extension Agronomist, (corn), Bamberg, S. C. ...... 1000.00
C. C. Newman, Professor Horticulture, Clemson College, S. C. ...... Given elsewhere
W. R. Hoots, Extension Horticulturist, (resigned), Clemson College, S. C. ...... 1500.00
G. P. Hooban, Extension Horticulturist, Clemson College, S. C. ...... 1500.00
G. E. Prince, Extension Horticulturist, Clemson College, S. C. ...... 1500.00
A. C. Dibble, Jr., Asst. Extension Horticulturist, Clemson College, S. C. ...... 1200.00
J. A. Middleton, Asst. Extension Horticulturist, (resigned), Clemson College, S. C. ...... 1000.00
A. E. Schilliet, Asst. Extension Horticulturist, Clemson College, S. C. ...... 1200.00
Frank C. Faye, Professor Poultry Husbandry, Clemson College, S. C. ...... Given elsewhere
Henry Quattlebaum, Asst. Poultry Husbandman, Clemson College, S. C. (resigned) ...... 930.00
Fred L. Harkey, Field Agent Marketing, Clemson College, S. C. ...... 200.00
A. E. Conadi, Professor Entomology, Clemson College, S. C. ...... Given elsewhere
E. S. Prevot, Bee-keeper Specialist, Clemson College, S. C. ...... 1100.00
B. W. Barre, Director Experiment Station, Clemson College, S. C. ...... Given elsewhere
J. L. Seall, Field Pathologist, Clemson College, S. C. ...... 1800.00
L. L. Parker, Supervising Agent Boys' Club Work, Bishopville, S. C. ...... 2330.00
J. J. Murray, Asst. Supervising Agent Boys' Club Work, Bishopville, S. C. ...... 1500.00
W. C. Parsons, Asst. Agent Piz Club Work, Bishopville, S. C. ...... 1000.00
W. R. Mills, Professor Rural Sociology, Clemson College, S. C. ...... Given elsewhere
O. J. McConnel, Cotton Classer, Raleigh, N. C. ...... 3900.00
R. C. Barks, Asst. Cotton Classer, Sumter, S. C. ...... 2100.00
P. H. Hart, Asst. Cotton Classer, Darlington, S. C. ...... 2100.00
Edw. Saffert, Asst. Cotton Classer, Orangeburg, S. C. ...... 290.00
J. M. Carson, Jr., Accountant, Clemson College, S. C. ...... 500.00
A. C. Collins, Chief Clerk, (resigned), Clemson College, S. C. ...... 1010.00
M. W. Cromble, Chief Clerk, Clemson College, S. C. ...... 1200.00
S. W. Evans, Treasurer, Clemson College, S. C. ...... Given elsewhere
Mrs. E. E. Bellinger, Stenographer, Bishopville, S. C. ........................................... 900.00
*Anne Wallace, Stenographer, (resigned), Clemson College, S. C. ................................. 900.00
*Janie Howie, Stenographer, (resigned), Clemson College, S. C. ................................ 900.00
*Mrs. K. M. Hall, Stenographer, (resigned), Clemson College, S. C. ............................... 900.00
Ellen Hope, Stenographer, Clemson College, S. C. ......................................................... 900.00
Rosie Brown, Stenographer, Clemson College, S. C. ...................................................... 720.00
Lucile Rochester, Stenographer, Clemson College, S. C. ................................................ 720.00
*Lynda Jones, Stenographer, (resigned), Clemson College, S. C. .................................. 900.00
*Kathleen Gri...n, Stenographer, (resigned), Clemson College, S. C. ............................... 720.00

COUNTY DEMONSTRATION AGENTS

Fiscal Calendar Year 1918-1919.

Abbeville ........................................... W. A. Rowell ........................................... $1500.00
*Alton ........................................... E. D. Kyzer ........................................... 1500.00
Anderson .......................................... C. S. Patrick ........................................... 1800.00
Bamberg .......................................... Geo. R. Briggs ........................................ 1200.00
 Bamwell ........................................... H. G. Boyston ........................................ 1620.00
Beaufort ........................................... C. A. Vincent ......................................... 1620.00
Beckley ........................................... L. L. McLendon .......................................... 1200.00
Calhoun ........................................... L. B. Brandon ........................................... 1200.00
Chester ........................................... J. A. Riley (resigned) .................................. 1600.00
Clarendon ......................................... P. H. Calvin ........................................... 1600.00
Cherokee ........................................... S. C. Stribling ........................................ 1620.00
Chesterfield ...................................... W. J. Tiller ........................................... 1321.00
Clarendon ......................................... A. M. Musser ........................................... 1500.00
Colleton .......................................... F. W. Risher ........................................... 1620.00
Darlington ........................................ J. M. Napier ........................................... 1620.00
Darlington ........................................ D. M. Hopkins ......................................... 1600.00
Damas ........................................... S. W. Epps .............................................. 1600.00
Dillon ........................................... D. L. McAlhany ......................................... 1320.00
Dixie ........................................... A. R. Carsile ........................................... 1600.00
Edisto ........................................... R. H. Lemon ........................................... 1600.00
Fairfield .......................................... J. W. McLendon ........................................ 1320.00
Florence .......................................... L. B. Altman ........................................... 1600.00
Georgetown ....................................... A. H. Chapman ......................................... 2500.00
Greenville ....................................... W. R. Gray ............................................. 2600.00
Greenwood ........................................ C. B. Paris ............................................ 1500.00
Hartford .......................................... Z. D. Robertson ........................................ 1500.00
Horry ........................................... W. O. Davis ........................................... 1600.00
Jasper ........................................... W. H. Rumff ............................................. 1500.00
Kershaw ........................................... Walter Sorrell .......................................... 1620.00
Lancaster ......................................... R. W. Graeber .......................................... 1600.00
Laurens .......................................... M. D. Moore ........................................... 2000.00
Leesville ......................................... J. W. Shealy ........................................... 1900.00
Lexington .......................................... S. W. Foster ........................................... 1600.00
Marion ........................................... Colin McLaurin ........................................... 1900.00
Marion ........................................... S. E. Evans ............................................. 2000.00
McCormick ...................................... N. G. Thomas ........................................... 1800.00
Newberry .......................................... T. M. Mills ............................................ 1400.00
Oconee ........................................... J. W. Carson ........................................... 1800.00
Orangeburg ...................................... L. S. Wolfe ........................................... 2100.00
This total of $173,932.01 does not include an amount of $171,340.00 paid by the U. S. Department of Agriculture and its Bureaus for salary and travel of Department Specialists, working in cooperation with the Extension Service, and for the contribution of the Department to County Agent, Home Demonstration and other work.

Extension work has been conducted along a number of different lines, each line of work being known as a project. The work of the administration project has already been outlined. The following is a brief outline of the work as carried on under the other projects.

**Printing and Distribution of Publications**

Our publicity work during the year with Mr. A. B. Bryan in charge has been most satisfactory. In addition to the regular Weekly News Notes which has a mailing list of 2650, a series of brief News Letters directly to newspapers only was begun in August, 1918. A total of 125 of these letters has been sent out. A conservative estimate made from the hundred or more papers which come to this office indicates that the papers of the state are regularly printing three times as much of our material directed toward preparing the state for the bell weevil as at the beginning of the year. Twelve or fifteen of the leading papers have been induced to establish special columns or pages for agricultural matter.

Four Extension bulletins and six Extension circulars were published during the year. Seventy thousand copies total of these were printed. These bulletins and circulars deal with problems of immediate importance to the agriculture of the state, and are gotten up in popular readable style.
COUNTY AGENTS

The following summary of work conducted has been taken from the Agents' annual reports:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Number Demonstrations</th>
<th>Total Acreage</th>
<th>Average Per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn</td>
<td>914</td>
<td>17,375</td>
<td>43 bu.</td>
</tr>
<tr>
<td>Cotton</td>
<td>661</td>
<td>10,957</td>
<td>1323 bu. seed</td>
</tr>
<tr>
<td>Tobacco</td>
<td>94</td>
<td>721</td>
<td>1166 lbs.</td>
</tr>
<tr>
<td>Oats</td>
<td>542</td>
<td>9,677</td>
<td>26 bu.</td>
</tr>
<tr>
<td>Wheat</td>
<td>688</td>
<td>5,993</td>
<td>218 bu.</td>
</tr>
<tr>
<td>Rye</td>
<td>537</td>
<td>5,201</td>
<td>Largely cover crops</td>
</tr>
<tr>
<td>Cowpeas</td>
<td>522</td>
<td>7,378</td>
<td>Graz'g cover crop seed</td>
</tr>
<tr>
<td>Velvet beans</td>
<td>816</td>
<td>20,806</td>
<td>Graz'g cover crop seed</td>
</tr>
<tr>
<td>Peanuts</td>
<td>165</td>
<td>2,315</td>
<td>Graz'g cover crop seed</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>613</td>
<td>6,234</td>
<td>3.7 tons</td>
</tr>
<tr>
<td>Oats and vetch</td>
<td>654</td>
<td>1,915</td>
<td>2.3 tons</td>
</tr>
<tr>
<td>Crimson clover</td>
<td>551</td>
<td>3,159</td>
<td>Cover crop seed</td>
</tr>
<tr>
<td>Crimson clover and oats</td>
<td>346</td>
<td>2,679</td>
<td>2.3 tons</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>275</td>
<td>1,558</td>
<td>196 bu.</td>
</tr>
<tr>
<td>Orchards</td>
<td>633</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dairy Cattle. 130 pure bred bulls and 698 pure bred cows and heifers were bought in the various counties as a result of the activities of the Agents. 77 pure bred bulls and 488 pure bred cows were reported in the state when County Agent work started as compared with 598 pure bred bulls and 3136 pure bred cows at present. South Carolina heads the entire list of states in the number of cooperative bull associations.

Beef Cattle. 209 pure bred bulls and 949 pure bred cows were brought in through the influence of Agents.

Hogs. 2822 pure bred boars and gilts were purchased with the assistance and advice of Agents. 1023 hog pastures were started and 1748 farmers were assisted in putting in grazing crops for hogs.

Sheep. 38 pure bred rams and 223 ewes were brought in as a result of extension work of Agents.

Livestock Diseases and Pests. 36,779 head of livestock were treated as follows: 27,238 head of hogs were treated with single treatment and 6477 with double treatment to prevent cholera and 3064 head of cattle were treated by Agents to prevent blackleg.
Fertilizers. 7710 farmers home mixed fertilizers, using formulae and general advice of County Agents at an average saving of $6.13 per ton. 87 communities purchased 12,683 tons of fertilizer cooperatively, with the assistance of County Agents, for $251,250.00 at a saving of $22,910.00. 635 fertilizer demonstrations were conducted during the year. 5,579 farmers were induced to use top dressing on growing crops.

Farm Manure. 2461 farmers carried out suggestions of County Agents concerning the better care of manure on farms and 93 purchased manure spreaders.

Lime. 4939 farmers used lime on 8,543 acres under directions of Agents.

Improvements. 1,568 farmers were furnished plans and induced to adopt systematic crop rotations. 125 building plans were furnished. Advice was given in installing 962 water systems. 827 farmers were induced to drain all or part of their farms and 937 to remove stumps from 27,406 acres. 6543 farmers planted 65,110 acres of cover crops for turning under. Advice and assistance was given in the purchase of the following labor saving tools and implements:

96 Binders, 73 Hay pressers, 370 Gas engines, 495 Two-horse cultivators 186 Tractors, 170 Motor trucks, 335 Corn planters, 339 Mowers, 324 Grain drills, 285 Disc Harrows, 691 One horse cultivators, 8 Hay loaders, 33 Ensilage cutters, 44 Cream separators, 151 Spraying machines.

Cooperation. In the purchase and sale of articles produced or used by farmers the following report is made: The articles most commonly bought and sold cooperatively are, fertilizers, feed stuffs, planting seed of all kinds, livestock lime and to a lesser extent staple groceries. The total amount of cooperative buying and selling by farmers amounted to $1,254,766.00 at a saving of $104,025. This business was transacted by farmers' organizations or by farmers who were temporarily organized by County Agents for transacting business.

Number visits by County Agents to farmers 40,553
Number visits by County Agents to Club members 6,344
Number miles traveled by County Agents 334,652
Calls on Agents relative to work (telephone) 16,230
Calls on Agents relative to work at home or office (personal) 25,629
Number of farmers meetings held under auspices of County Agents 1,130
Number of meetings of all kinds addressed 1,216
Total attendance at these meetings 115,097
Number of field meetings held 303
Total attendance of these meetings 8,177
Number of official letters written 26,885
Number of articles relative to work published 1,541
Number Clemson and U. S. D. A. bulletins distributed 106,411
Number of farmers now selecting planting seed 5,319
Number farmers now growing planting seed for sale 833
Number farmers induced to grow sorghum or sugar cane in 1918 for syrup 5,506

HOME DEMONSTRATION

This work by agreement between Clemson and Winthrop Colleges is maintained with headquarters at Winthrop College, Rock Hill, S. C. This work has progressed satisfactorily and has been the means of accomplishing great improvement in the rural life of our people. A detailed report is not given here for this reason that such a report will be found in the annual report of Winthrop College.

NEGRO DEMONSTRATION

This work has headquarters at the State Agricultural and Mechanical College at Orangeburg and is conducted through local leaders who have had agricultural and industrial training. The following extracts from the annual report on this work show the trend toward progressiveness along right lines that is being encouraged:

"The work of the colored Farm Demonstration Agents for the year 1918 has met with hearty cooperation on the part of the people and a general desire to improve their economic and social conditions. There has been the same desire in every county to do good farming and right living. Our agents have kept constantly at work to improve the social and community life of the people as well as to teach them the fundamentals of productive farming."

"We call attention to the yearly reports of our agents, all of which show that the agents have recognized their responsibility to the State and the Nation. They seem to have taken the lead in carrying the messages of the Government to the people for better farming. Remarkable results have followed in every county. The people have become better able to meet their civic and material responsibilities."

"We have especially urged, and our agents are still carrying out a campaign for, production of food. They have impressed upon the people the importance of producing all necessary foodstuffs."
"Better gardens have been emphasized in order that families throughout the state may be prepared to live, to a large extent, upon the vegetables gathered therefrom. Our agents have taught the people how to have gardens throughout the year. They have stressed the importance of growing substantial vegetables such as Irish potatoes, beans, peas, tomatoes, cabbage, okra and corn."

"Dairy cows are coming to be more generally used and appreciated everywhere our agents have worked. The farmers are fast coming to see that they cannot live as they ought without a good dairy cow. The agents have been stressing the importance of milk and butter as food."

"This year, as usual, we continued the custom of having all our agents come to the college for a week of instruction, March 3—8. We were favored with the cooperation of members of the State Extension Service from Clemson College. We had a splendid conference and the agents went away with a determination to be of greater service to the people.

LIVESTOCK

The increase in the number of breeding sows on farms is a fair indication of the growth of pork production. For each of the past five years the estimated number of breeding sows on April 1st has been as follows: 1914, seventy-two thousand; 1915, eighty-one thousand; 1916, eighty-eight thousand; 1917, ninety thousand; 1918, ninety-five thousand; 1919, ninety-eight thousand. The quality of breeding hogs has improved and the value has increased, out of proportion to the increase in numbers. During the year seven public sales of sows and gilts were held and breeders within the state furnished the animals that went to make up five of these lots of hogs.

Since January our agents have brought about cooperative shipments of 41 carloads hogs. These cooperative shipments have proven extremely satisfactory to farmers and netted from 2 to 6 cents per pound live weight more than local markets would pay.

During the year all county agents were instructed by the State Veterinarian in giving the double treatment for hog cholera which immunized hogs against the disease for life. There is a great impetus towards the improvement of breeding stock for the reason that breeders may now own high priced hogs with safety by having them immunized.

During the year one of our agents went to the drought stricken area in Texas and assisted our people in purchasing twelve hundred head of beef cattle for breeding purposes. In addition assistance
was rendered in the purchase, and later in the sale, of approximately one thousand steers. These steers were purchased in the mountains of North Carolina and Tennessee.

DAIRYING

Interest in dairying and in improving the quality of family cows is becoming more general and widespread. There is now a total of eleven Bull Associations owning from three to eight bulls each. These bulls were all selected by our agents from high producing strains of the Jersey and Guernsey breeds. Such Carolina now has more Bull Associations than any other state and we are rapidly promoting this line of work.

Campaigns for the eradication of scrub sires among beef cattle, dairy cattle and hogs have been launched and are now well under way in several counties. It is calculated that these campaigns will require two years time before approximately all unregistered sires are eradicated. We expect to extend this work as rapidly as possible.

The Pioneer Cow Testing Association was organized in March with the following officers: J. A. Shanklin, Camden, President; R. M. Cooper, Jr., Wisacky, Vice-President; Andrew Westgaard, Bishopville, Secretary-Treasurer; and J. W. Herring, Tester. The association was organized to do both general herd testing and Register of Merit and Advanced Register testing. The South Carolina Dairymen's Association was organized during the year to look after the interests of dairymen over the state. The Professor of Dairying of the College was put on the Executive Committee and the Field Leader in Dairy Extension was asked to act as Secretary, both ex-officio.

In order to assist farmers to rapidly improve their herds assistance was given sixty farmers in purchasing from the middle west a total of 320 head of Jerseys, Guernseys and Holsteins. One cheese factory was organized and is now in operation at Tamassee in upper Oconee County.

Our efforts to increase the number of family cows in order that the people may have larger quantities of dairy products for home use have met with satisfactory progress.

AGRONOMY

The work of breeding and disseminating early maturing varieties of cotton which will succeed under boll weevil conditions has continued. Variety tests were run in 1918 with twenty-two varieties in Edgefield, Aiken, Barnwell, Beaufort, Charleston and Dorchester Counties and plant to row breeding work is being carried on in
each locality with the most promising varieties. A cooperative grower is selected in each of the above named counties and furnished with the best of purebred seed and they in turn are to supply their neighbors and eventually attempt to get all farmers in each county to raise the same variety of cotton. The same general plan is being followed in the corn breeding work.

In the work of developing strains of cotton suitable for boll weevil conditions it has been found that Cleveland Big Boll cotton is among short staple varieties one of the best on account of its qualities of early maturity and high yield of excellent quality of lint per acre. This variety however is not suitable for land affected with cotton wilt. Dixie and Dix'e Triumph is recommended for wilt infected land.

HORTICULTURE

The home and commercial orchard work has progressed satisfactorily. The specialists assisted county agents in supervising 345 or hard demonstrations involving an aggregate of 62,639 trees. In these demonstrations the trees were regularly pruned, sprayed, wormed, cultivated and fertilized. These demonstration orchards serve as models for observation and study by farmers in every part of the State.

There are now 53 sweet potato storage houses in South Carolina and the production of sweet potatoes as a money crop is beginning. The fact that when potatoes are properly handled in a storage house less than 2 per cent are lost, removes the greatest obstacle to the development of this industry. We may safely predict a rapid increase in the number of these houses over the state. Plans, specifications, bills of materials are furnished farmers free. In most cases some supervision in the construction of the buildings has been given.

As a war measure a number of cooperative canneries were established over the State in which 85,000 No. 3 cans of fruit and vegetables were preserved. The total value of these was $14,166.00.

COTTON MARKETING AND GRADING

Our cotton grading and marketing work began in the fall of 1918 in cooperation with the Bureau of Markets, U. S. Department of Agriculture and local cotton marketing associations at Darlington, Sumter and Orangeburg and has proven of great value. The three cotton classifiers graded about 40,000 bales of cotton for farmers, thereby enabling the farmers to protect themselves as to grade and staple in making sales. Many sales are being made on the grading
of the three classers and the development of this project will bring about direct sales of cotton to mills on the grading of the official classers.

GENERAL MARKETING

One agent in general marketing work has been maintained in cooperation with the U. S. Bureau of Markets, but only for the last four months of the fiscal year. The marketing work under this project with Mr. F. L. Harkey in charge is progressing satisfactorily and we expect to be able to show material results soon. So far this work has been of great service in shaping the policies in marketing as carried on by county agents.

ENTOMOLOGY

The extension work in entomology has been concerned chiefly with:

1. The boll weevil.
2. The red spider.
3. Stimulation in the keeping of bees.

The boll weevil entered the state at Daufuskie Island in the fall of 1917 but received a severe setback that winter. Since that time favorable weather conditions for his advance have prevailed but no important damage was done in 1918. Great interest is being taken in the advance and activities of the weevil at the close of the fiscal year, however, and considerable damage will result if favorable weather conditions continue throughout 1919. Farmers are very much interested in the poisoning of the boll weevil and considerable work will be necessary to prevent costly mistakes being made along this line.

The following statement concerning the red spider invasion of 1918 is quoted from the report of Prof. Conradi, Leader of this Project:

"The red spider invasion during the year of 1918 was easily one of the most severe in the history of the state. This outbreak was expected owing to the extreme winter minimum temperatures that occurred during the winter of 1917-18. Careful records were made by the Research section of the Division which gave evidence of an impending invasion on a tremendous scale and warnings were issued through the press as early as February 4, 1918. It was through the splendid efforts of county agents that the loss from this pest was held to a minimum. We are sure that never before has the comparative damage been so small and considering the almost colossal nature of the invasion, the results secured in preventing an enormous loss was an accomplishment in the Extension work."
Four plants were constructed in cooperation with county agents for the manufacture of home boiled Lime Sulphur Wash for use in fighting the red spider and for orchard spraying.

In the bee-keeping work Mr. E. S. Prevost, Bee-Keeping Specialist, has been kept busy answering calls for assistance from every part of the State and with the supervision of a number of regular bee demonstrations. South Carolina is well adapted to producing honey, and this Extension work conducted as it is along practical lines is teaching many people how to produce honey successfully. The use of standard hives and winter packing to protect bees from the cold, have been demonstrated by Mr. Prevost. Considerable work has been done in supplying new queens of pure strains of bees to bee-keepers over the state.

PLANT PATHOLOGY

Our field specialist in plant pathology, Mr. J. L. Seal, has been maintained for the year and his work has been with the following plant diseases: cotton anthracnose, cotton and cowpea wilt and root-knot, grain smuts, sweet potato diseases, asparagus rust, tomato wilt, watermelon anthracnose and stem-end rot.

Perhaps the greatest results have been obtained in the cotton wilt work. There are now twelve cooperative growers of wilt resistant seed who produce between ten and twelve thousand bushels of seed annually.

The greater portion of the sweet potatoes which were used by the nurserymen for plant production have been inspected as well as a number of plant beds, and in case of diseased stock, recommendations have been given for the elimination of disease. Farmers operating sweet potato storage houses have been advised in disease control measures.

The control of tomato wilt through the use of wilt resistant varieties is being demonstrated in the vicinity of community canneries. Seed of these varieties were distributed and are being given a trial by interested farmers.

POULTRY

Representative poultry plants in ten counties of the state were visited several times during the year and information given on the care, feeding, mating, and breeding of poultry. Following is a list of the fowls under supervision:
### Purebred Poultry Under Supervision

<table>
<thead>
<tr>
<th>County</th>
<th>Number of Farms</th>
<th>Number of Fowls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charleston</td>
<td>5</td>
<td>1,600</td>
</tr>
<tr>
<td>Clarendon</td>
<td>3</td>
<td>900</td>
</tr>
<tr>
<td>Darlington</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>Greenville</td>
<td>2</td>
<td>130</td>
</tr>
<tr>
<td>Lee</td>
<td>4</td>
<td>650</td>
</tr>
<tr>
<td>Marlboro</td>
<td>5</td>
<td>1,150</td>
</tr>
<tr>
<td>Richland</td>
<td>3</td>
<td>2,600</td>
</tr>
<tr>
<td>Spartanburg</td>
<td>4</td>
<td>725</td>
</tr>
<tr>
<td>Sumter</td>
<td>6</td>
<td>850</td>
</tr>
<tr>
<td>Union</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34</strong></td>
<td><strong>8,905</strong></td>
</tr>
</tbody>
</table>

Other poultry plants were visited at the request of the owner, and some of these will be directed under our supervision next year. The primary object in assisting these poultry plants is to obtain a number of creditable breeding centers from which purebred poultry of the popular and utility breeds can be procured by neighboring poultrymen at reasonable prices. This demonstration work has grown during the past five years from practically no farms on which purebred poultry were raised to the thirty-four plants that were successfully and profitably operated during this fiscal year. Owing to the fact that a greater profit can be realized by breeding purebred poultry of the highest quality and exhibiting this poultry at the fairs, these demonstrations have been encouraged to improve the quality of their strains and to exhibit the best specimens at county fairs and the State Poultry Show.

The State Show is conducted by the South Carolina Poultry Breeders’ Association, an organization which is composed of the above breeders of poultry, as well as seventy more. It was organized four years ago through the efforts of this Service, and has had much to do with the development of the purebred poultry industry of this state. The annual State Poultry Show held in connection with the State Fair at Columbia has an entry of from 900 to 1500 fowls, and during each show the annual poultryman’s banquet and meeting of the Association is held.

Another important service of the South Carolina Poultry Breeders’ Association is the distribution of poultry foods guaranteed by the Association at actual cost. On account of the unsettled condition of the grain markets, it was not possible this year to purchase poultry foods in carlots and sell them through the Association at a suffi-
cient reduction from the prevailing retail prices to make the under-
taking a success, but local firms are now bidding on the 1919-1920
poultry food requirements and the prospects are that this work will
be carried on profitably the coming year.

The first four editions of Extension Bulletin No. 16 "Poultry
Culture for South Carolina" having been exhausted, the text was
carefully revised, new reading matter and illustrations were added,
and the fifth edition was published. There is such a constant de-
mand for copies of this publication that a new edition has been is-
sued every year.

A heavy correspondence has been attended to, 1096 letters having
been written in answer to inquiries received from poultry and
pigeon breeders and others interested in these industries, as well as
a number of letters to those who have already engaged in the pro-
duction of rabbits and hares for market and show purposes, or desire
information in reference to this new branch of agricultural work.

Club Work

Boy's Clubs have been of four kinds, viz., Corn, Pig, Calf and
Wheat. The total membership in 1918 was 4872 ranging in ages
from 10 to 18 years. The total value of the products grown and
developed by those boys was $156,325.67. All State prize winners
were given a banquet on the evening of April 11th, 1919, by the
Charleston Chamber of Commerce, which was attended by the win-
ners and by more than fifty of the City's and state's leading busi-
ness men and educators, at which time prizes were presented the
winners. During the month of July, 1918, a very interesting and
valuable short course was held at the College with a total attend-
ance of 91 Club Boys. The boys greatly enjoyed their stay at the
College and the course will no doubt prove an inspiration to them
throughout their lives.

GENERAL

Our other lines of Extension work are progressing as satisfac-
torily as could be expected under the existing conditions. A num-
ber of the men on the force spent a part of the year in the army.
Among this number were Dr. Wilson Gee, Assistant Director, Mr.
Henry S. Johnson, District Agent, Mr. D. W. Williams, Livestock
Agent, Messrs. Geo. P. Hoffman and George Prince, Horticultural
Specialists and the following county agents: Messrs. H. G. Boyls-
ton, C. A. Vincent, A. B. Carwile and W. O. Davis.

Mr. W. H. Mills, Expert in Rural Organization, was in France
from February to June with the Overseas Educational Commission
of the Y. M. C. A. and was engaged in the teaching of Rural Sociology to American soldiers in camp.

I feel that the work of the specialists and county agents has been more closely correlated than ever through the inauguration of the project system. Under this system the specialists in each project with the advice and assistance of their Chief of Division write up in sub-project form the different lines of work that should be pushed by the specialists in that project in cooperation with county agents. The specialist and county agent then confer regarding the various lines of work and decide which sub-project shall be undertaken jointly. The sub-projects determined upon for each county are signed by the county agent, the specialist working that territory, the Chief of Division and finally approved by the Director of Extension. This system has the effect of keeping the agents in closer touch with the College and of preventing the possibility of friction between specialists and county agents. Whenever a specialist visits a county the purpose of his visit is well understood by the county agent, the work having been mapped out early in the year.

Respectfully yours,

D. W. WATKINS,
Acting Director.
Report of The Fertilizer Board

Dr. W. M. Riggs,
Clemson College, S. C.

Dear Sir:

I respectfully submit the following report of the fertilizer Department for the fiscal year ending June 30, 1919.

Notwithstanding the active propaganda carried on in the early months of this year for reduction of acreage and fertilizers devoted to cotton, our records show sales of only forty thousand tons less than last year; if we take into the account the larger amount of Nitrate Soda sold by the Government to farmers and on which this Department again waived the inspection tax, the amount sold is quite equal to that of last year. The reported reductions of cotton acreage however, inspires the hope that larger acreage and application of fertilizers have been devoted to corn and other food-crops. The Government in taking control and fixing a price on cotton seed and their products resulted later in an embargo on the sale of these products, so our records show little more than half the amount of cotton seed meal sold direct for fertilizers as was done the previous year; but the price thus fixed helped to sustain the high price of other ammoniates through the season until near its close, when the nitrogenous materials collected and held by the Government for munition purposes were placed on the market, resulting in large reduction of prices. The railroads and express companies again failed to transport promptly in their usual good order the consignments of tags and fertilizers entrusted to them, causing much confusion and inconvenience to the consignees. But we hope with returning peace, stable prices and better conditions will prevail another season.

Inspection

The usual number of official inspectors were appointed for the season, but owing to emergencies created by war conditions, four of those so appointed had accepted other work, and their places were filled by young men returning from the camps, and the work has been performed in efficient and satisfactory manner. On the report and request of these inspectors at our April meeting that they found their former pay inadequate for any living wage under increased cost of living, their salary was raised $37.50 per month
to take effect from the beginning of the season. The manufacturing and shipping companies have shown commendable effort to comply for the most part with the requirements of the law, and but few flagrant violations have been reported.

The growing demand by individual farmers for the analysis of their purchases, often calling to their aid the Demonstration agents of their respective Counties, places this Department under obligations to these agents for their assistance this season in sending larger number of these farmers samples drawn in conformity with the laws governing this subject, and thus giving our inspectors larger opportunity for their official work. The sale and delivery in this State of over one million tons of fertilizers within practically three or four months, requires these inspectors to keep on the alert, each in his own District, to see that all regulations, weights, guarantees, etc., are complied with, and get us samples of all fertilizers sold or offered for sale on the markets in the depots, cars, or warehouses of the State during the season.

**Analysis**

The analyses of all samples received is now about completed, will be compiled in largè annual bulletin and sent out to the entire mailing list of the Station. This work this season has been pressed by the Chemists with all the dispatch consistent with careful and efficient work.

For the purpose of comparison with last year’s work, the following exhibit is submitted, as will more fully appear in Dr. Brackett’s detailed report, Viz:

<table>
<thead>
<tr>
<th></th>
<th>1917-1918</th>
<th>1918-1919</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizers other than meal sold (tons)</td>
<td>859.244</td>
<td>887.065</td>
</tr>
<tr>
<td>Cotton Seed Meal sold (tons)</td>
<td>208.755</td>
<td>146.822</td>
</tr>
<tr>
<td>Number Official samples analyzed</td>
<td>1.471</td>
<td>1.301</td>
</tr>
<tr>
<td>Number Farmers analyzed</td>
<td>.105</td>
<td>.136</td>
</tr>
<tr>
<td>Number official samples deficient 3% or more</td>
<td>.102</td>
<td>.142</td>
</tr>
</tbody>
</table>

A detailed statement of the expenses of this Department will appear in the Treasurer’s itemized report to which I respectfully refer.

Respectfully submitted,

H. M. STACKHOUSE.
Dr. W. M. Riggs, President,
Clemson College, S. C.

Dear Sir:

I respectfully submit the following report of the work on commercial fertilizers, waters, etc., done for the Board of Fertilizer Control, and for the citizens of the State, and for the various Departments of the College, and referee and collaborative work during the year ending June 30, 1919. For the sake of comparison the figures for the last year are given side by side with this year:

<table>
<thead>
<tr>
<th></th>
<th>1917-1918</th>
<th>1918-1919</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official samples of Fertilizers</td>
<td>1474</td>
<td>1301</td>
</tr>
<tr>
<td>Farmers’ samples of Fertilizers</td>
<td>108</td>
<td>136</td>
</tr>
<tr>
<td>Ores, minerals, etc., for identification</td>
<td>48</td>
<td>35</td>
</tr>
<tr>
<td>Waters</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Ashes (wood, peat, manure, moss, coal)</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Limestones, marls, and lime</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Assays for gold and silver</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Manganese ores</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Iron ores</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Clays and ochers</td>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1744</td>
<td>1565</td>
</tr>
</tbody>
</table>

The most striking facts brought out by a study of this table are: That there is a decrease of official fertilizer samples collected by inspectors of 173, or 11.73 per cent. this year as compared with last; an increase of twenty-eight farmers’ samples of fertilizers or nearly twenty-six per cent. this year over last; a falling off of a little more than one fourth in the ores, minerals etc., for identification; no increase in the number of waters analysed this year; and a decrease of about 42.5 per cent. in the miscellaneous samples this year as compared with last year. Finally, that the total number of samples received this year is less by 179, or about 10.25 per cent., than last year. While these decreases, as stated in my report last year in explanation of a similar falling off in the number of samples as compared with the previous year, are probably due to conditions incident to the Great War, the decrease in the number of official fertilizer samples received this year as compared with last is likely the result of the falling off in the number of brands on the market, the sale of nitrate of soda directly to the farmer by the Government, and, thirdly to the larger lot shipments prevailing this year as compared with last year.
DISCUSSION OF THE RESULTS OF THE ANALYSES

The following discussion of the results of the analyses of the official samples of fertilizers inspected during the season 1918-19 is taken from the annual report of the analytical work of the Chemical Department made to the President of the College by the Chief Chemist:

OFFICIAL FERTILIZER SAMPLES
CLASSIFICATION

<table>
<thead>
<tr>
<th></th>
<th>1917-1918</th>
<th>1918-1919</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete fertilizers</td>
<td>524</td>
<td>549</td>
</tr>
<tr>
<td>Home mixtures</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Special mixtures (phos. acid and ammonia)</td>
<td>470</td>
<td>358</td>
</tr>
<tr>
<td>Acid phosphates</td>
<td>106</td>
<td>69</td>
</tr>
<tr>
<td>Acid phosphates with potash</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Cotton seed meals</td>
<td>266</td>
<td>204</td>
</tr>
<tr>
<td>Nitrate of soda</td>
<td>21</td>
<td>11</td>
</tr>
<tr>
<td>American potash</td>
<td>31</td>
<td>49</td>
</tr>
<tr>
<td>Dried blood</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Fish</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Tankage</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Sulphate of ammonia</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td><strong>1474</strong></td>
<td><strong>1301</strong></td>
</tr>
</tbody>
</table>

DEFICIENT SAMPLES

Of the 1301 samples above classified twenty-nine are omitted from the discussion which follows. These twenty-nine samples are:

Two complete fertilizers, and one each special mixture containing phosphoric acid and ammonia, and special mixture containing ammonia and potash, all four of which for good and sufficient reasons the Secretary of the Board of Fertilizer Control did not publish.

Sixteen samples of ground phosphate rock.
Two cotton seed meals guaranteed in ammonia only.
Two cotton seed meals guaranteed in protein only.
One cotton seed meal designated as “low grade.”
Three samples of goat manure.
One home mixture.

Of the remaining 1272 samples 313 fell below the commercial value based on the guarantee. They were as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In available phosphoric acid</td>
<td>19</td>
</tr>
<tr>
<td>In ammonia</td>
<td>121</td>
</tr>
<tr>
<td>In potash</td>
<td>58</td>
</tr>
<tr>
<td>In available phosphoric acid and ammonia</td>
<td>30</td>
</tr>
<tr>
<td>In available phosphoric acid and potash</td>
<td>14</td>
</tr>
<tr>
<td>In ammonia and potash</td>
<td>61</td>
</tr>
<tr>
<td>In available phosphoric acid, ammonia and potash</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>313</strong></td>
</tr>
</tbody>
</table>
Last season, out of 1437 samples, 236, or 16.42 per cent., were deficient in commercial value based on guarantee, while this season the number so deficient is 313 out of 1272, or 24.6 per cent.

The extent to which these 313 samples fell below the guaranteed analyses in per cent. is as follows:

<table>
<thead>
<tr>
<th></th>
<th>0.0-0.10</th>
<th>0.1-0.25</th>
<th>0.25-0.50</th>
<th>0.50-1</th>
<th>1 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>In ammonia</td>
<td>71</td>
<td>45</td>
<td>53</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>In potash</td>
<td>15</td>
<td>39</td>
<td>39</td>
<td>29</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>109</td>
<td>102</td>
<td>108</td>
<td>79</td>
<td>33</td>
</tr>
</tbody>
</table>

This is a much worse showing than last year, especially as to ammonia and potash.

Of the 313 samples which fell below the commercial value based on guarantee, 144 samples fell three per cent. or more below that value. They are as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In available phosphoric acid</td>
<td>2</td>
</tr>
<tr>
<td>In ammonia</td>
<td>52</td>
</tr>
<tr>
<td>In potash</td>
<td>28</td>
</tr>
<tr>
<td>In available phosphoric acid and ammonia</td>
<td>16</td>
</tr>
<tr>
<td>In available phosphoric acid and potash</td>
<td>4</td>
</tr>
<tr>
<td>In ammonia and potash</td>
<td>33</td>
</tr>
<tr>
<td>In available phosphoric acid, ammonia and potash</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>144</td>
</tr>
</tbody>
</table>

Last season out of 236 samples which were deficient in commercial value based on guarantee, 107, or 45.33 per cent., were three per cent. or more deficient, while this season the number so deficient is 144 out of 313, or 46 per cent., a slight increase. As compared with the total number of samples, last season 107 out of 1474, or about 7 1/4 per cent., and this season 144 out of 1301, or about 11 per cent., were three per cent. or more deficient in commercial value based on guarantee, quite a considerable increase.

The extent to which the 144 samples, which were deficient in commercial value three per cent. or more based on guarantee, fell below the guaranteed analysis in per cent., is as follows:

<table>
<thead>
<tr>
<th></th>
<th>0.0-0.10</th>
<th>0.1-0.25</th>
<th>0.25-0.50</th>
<th>0.50-1</th>
<th>1 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>In available phosphoric acid</td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>In ammonia</td>
<td>22</td>
<td>17</td>
<td>32</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>In potash</td>
<td>3</td>
<td>12</td>
<td>18</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>29</td>
<td>35</td>
<td>59</td>
<td>60</td>
<td>32</td>
</tr>
</tbody>
</table>

In addition to the 313 samples deficient in commercial value based on guarantee, there were 362 samples which were below guarantee in one or more ingredients, the deficiency being made up, however, by an excess of other constituents. They are:
In available phosphoric acid ———— 72
In ammonia ———— 160
In potash ———— 100
In available phosphoric acid and ammonia ———— 7
In available phosphoric acid and potash ———— 15
In ammonia and potash ———— 8

362

Last season, out of 1437 samples, 438, or 30.48 per cent., were deficient in one or more ingredients, but not deficient in commercial value based on guarantee, while this season the number so deficient is 362 out of 1272, or 28.45 per cent., a slight decrease.

The extent to which these 362 samples fell below the guaranteed analysis in per cent. is as follows:

<table>
<thead>
<tr>
<th></th>
<th>0-0.10</th>
<th>0.1-0.25</th>
<th>0.25-0.50</th>
<th>0.50-1</th>
<th>1 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>In available phosphoric acid</td>
<td>23</td>
<td>28</td>
<td>22</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>In ammonia</td>
<td>125</td>
<td>38</td>
<td>19</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>In potash</td>
<td>60</td>
<td>42</td>
<td>15</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

|                  |        |          |          |        |            | 208 | 108 | 56 | 24 | 5 |

In connection with the subject of deficiencies, the results of some of the analyses this season as compared with last season are interesting:

**Acid Phosphates**

<table>
<thead>
<tr>
<th></th>
<th>1917-1918</th>
<th>1918-1919</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guaranteed 16 per cent.</td>
<td>105</td>
<td>69</td>
</tr>
<tr>
<td>Deficient</td>
<td>18 (17.14%)</td>
<td>9 (13.04%)</td>
</tr>
<tr>
<td>Deficient 3 per cent. or more</td>
<td>8 (7.62%)</td>
<td>0</td>
</tr>
</tbody>
</table>

This shows that the 16 per cent. acid phosphates on the market this year are very much better in quality than those which fell into our hands last year, especially as there are no samples three per cent. deficient this season. Only one sample of the guarantee 14 per cent., as was the case last year, but this sample was over three per cent. deficient in commercial value, whereas the sample last year was well over its guarantee.

**Acid Phosphates with Potash:**—Six samples of these goods were analyzed this season. One each as follows: 8-0-1 and 10-0-2, the former deficient in potash, but not three per cent. in commercial value, the latter well up to its guarantee. Four samples of the guarantee 10-0-4, of which three samples were well over their guarantees, and the fourth deficient in potash, but not deficient in commercial value, the potash deficiency being made up by a large excess of phosphoric acid. Last season we had only three samples of these goods, one each as follows: 10-0-2, deficient in potash, but not three per cent. in commercial value; 8-0-5, deficient in potash and three per cent. in commercial value; 12-0-2, deficient in potash, but not three per cent. in commercial value.

That the supply of potash is much greater this season than last is shown not only by the fact that we had twice as many goods of this class as last year, but by the increase in the number of potash salts received for analysis from 31 last year to 49 this season, and
also the increase in the number of complete fertilizers this year from 524 to 549.

In connection with the potash deficiencies not only in acid phosphates with potash, but also in mixed goods, the following summary for the last fifteen years is interesting. It is to be noted that none of the deficient samples quoted is deficient in commercial value:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Samples</th>
<th>Deficient in one or more ingredients</th>
<th>Deficient in Potash only</th>
<th>Deficient in Potash Per Cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>522</td>
<td>165</td>
<td>53</td>
<td>32.12</td>
</tr>
<tr>
<td>1906</td>
<td>655</td>
<td>201</td>
<td>62</td>
<td>30.84</td>
</tr>
<tr>
<td>1907</td>
<td>743</td>
<td>153</td>
<td>34</td>
<td>22.22</td>
</tr>
<tr>
<td>1908</td>
<td>713</td>
<td>161</td>
<td>54</td>
<td>33.54</td>
</tr>
<tr>
<td>1909</td>
<td>805</td>
<td>197</td>
<td>85</td>
<td>43.14</td>
</tr>
<tr>
<td>1910</td>
<td>1188</td>
<td>235</td>
<td>86</td>
<td>36.60</td>
</tr>
<tr>
<td>1911</td>
<td>1605</td>
<td>393</td>
<td>182</td>
<td>46.31</td>
</tr>
<tr>
<td>1912</td>
<td>1689</td>
<td>380</td>
<td>225</td>
<td>59.21</td>
</tr>
<tr>
<td>1913</td>
<td>1922</td>
<td>389</td>
<td>90</td>
<td>23.13</td>
</tr>
<tr>
<td>1914</td>
<td>2537</td>
<td>534</td>
<td>113</td>
<td>21.16</td>
</tr>
<tr>
<td>1915</td>
<td>1227</td>
<td>333</td>
<td>107</td>
<td>23.13</td>
</tr>
<tr>
<td>1916</td>
<td>1598</td>
<td>378</td>
<td>54</td>
<td>14.28</td>
</tr>
<tr>
<td>1917</td>
<td>1594</td>
<td>477</td>
<td>75</td>
<td>15.72</td>
</tr>
<tr>
<td>1918</td>
<td>1474</td>
<td>438</td>
<td>68</td>
<td>15.52</td>
</tr>
<tr>
<td>1919</td>
<td>1301</td>
<td>362</td>
<td>100</td>
<td>27.62</td>
</tr>
</tbody>
</table>

This summary shows that of the samples deficient in one or more ingredients, but not deficient in commercial value, a very large percentage are deficient in potash only. This deficiency was especially large during the years 1909 to 1912, inclusive. There was a marked drop in the years 1913 and 1914, but in 1915 the percentage deficiency was the same as in 1905. The figures for 1916 are not very significant on account of the small number of samples on the market containing potash. The percentage deficiency this year is very considerably greater than in 1917 and 1918, when the deficiency was small and about the same.

Top Dressers:—While a considerable improvement was noted in this class of goods last season as compared with the previous season, this year there is a notable falling off in quality, especially as to the samples deficient three per cent. or more, which is more than twice as large in per cent. of the whole number of samples discussed than was the case last year, though there were only half as many samples this year as last. This year we received for analysis thirty samples in all, of which seventeen, or 56.66 per cent. were deficient in commercial value, and of these thirteen or 43.33 per cent. of the whole number of samples were three per cent. or more deficient, whereas last year there were sixty samples in all, of which 33, or 55 per cent., were deficient in commercial value, and of these 11, or 18.33 per cent., were three per cent. or more deficient.

One each of the following guarantees was analyzed with the results indicated and a comparison with last year: 5.75-6.10-0, found up to guarantee, while last year the one sample received was deficient in ammonia but not three per cent.; 2-10-0, deficient in ammonia and three per cent.; last year one, up to its guarantee; 8-8-0, deficient in phosphoric acid but not in commercial value, last
year one, deficient in ammonia but not in commercial value; 4-7½-2, deficient in ammonia but not three per cent., last year two samples, both up to guarantee; 4-8-0, deficient in ammonia and three per cent. in commercial value, last year four samples, one up to guarantee, the other three deficient in ammonia, of which two were three per cent. and one not deficient in commercial value; 5-10-0, deficient in ammonia and three per cent. in commercial value, last year four samples, three of which were deficient in ammonia, but not three per cent. in commercial value, while the fourth was deficient in both ingredients and three per cent. in commercial value; 7-8-0, deficient in phosphoric acid, but not in commercial value, last year none of this guarantee; 6-6-0, up to guarantee. Last year none; 6-0-0, deficient in phosphoric acid but not in commercial value, last year none.

Two each of the following guarantees:—4-7½-2½, one deficient in ammonia, but not in commercial value, the other deficient in both ammonia and potash and three per cent. in commercial value, last year three samples, one up to guarantee, the other two deficient in both ammonia and potash and three per cent. in commercial value; 4-7½-1½, one up to guarantee, and one deficient in ammonia, but not in commercial value, last year none; 4-6-0, both deficient in ammonia and three per cent in commercial value, last year one sample, deficient in ammonia, but not in commercial value; 0-9-3, one deficient in ammonia, but not three per cent. in commercial value, the other deficient in both ammonia and potash and three per cent. in commercial value. Last year there were seven samples 0-9-3, of which three were found deficient in commercial value one being three per cent. and the other two not three per cent. deficient in commercial value; the one three per cent. was deficient in both ingredients, while of the two not three per cent., one was deficient in both ingredients, and the other in potash only; three samples were found not deficient in commercial value, but one of them deficient in ammonia and the other in potash.

Thirteen of the following guarantee:—4-7½-0, of which six were up to guarantee, two deficient in ammonia, but not three per cent., in commercial value, and five deficient in ammonia and three per cent. deficient in commercial value. Last year there were twenty-three samples of this class of goods and this guarantee, of which twelve were found deficient in ammonia, and eleven of these were three per cent. deficient in commercial value and one not three per cent.; four were deficient in ammonia, but not in commercial value; one deficient in phosphoric acid, but not in commercial value. This shows a decided improvement in this particular class of top dressers, there being five out of thirteen samples three per cent. deficient in commercial value, or 38.46 per cent., as compared with eleven out of twenty-three or 47.8 per cent. last year.
### Averages of Analyses

<table>
<thead>
<tr>
<th></th>
<th>1917-1918 Found</th>
<th>1917-1918 Guaranteed</th>
<th>1918-1919 Found</th>
<th>1918-1919 Guaranteed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acid Phosphates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available phosphoric acid</td>
<td>16.71</td>
<td>15.98</td>
<td>16.86</td>
<td>15.97</td>
</tr>
<tr>
<td>Insoluble phosphoric acid</td>
<td>0.60</td>
<td></td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td>Total phosphoric acid</td>
<td>17.31</td>
<td></td>
<td>17.45</td>
<td></td>
</tr>
<tr>
<td><strong>Special Mixtures (Acid Phosphates with Ammonia)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available phosphoric acid</td>
<td>8.68</td>
<td>7.65</td>
<td>8.84</td>
<td>8.22</td>
</tr>
<tr>
<td>Insoluble phosphoric acid</td>
<td>0.78</td>
<td></td>
<td>0.70</td>
<td></td>
</tr>
<tr>
<td>Total phosphoric acid</td>
<td>9.44</td>
<td></td>
<td>9.54</td>
<td></td>
</tr>
<tr>
<td>Ammonia</td>
<td>3.59</td>
<td>3.42</td>
<td>3.39</td>
<td>3.35</td>
</tr>
<tr>
<td><strong>Complete Fertilizers</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available phosphoric acid</td>
<td>8.54</td>
<td>8.10</td>
<td>8.82</td>
<td>8.25</td>
</tr>
<tr>
<td>Insoluble phosphoric acid</td>
<td>0.80</td>
<td></td>
<td>0.74</td>
<td></td>
</tr>
<tr>
<td>Total phosphoric acid</td>
<td>9.34</td>
<td></td>
<td>9.56</td>
<td></td>
</tr>
<tr>
<td>Ammonia</td>
<td>3.09</td>
<td>2.96</td>
<td>2.95</td>
<td>2.82</td>
</tr>
<tr>
<td>Potash soluble in water</td>
<td>2.25</td>
<td>2.07</td>
<td>2.23</td>
<td>2.19</td>
</tr>
<tr>
<td><strong>Cotton Seed Meals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available phosphoric acid</td>
<td>2.33</td>
<td>1.50</td>
<td>2.34</td>
<td>1.50</td>
</tr>
<tr>
<td>Ammonia</td>
<td>7.06</td>
<td>7.00</td>
<td>7.06</td>
<td>7.00</td>
</tr>
<tr>
<td>Potash soluble in water</td>
<td>1.57</td>
<td>1.00</td>
<td>1.47</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Nitrate of Soda</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ammonia (equivalent)</td>
<td>18.50</td>
<td>18.01</td>
<td>18.59</td>
<td>18.02</td>
</tr>
<tr>
<td><strong>American Potash</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potash soluble in water</td>
<td>37.98</td>
<td>39.26</td>
<td>29.77</td>
<td>29.81</td>
</tr>
</tbody>
</table>

As stated in my last annual report, it has been customary to include in the above table acid phosphates with potash, but this year only six samples of such goods have been received, and last year only three. These goods have been discussed elsewhere in this report.

It has also been customary, as stated in my last annual report, to include in the above table the averages of the kainits, muriates of potash and sulphates of potash, all of which were German salts. No samples of German salts have been received for the past three seasons. We have, however, included in the above table this year the averages of the American potash salts received last year and this. Last year we received thirty-one samples of American potash of which eighteen were called Nebraska potash, one sample untagged was probably also Nebraska potash, one sample was kelp ash, and eleven were muriates and likely the so-called “Trona” potash. This year we received forty-nine samples of American potash, of which forty-five were apparently “trona” potash, one Nebraska potash, and three samples of kelp ash.

The following table shows the averages of fertilizers from the time the Board of Trustees of the Clemson Agricultural College of South Carolina took charge of the fertilizer inspection down to the present time, or from 1891 to 1919, inclusive:
<table>
<thead>
<tr>
<th>Season</th>
<th>Acid Phosphates</th>
<th>Acid Phosphate with Potash</th>
<th>Complete Fertilizer</th>
<th>Cotton Seed Meals</th>
<th>Kainite</th>
<th>Muriate of Potash</th>
<th>Muriate of Soda</th>
<th>Acid Phosphate with Ammonia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Samps.</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
<td>Available Acid Phosphate (Per Cent)</td>
</tr>
<tr>
<td>1890-1</td>
<td>19</td>
<td>11.81</td>
<td>1.66</td>
<td>1.3</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.81</td>
</tr>
<tr>
<td>1891-2</td>
<td>20</td>
<td>11.98</td>
<td>1.39</td>
<td>1.5</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.98</td>
</tr>
<tr>
<td>1892-3</td>
<td>21</td>
<td>11.63</td>
<td>1.22</td>
<td>1.3</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.63</td>
</tr>
<tr>
<td>1893-4</td>
<td>22</td>
<td>11.01</td>
<td>1.11</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.01</td>
</tr>
<tr>
<td>1894-5</td>
<td>23</td>
<td>11.00</td>
<td>1.10</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.00</td>
</tr>
<tr>
<td>1895-6</td>
<td>24</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1896-7</td>
<td>25</td>
<td>11.86</td>
<td>1.15</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.86</td>
</tr>
<tr>
<td>1897-8</td>
<td>26</td>
<td>11.91</td>
<td>1.16</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.91</td>
</tr>
<tr>
<td>1898-9</td>
<td>27</td>
<td>11.97</td>
<td>1.17</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.97</td>
</tr>
<tr>
<td>1899-100</td>
<td>28</td>
<td>11.98</td>
<td>1.18</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.98</td>
</tr>
<tr>
<td>1900-1</td>
<td>29</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1901-2</td>
<td>30</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1902-3</td>
<td>31</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1903-4</td>
<td>32</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1904-5</td>
<td>33</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1905-6</td>
<td>34</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1906-7</td>
<td>35</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1907-8</td>
<td>36</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1908-9</td>
<td>37</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1909-10</td>
<td>38</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1910-11</td>
<td>39</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1911-12</td>
<td>40</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1912-13</td>
<td>41</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1913-14</td>
<td>42</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1914-15</td>
<td>43</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1915-16</td>
<td>44</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1916-17</td>
<td>45</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1917-18</td>
<td>46</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
<tr>
<td>1918-19</td>
<td>47</td>
<td>11.99</td>
<td>1.19</td>
<td>1.6</td>
<td>0.93</td>
<td>0.06</td>
<td>0.0</td>
<td>11.99</td>
</tr>
</tbody>
</table>

**YEARLY AVERAGE OF ANALYSES FROM 1891 TO 1919, INCLUSIVE.**
In this table, as in the preceding ones, the ammonia yielded by the nitrogen in fertilizers is given instead of the nitrogen itself, as in the trade goods are still bought and sold on the ammonia basis. The per cent. of nitrogen is readily calculated, as fourteen-seventeenths of the ammonia is practically the per cent. of the nitrogen it contains.

GRADES

In the following table the number of acid phosphates, acid phosphates with potash, complete fertilizers, cotton seed meals, and special mixtures (acid phosphates with ammonia) of each grade, according to guarantee, is placed side by side with the number found on analysis to belong to that grade, fertilizers having commercial values equal to those of schedule grades being placed in these grades:

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Standard</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Claimed</td>
<td>Found</td>
<td>Claimed</td>
</tr>
<tr>
<td>Acid phosphates (69)</td>
<td>69</td>
<td>69</td>
<td>0</td>
</tr>
<tr>
<td>Acid phosphates with potash (6)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complete fertilizers (514)</td>
<td>291</td>
<td>287</td>
<td>211</td>
</tr>
<tr>
<td>Cotton seed meals (199)</td>
<td>1</td>
<td>31</td>
<td>198</td>
</tr>
<tr>
<td>Special mixtures (357)</td>
<td>26</td>
<td>31</td>
<td>191</td>
</tr>
<tr>
<td><strong>Total (1175)</strong></td>
<td><strong>336</strong></td>
<td><strong>427</strong></td>
<td><strong>510</strong></td>
</tr>
</tbody>
</table>

These results are due to the following changes in grade ascertained by analysis:

<table>
<thead>
<tr>
<th></th>
<th>Low to High</th>
<th>Low to Standard</th>
<th>Low to High</th>
<th>Low to Standard</th>
<th>Low to High</th>
<th>Low to Standard</th>
<th>No Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid phosphates (69)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>69</td>
</tr>
<tr>
<td>Acid phosphates with potash (6)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Complete fertilizers (514)</td>
<td>0</td>
<td>19</td>
<td>16</td>
<td>21</td>
<td>2</td>
<td>10</td>
<td>476</td>
</tr>
<tr>
<td>Cotton seed meals (199)</td>
<td>0</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>115</td>
</tr>
<tr>
<td>Special mixtures (357)</td>
<td>0</td>
<td>56</td>
<td>6</td>
<td>1</td>
<td>2</td>
<td>222</td>
<td>292</td>
</tr>
<tr>
<td><strong>Total (1175)</strong></td>
<td><strong>0</strong></td>
<td><strong>75</strong></td>
<td><strong>55</strong></td>
<td><strong>22</strong></td>
<td><strong>2</strong></td>
<td><strong>33</strong></td>
<td><strong>888</strong></td>
</tr>
</tbody>
</table>

This table shows that of 1175 samples, 988 were of the grade claimed for them, 130 were of a higher grade, and 57 of a lower grade than that claimed for them. Last season out of 1356 samples, 1190 were of the grade claimed, 131 of a higher grade, and 35 of a lower grade than that claimed for them. Expressed in percentages the figures for the season just before the Great War, and for the five seasons since that war began are as follows:

<table>
<thead>
<tr>
<th>Season</th>
<th>Of Grade Claimed</th>
<th>Higher than Grade Claimed</th>
<th>Lower than Grade Claimed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1913-1914</td>
<td>88.42</td>
<td>9.39</td>
<td>1.57</td>
</tr>
<tr>
<td>1914-1915</td>
<td>85.95</td>
<td>6.37</td>
<td>7.67</td>
</tr>
<tr>
<td>1915-1916</td>
<td>82.04</td>
<td>13.50</td>
<td>4.45</td>
</tr>
<tr>
<td>1916-1917</td>
<td>88.57</td>
<td>8.62</td>
<td>2.80</td>
</tr>
<tr>
<td>1917-1918</td>
<td>87.75</td>
<td>9.66</td>
<td>2.51</td>
</tr>
<tr>
<td>1918-1919</td>
<td>84.08</td>
<td>11.08</td>
<td>4.85</td>
</tr>
</tbody>
</table>
This table shows that in the year just previous to the Great War about 98 per cent. of the samples analysed were of the grade claimed or higher, that in 1914-1915 there were about 92 per cent., in 1915-1916 about 95.50 per cent., in 1916-1917 and 1917-1918 about 97, and this season about 95 per cent.

In order to compare the results of this season’s grades with those of last season, the following summary is given:

<table>
<thead>
<tr>
<th></th>
<th>Claimed</th>
<th>Above</th>
<th>Below</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid phosphates</td>
<td>106</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Acid phosphates with potash</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Complete fertilizers</td>
<td>458</td>
<td>49</td>
<td>15</td>
</tr>
<tr>
<td>Cotton seed meals</td>
<td>213</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>Special mixtures</td>
<td>410</td>
<td>51</td>
<td>9</td>
</tr>
</tbody>
</table>

Attention was called in my last three annual reports to the number of Low Grade cotton seed meals on the market. It was noted that the number of such meals had decreased from 16.73 per cent. in 1915-1916 to 9.90 per cent. in 1916-1917, and last year fell to 4.31 per cent. This season the number of Low Grade cotton seed meals has risen to about 10.5 per cent., nearly the same as in 1916-1917. This rise seems to be due to the fact that with the signing of the armistice the demand for linters ceased, or at least fell much below normal. The presence of so much linters in the meal has given rise to much complaint from the farmers on account of the difficulty of distributing such meals as fertilizers.

**Nitrogen:**—Deficiencies, Sources and Availability.

In connection with the subject of deficiencies in nitrogen, or equivalent ammonia, the following table is interesting. It is to be noted that none of the deficient samples given is deficient in commercial value:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Samples</th>
<th>Deficient in one or more Ingredients</th>
<th>Deficient in Nitrogen only</th>
<th>Deficient in Nitrogen Per Cent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>522</td>
<td>165</td>
<td>61</td>
<td>36.96</td>
</tr>
<tr>
<td>1906</td>
<td>655</td>
<td>201</td>
<td>87</td>
<td>43.28</td>
</tr>
<tr>
<td>1907</td>
<td>743</td>
<td>153</td>
<td>81</td>
<td>52.94</td>
</tr>
<tr>
<td>1908</td>
<td>713</td>
<td>161</td>
<td>77</td>
<td>47.82</td>
</tr>
<tr>
<td>1909</td>
<td>805</td>
<td>197</td>
<td>74</td>
<td>37.56</td>
</tr>
<tr>
<td>1910</td>
<td>1188</td>
<td>235</td>
<td>79</td>
<td>33.61</td>
</tr>
<tr>
<td>1911</td>
<td>1605</td>
<td>393</td>
<td>107</td>
<td>27.22</td>
</tr>
<tr>
<td>1912</td>
<td>1689</td>
<td>339</td>
<td>71</td>
<td>18.68</td>
</tr>
<tr>
<td>1913</td>
<td>1922</td>
<td>380</td>
<td>190</td>
<td>48.84</td>
</tr>
<tr>
<td>1914</td>
<td>2537</td>
<td>534</td>
<td>257</td>
<td>48.13</td>
</tr>
<tr>
<td>1915</td>
<td>1227</td>
<td>333</td>
<td>145</td>
<td>43.54</td>
</tr>
<tr>
<td>1916</td>
<td>1598</td>
<td>378</td>
<td>130</td>
<td>34.29</td>
</tr>
<tr>
<td>1917</td>
<td>1594</td>
<td>477</td>
<td>224</td>
<td>46.96</td>
</tr>
<tr>
<td>1918</td>
<td>1474</td>
<td>438</td>
<td>189</td>
<td>43.15</td>
</tr>
<tr>
<td>1919</td>
<td>1301</td>
<td>362</td>
<td>160</td>
<td>44.19</td>
</tr>
</tbody>
</table>

While there was some improvement last year over the previous year, the results this season show a slightly higher per cent. of samples of goods deficient in ammonia only than last year. All of
these samples were deficient in one or more ingredients but not deficient in commercial value.

The nitrogen availability standards have not been changed for the past four seasons, and the same will be in effect during the coming season. They are as follows:

1st. The Modified Neutral Permanganate Method of Street is still in force.

2nd. An unmixed fertilizer material furnishing organic nitrogen must show an availability of 85 per cent. of the total organic nitrogen.

3rd. The water-insoluble organic nitrogen in mixed fertilizers must show an availability of 75 per cent., by Street’s method, if the water-insoluble organic nitrogen amounts to one-third or more of the total nitrogen found on analysis.

The entrance of several of our working force into Military Service has made it impossible to carry on this work, and examine all of the samples received with the usual thoroughness, but we have had no reason to suspect that there would be more than the usual number of samples below our required standards, from the appearance of the samples and the operations of analysis. In past years from 90 to 98 per cent. of the samples received met our availability requirements.

Farmers’ Samples of Fertilizers:—In addition to the official fertilizer samples collected by inspectors, there have been analyzed this season 136 samples for individual purchasers, as provided for in Section 1540 of the Fertilizer Law.

Ashes:—As stated in my last report the interest in potash sources still continues. Six samples were analyzed this season as compared with four last year, and eight in 1916-1917.

Waters:—Of the fifty-eight samples of waters analyzed this season, forty-one were sanitary analyses and three complete, mineral water analyses for citizens of the State; two sanitary and one complete analysis of well waters on the campus; eleven sanitary analyses of the College water supply, namely barracks spring and the standpipe waters.

Limestones, Marls, and Lime:—Under this head two samples were analyzed this season and the same number last season.

Ores, Minerals, etc.:—Of the thirty-nine samples listed under this head, thirty-five were ores, minerals, rocks, etc., for examination and identification, and four assays for gold and silver.

Miscellaneous:—The twenty-three samples classified under this head consist of: one analysis of a potash sample for the Horticultural Division (through Professor Young); one sample of arsenate of lead analyzed for the Entomological Division (through Professor Conradi); three samples of fertilizer materials, referee work; two samples of water for the Association of Official Agricultural Chemists, collaborative work; three samples of American potash for alkali; three samples of cider for alcohol, the examination being authorized by the Governor of the State; two samples of peat; one each of oil mill sweepings, tobacco stems, hemp waste, castor bean pods, kelp ash, boiler scale, burnt cotton seed, and waste common salt.
Distribution of the Work:—The fertilizer analyses were made by Messrs. Robertson, Foy and Freeman. Mr. Inman examined several samples of fertilizers for sources of ammonia, upon the request of farmers.

All of the miscellaneous work, other than fertilizers, and the two samples referred to above as collaborative work, was performed by Mr. Freeman. Mr. Mitchell analysed the collaborative samples.

It is a pleasure to be able to repeat the statement made in my last annual report that each and every one of the assistants in this Department has rendered faithful and efficient service throughout the year, and that perfect harmony and hearty cooperation have existed.

Very respectfully,
R. N. BRACKETT,
Director and Chief Chemist.
CROP PEST COMMISSION

Dr. W. M. Riggs, President,
Clemson Agricultural College,
Clemson College, S. C.

Dear Sir:

We submit herewith the annual report of the South Carolina State Crop Pest Commission for the fiscal year ending June 20, 1919.

The work was prosecuted along the same lines as the previous year and the same policy pursued. Notwithstanding the many handicaps incident to the war very satisfactory progress was made in this work. This is a service of great importance to the state and warrants serious efforts for its continued improvements from year to year. It is only in recent years that the great importance of the danger of transporting injurious pests from one place to another has been appreciated and the efficiency of State and Federal Quarantine has been continually improving since the passage of the Plant Quarantine Act by Congress in 1912. The old system of quarantine service was inadequate and in some years had very little influence in the dissemination of pests even where the protective regulations adopted were conscientiously executed. In our work less weight is given from year to year to the policing features and our efforts are directed toward developing the educational phase of the work and this we believe is responsible to a great extent, at least for the satisfactory development of the work.

The entire quarantine system is based on the principle of mutual co-operation between the Crop Commission and the people.

INTRA STATE NURSERY INSPECTION

There has been no increase in the number of nurseries in this state since the last annual report. There has been, however, a considerable increase in the number of plants shipped within the state. The past year was marked by an increase in business among our Nurseries due to better appreciation of good fruit, the beautifying of the home ground and a better understanding of the operation of the quarantine system. With few exceptions the Nurseries in this state are small.
The method of intra-state inspection has been changed and in the future several inspections will be made each year and it will not be necessary for the certificates to carry an expiration date. If this method is found practical we feel sure that it will be very useful in assisting Nurserymen in discovering any pests that may be introduced at one time or another during the year.

In addition to the regular Nurseries a number of individual inspections were made to meet the requirements of parties who desired to ship plants from one point to another but who were not in the Nursery business. The following is a record of Nurseries certified within this state.

**Name, Address and Numbers.**

Greenville Nursery Co., Greenville, 1 to 4028.
Greenville Nursery Co., Greenville, 46416 to 47016.
Greenville Nursery Co., Greenville, 51588 to 52088.
Greenville Nursery Co., Greenville, 57179 to 57479.
Greenville Nursery Co., Greenville, 64752 to 64952.
Thomas J. Linder, Converse, 19624 to 19723.
George Baldwin, Columbia, 43324 to 44322.
Jude Robinson, Rowesville, 46062 to 66409.
John Fulmer, Granitesville, 51108.
D. E. Goode, Walhalla, 19524 to 19623.
W. W. Watson, Orangeburg, 38241 to 38308.
Oakway Nursery, Westminister, 53415 to 52595.
F. E. Montmoll'n, Greenwood.
M. O. Dantzler, Orangeburg, 41226 to 41299.
O. D. Faust, Bamberg, 46610 to 46415.

**INTER STATE QUARANTINE**

This branch of the service suffered by considerable confusion from time to time owing to the conditions incident to the war and the severe epidemic of Influenza at the time when Nurseries were preparing for the fall shipping. This made the work in this office heavier and more exacting than in any previous year and occurred at a time when help was not available. Notwithstanding a number of errors which were unavoidable the service was greatly improved because we were compelled to devise methods for handling inter state invoices with an incomplete office and laboratory force.

The shipments are checked at this office when the invoices are received and a card devised for this purpose is mailed to the consignees in this state together with instructions. Many of these cards were returned properly filled out and after carefully checking these cards it became apparent that this method served the purpose effectively and economically. In some instances the complaints entered on the cards were justified while in other cases the Nurseries could not be held responsible. Unsatisfactory growth of the stock that was not promptly and properly planted could not be held
against the Nursery shipping it. All complaints reaching this Com-
mmission were investigated.

The present quarantine system is reducing the activity of un-
scrupulous agents who were accustomed to travel in this state and
sell stock for which they made remarkable claims: It has enabled
the Nurseries responsible for violations to make proper adjustments
thus protecting the purchaser. The most important result obtained,
ever, is the educational effect and we are looking with confi-
dence toward the time when our people will have become so
familiar with the protective measures offered by the State Crop
Pest Commission that they will automatically report any unsatis-
factory features about shipments received from points in this and
other states. A number of our people have already adopted the
plan of making inquiry in regard to the reputation of those Nur-
series from whom they contemplate purchasing.

Whenever infested stock is discovered ample time for adjustment
is given except in cases where the delay would constitute an im-
mediate public danger. Such necessity arises when shipments are
intercepted which are infested with boll weevil, root knot and other
equally dangerous pests. It was necessary this past season to de-
stroy only two shipments.

A list of certified Nurseries and dealers shipping into this state
follows:

**ALABAMA**

Name, Address, and Numbers.

Chase Nursery Co., Chase, 23987 to 24186.
Fraser Nursery Co., Huntsville, 32555 to 32654.
Huntsville Wholesale Nurseries, Huntsville, 32655 to 32756.
A. W. Newson, Huntsville, 38776 to 38881.
Alabama Gulf Coast Nurseries, Grand Bay, 40937 to 41026.
Eagle Pecan Co., Pitts View, 46062 to 46409.
Citronella Nurseries & Orchard Co., Citronella, 47230 to 47420.

**CALIFORNIA**

Name, Address, and Numbers.

Luther Burbank, Santa Rosa, 47219 to 47319.
California Nursery Co., Niles 53458 to 53468.

**FLORIDA**

Name, Address, and Numbers.

Royal Palm Nurseries, Oneca, 49537 to 24536.
Summit Nurseries, Monticello, 24337 to 24537.
Commercial Nursery Co., Monticello, 33253 to 33691.
C. M. Griffin, Maccleenny, 25187 to 36247.
J. Van LIndley Nurseries Co., Monticello, 36248 to 37267.
Simpson Nursery Co., Monticello, 32268 to 37967.
Hogansville Nursery, Monticello, 37676 to 37967.
Harlan Farms Nurseries, Maccleenny, 42171 to 42266.
Glen St. Marys Nurseries, Glen St. Mary, 42369 to 42469.
E. E. Stokes, Campville, 49450 to 48550.
Glen St. Marys Nursery Co., Glen St. Mary, 52089 to 52282

**GEORGIA**

**Name, Address, and Numbers.**
- P. J. Berckmans Co., Augusta, 34985 to 35186.
- H. G. Hastings Co., Atlanta, 19023 to 22524.
- G. M. Bacon Pecan Co., Dewitt, 37966 to 38170.
- Hartwell Nurseries, Hartwell, 24537 to 24734.
- Georgia Nursery Co., Concord, 25234 to 26226.
- Concord Nurseries, Concord, 29217 to 32209.
- Southern Nut Tree Nurseries, Thomasville, 32308 to 32406.
- Cureton Nurseries, Austell, 32402 to 32505.
- Hogansville Nursery, Hogansville, 33897 to 34388.
- C. A. Dahl Floral Co., Atlanta, 38171 to 38240.
- H. G. Hastings, Atlanta, 41300 to 41891.
- Rood Pecan Co., Albany, 41791 to 41891.
- Ashford Park Nursery, Atlanta, 42140 to 42145.
- Magnolia Nursery, Cairo, 42267 to 42368.
- Pecan Grove Farms, Cairo, 42571 to 42769.
- C. W. Brown, Baconton, 43126 to 43224.
- B. W. Stone, Thomasville, 44323 to 44819.
- Barnsville Nursery Co., Barnsville, 45756 to 45856.
- Sigmond Tarnock, Augusta, 50355 to 50555.
- T. H. Parker, Moultrie, 51057 to 51107.
- Sigmond Tarnock, Augusta, 51487 to 52913.
- N. L. Willet Seed Co., Augusta, 52613 to 52913.
- N. L. Willet Seed Co., Augusta, 62947 to 63947.

**ILLINOIS**

**Name, Address, and Numbers.**
- Vaughons Nursery Co., Western Springs, 53417 to 53457.

**MARYLAND**

**Name, Address, and Numbers.**
- Westminster Nursery Co., Westminster, 17535 to 17604
- Harrison's Nurseries, Berlin, 17892 to 17991.
- Franklin Davis Nursery Co., Mullikin, 42770 to 42794.

**MASSACHUSETTS**

**Name, Address, and Numbers.**
- R. & J. Parceubart, Boston, 44820 to 44921.
- Harlan & Kelsey, Salem, 73187 to 73192.

**MICHIGAN**

**Name, Address, and Numbers.**
- R. M. Kellogy & Bros., Three Rivers, 20960 to 21060.

**MISSISSIPPI**

**Name, Address, and Numbers.**
- I. E. Bass, Lumberton, 42470 to 42570.
- Bayview Pecan Nursery Ocean Springs, 45856 to 45958.
- Corinth Nurseries, Corinth, 48795 to 42892.
KENTUCKY

Name, Address, and Numbers.
Willadean Nurseries, Spara, 321.95 to 42892.

NEBRASKA

Name, Address, and Numbers.
Sondregger Nurseries, Beatrice, 32506 to 32554.

NEW JERSEY

Name, Address, and Numbers.
Henry A. Dreer, Riverton, 21983 to 25233.

NEW YORK

Name, Address, and Numbers.
Jackson & Perkins Co., Newark 17892 to 17991.
John Le. is Childs, Floral Park, 23554 to 23578.
Lewis Acsel, Frelinghuysen 2437 to 24386.
First National Nurseries, Rochester, 33339 to 33451.
T. S. Hubbard Co., Fredonia, 38452 to 38475.
Glen Bros. Inc., Rochester 40736 to 40826.
H. S. Taylor & Co., Rochester, 40736 to 40826.
Kelly Bros. Wholesale Nurseries, Dansville, 47118 17262.
F. W. Brow, Rosehill, 21162 to 21262.
Hicks Nursery, Western Long Island, 52586 to 52611.

NORTH CAROLINA

Name, Address, and Numbers.
Continental Plant Co., Kinston 49853 to 50153.
Valdese Nursery, Lastic, 47017 to 47117.
Continental Plant Co., Kinston 22525 to 23333.
J. Van Lindley Nursery Co., Sumter 23212 to 32307.
Killian Nursery, Newton, 32212 to 32307.
Catawba County Nursery, Newton 35225 to 35252.
Troneburg Nursery, Newton, 34887 to 34980.
Valdese Nursery, Lastic 36690 to 36774.
Newton Nursery Co., Newton, 41592 to 42119.
Arthur Kornegay, La Grange, 43225 to 43323.
J. Van Lindley Nursery Co., Poolesville 45925 to 45426.

OHIO

Name, Address, and Numbers.
Storrs & Harrison Co., Camesville, 17605 to 17755.
The Schmidt & Botley Co., Springfield, 19827 to 19925.
Storrs & Harrison Co., Painesville, 62194 to 62344.
L. Templin Seed Co., Challa 21061 to 21161.

PENNSYLVANIA

Name, Address, and Numbers.
Thomas B. Meehan, Freeland, 18195 to 18268.
Thomas B. Meehan, Germantown 21183 to 21139.
Andorra Nursery, Chestnut Hill, 41127 to 41225.
W. H. Moon Co., Morrisville, 52293 to 52383.

TENNESSEE

Name, Address, and Numbers.
Marble City Nursery Co., Knoxville 51211 to 51285.
Tennessee Nursery Co., Cleveland, 17756 to 17891.
Marble City Nursery Co., Knoxville, 18092 to 18194.
Southern Nursery Co., Winchester, 18269 to 19022.
Commercial Nursery Co., Dechard, 23579 to 23786.
Easterly Nursery Co., Cleveland, 23789 to 23936.
Cedar Hill Nursery & Orchard Co., Winchester, 33692 to 33896.
Globe Nurseries, Bristol, 34389 to 34866.
Cedar Hill Nursery & Orchard Co., Winchester, 40332 to 40735.
Tennessee Nurseries Co., Cleveland, 51109 to 51209.

TEXAS

Name, Address, and Numbers.
Munson Nurseries, Dennison, 42146 to 42170.

VIRGINIA

Name, Address, and Numbers.
Virginia Nurseries, Richmond, 38745 to 39736.
Virginia Nurseries, Richmond, 51286 to 51486.
Old Dominion Nurseries, Richmond, 39737 to 40331.

SWEET POTATO QUARANTINE

This branch of the service received special attention during the past year owing to the rapid development of sweet potato growing as an industry in the Southern States. Relentless efforts were made to prevent the introduction of the sweet potato root borer which is the most serious insect pest of sweet potatoes. An examination of the list of certificates gives one a clear idea of the territory from which most of our plants are received and as the sweet potato borer occurs in several counties of Florida and in one county of Georgia it behooves this Commission to use every effort to prevent its introduction. These efforts are furthermore warranted owing to the rapidly developing movement by the Bureau of Entomology and the State of Florida with a view of completely eradicating the sweet potato root borer. Owing to the habits of this pest the proposition to completely eradicate it appears feasible and if the work can be undertaken and successfully completed it would be an achievement in American Agriculture of the most far reaching importance. Although South Carolina is not infested we feel absolutely certain that unless this pest is checked it will reach this state sooner or later and for this reason we are looking upon this movement with a great deal of interest.

At the sweet potato conference held at Birmingham, Ala., Feb. 26, 27, 1919, considerable attention was devoted to diseases which are carried on sweet potatoes, plants and cuttings. It developed at this conference that the majority of the small growers throughout the South have adopted the practice of planting their crops with plants secured from plant growers and dealers instead of bedding their own sweet potatoes. Such dealers and growers seem to pay little attention to the sweet potato diseases consequently these diseases are being disseminated through these agencies. This con-
ference passed a resolution urging the several states to establish quarantine against the transportation of diseased sweet potato plants. We have therefore revised our regulations governing the transportation of sweet potato plants and have made every effort to prevent the distribution of diseased stock. The larger and better growers of the State have cooperated with the officers of the Commission and have made an earnest effort to produce disease-free stock. With the limited facilities which we have for inspection it has, of course, been impossible to check up all of the dealers this year but with the close cooperation of the Extension Horticultural workers we hope next year to be able to arouse sufficient interest in this matter and to make it impossible for diseased sweet potato plants to be shipped into this state.

The development of quarantine has been a slow evolutionary process and this has been especially true in subjects like the sweet potato quarantine. The old regulations on this subject we found entirely inadequate and during the past year attempts were made to overcome these defects. Under the old system of inspection and certifying it was a comparatively easy matter to transport contraband material whenever the shipper saw fit to do so. At the present time such shipments are, to a great extent, at least, prevented both by the system of checking invoices as well as by the close cooperation of the various transportation agencies in this and other states.

It became evident that no adequate protection could be secured except with the full and effective cooperation of transportation agencies and other agencies directly or indirectly interested. During the past year this cooperation developed with great rapidity and reached a high state of efficiency. The transportation companies familiarized themselves with the regulations of the Commission and then required that all shippers to comply with these regulations.
SWEET POTATO RULES AND REGULATIONS

As the regulations governing the movement of sweet potato plants into and within this state were revised the past year a copy is appended.

Regulations of the South Carolina State Crop Pest Commission

Governing the Transportation and Movement of Sweet Potato Tubers, Sweet Potato Plants, Vines, Cuttings, Etc., Into and Within the State of South Carolina.

1. In order to prevent the introduction and spread of the sweet potato root borer, (Cylas formicarius, Oliv.); also, the introduction and spread of destructive diseases of sweet potato, the importation into and movement within the State of South Carolina of sweet potato tubers, sweet potato plants, vines, cutting, draws and slips and of all morning glory vines, tubers, and roots shall be governed by the following regulations.

2. Shipments of articles enumerated in paragraph one originating in Texas, Louisiana, Mississippi, Alabama, Tennessee, Georgia, and Florida and consigned to points in the State of South Carolina are hereby prohibited unless accompanied by a sweet potato shipping permit issued by the South Carolina State Crop Pest Commission.

3. Shipments of articles enumerated in paragraph one originating in States other than those enumerated in paragraph two and consigned to points in the State of South Carolina are hereby prohibited unless accompanied by a sweet potato shipping permit issued by the South Carolina State Crop Pest Commission: Provided, however, that no permit is required for the shipment of sweet potato tubers from States other than those enumerated in paragraph two when such tubers are shipped for other than planting purposes.

4. Shipments of articles enumerated in paragraph one originating within the State of South Carolina are hereby prohibited unless accompanied by a sweet potato shipping permit of the South Carolina State Crop Pest Commission: Provided, however, that no permit is required for the shipment of sweet potato tubers for other than planting purposes.

5. These regulations are not to be construed as prohibiting the importation into or movement within this State of canned sweet potatoes or sweet potato flour.

6. Permits are issued upon satisfactory evidence obtained by the agents of this Commission or from competent quarantine officers of other states, that the sweet potato root borer or injurious plant diseases are not present.
QUESTIONS AND ANSWERS OF SWEET POTATO REGULATIONS

1. May sweet potato tubers for planting purposes be shipped into or within the State of South Carolina, without permit?

   Ans. No. Sweet potato tubers for planting purposes must always be accompanied by a sweet potato shipping permit issued by the South Carolina State Crop Pest Commission.

2. May sweet potato tubers for other than planting purposes be transported into and within the State of South Carolina when originating in Texas, Louisiana, Mississippi, Alabama, Tennessee, Georgia, or Florida, without permit?

   Ans. No. They must be accompanied by a permit issued by the South Carolina State Crop Pest Commission.

3. May sweet potato tubers transported for other than planting purposes when originating in South Carolina or states other than those enumerated in question two, be shipped without permit?

   Ans. Yes.

4. May sweet potato plants, vines, cuttings, draws or slips be transported from points in other states or between points in South Carolina, without permit?

   Ans. No. They are shipped for planting purposes and must be accompanied by permit.

The following represents a list of growers of sweet potato plants who ordered sweet potato permits from this office:

ALABAMA

Name, Address, Numbers, and Expiration Date.
S. J. Pearson, Kelleyton, 79119 to 79218, July 1st.
L. T. Rhodes, Bavninette, 79222 to 79223, July 1st.
J. L. Winslow, Thorsby, 76586 to 76786, July 1st.
A. W. Newson, Huntsville, 38576 to 38581, July 1st.

FLORIDA

Name, Address, Numbers, and Expiration Date.
C. S. Durling, Starke, 71739 to 70769, July 1st.
Sexton Plant Co., Royston, 52914 to 53414, July 1st.
T. A. McEachern, Fort Green Springs, 53469 to 54469, July 1st.
Davis Plant Co., Tifton, 54171 to 54171, July 1st.
J. L. White, Tallahassee, 54677 to 54872, July 1st.
E. S. Spahler & Co., Pine Castle, 54873 to 55173, July 1st.
T. D. Carson, Orlando, 55174 to 55575, July 1st.
Coleman Plant & Seed Co., Tifton, 55675 to 55875, July 1st.
J. L. thorne Plant Co., Tallahassee, 55876 to 56176, July 1st.
Sexton Plant Co., Tallahassee, 56177 to 56677, July 1st.
H. Lightfoot, Altona, 56676 to 56776, July 1st.
Pine Crest Plant Farm, Tallahassee, 56781 to 59381, July 1st.
W. Frank Malphers, Gainesville, 61584 to 60784, July 1st.
Sam H. Roundtree, Folkston, 60886 to 61185, July 1st.
H. W. Seig Co., Jacksonville, 61186 to 62196, July 1st.
H. W. Seig Co., Jacksonville, 63187 to 62193, July 1st.
<table>
<thead>
<tr>
<th>Name of the Company</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ty Ty Plant Co.</td>
<td>Ty Ty, 62446 to 62846, July 1st.</td>
<td>F. D. Preston, Orlando, 62149 to 63248, July 1st.</td>
<td>H. W. Seig Co., Jacksonville, 64551 to 64751, July 1st.</td>
</tr>
<tr>
<td>Cates Crates Co., Sanford</td>
<td>63550 to 64550, July 1st.</td>
<td>J. E. Kirby, Brooker, 61952 to 65052, July 1st.</td>
<td>H. Lightfoot, Altoona, 65053 to 65554, July 1st.</td>
</tr>
<tr>
<td>S. Williams, Storke</td>
<td>65656 to 65581, July 1st.</td>
<td>J. E. Fugate, Alachua, 66438 to 66538, July 1st.</td>
<td>M. C. Jolly, Hawthorne, 66892 to 66992, July 1st.</td>
</tr>
<tr>
<td>W. C. Pope, St. Petersburg, 66993 to 67193, July 1st.</td>
<td>J. N. Kite, Gainesville, 67396 to 67446, July 1st.</td>
<td>T. S. Grimes, Alachua, 68123 to 68131, July 1st.</td>
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<tr>
<td>John N. Thompson, Fort Green Springs, 69738 to 69777, July 1st.</td>
<td>W. P. Birt, Louise, 70184 to 70334, July 1st.</td>
<td>J. M. McKee, Louise, 70336 to 70436, July 1st.</td>
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<tr>
<td>Caswell &amp; Grimes, Alachua, 68121 to 69737, July 1st.</td>
<td>John N. Thompson, Fort Green Springs, 69738 to 69777, July 1st.</td>
<td>L. W. Eddy, Louise, 71418 to 71518, July 1st.</td>
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<tr>
<td>P. L. Coogler, De Land, 72021 to 72026, July 1st.</td>
<td>C. W. Rogers, Live Oak, 72329 to 72339, July 1st.</td>
<td>H. B. Dominick, Webster, 73054 to 73060, July 1st.</td>
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<tr>
<td>Florida Plant Farms, Plant City, 78288 to 77338, July 1st.</td>
<td>J. V. Hutchinson, Dade City, 78114 to 78314, July 1st.</td>
<td>S. C. Harner, Alachua, 73162 to 73187, July 1st.</td>
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<tr>
<td>Carlisle Seed &amp; Plant Farm, Alachua, 78519 to 78543, July 1st.</td>
<td>J. E. Fugate, Alachua, 78947 to 79047, July 1st.</td>
<td>M. L. Petty, O'ala, 73193 to 73683, July 1st.</td>
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<tr>
<td>Mizell Lee Live Stock Co., Live Oak, 75426 to 75726, July 1st.</td>
<td>A. E. McKee, Louise, 75727 to 75847, July 1st.</td>
<td>J. P. Masten, Hawthorne, 76049 to 76058, July 1st.</td>
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</tr>
<tr>
<td>J. M. Kite, Gainesville, 76160 to 76330, July 1st.</td>
<td>Florida Plant Farms, Plant City, 78288 to 77338, July 1st.</td>
<td>J. V. Hutchinson, Dade City, 78114 to 78314, July 1st.</td>
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</tr>
<tr>
<td>Carlisle Seed &amp; Plant Farm, Alachua, 78519 to 78543, July 1st.</td>
<td>J. E. Fugate, Alachua, 78947 to 79047, July 1st.</td>
<td>T. S. Williams, Starke, 79048 to 79098, July 1st.</td>
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</tbody>
</table>
| L. H. Hall, Orange Heights, 79219 to 79221, July 1st. | GEORGIA

**Name, Address, Numbers, and Expiration Date.**

<table>
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<tr>
<th>Name</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Date</th>
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<tbody>
<tr>
<td>Tuck Bros., Thomasville</td>
<td>18859 to 19934, July 1st.</td>
<td>54471 to 54671, July 1st.</td>
<td>R. J. Brooks, Baclay, 56432 to 59582, July 1st.</td>
</tr>
<tr>
<td>Coleman Plant &amp; Seed Co., Tifton</td>
<td>55675 to 55875, July 1st.</td>
<td>R. J. Brooks, Baclay, 58432 to 59582, July 1st.</td>
<td>Bruce Wholesale Plant Co., Valdosta, 58532 to 60583, July 1st.</td>
</tr>
<tr>
<td>E. A. Murry Plant Co., Columbia</td>
<td>61785 to 60885, July 1st.</td>
<td>61785 to 60885, July 1st.</td>
<td>61785 to 60885, July 1st.</td>
</tr>
<tr>
<td>J. N. Dowd, Ty Ty</td>
<td>62345 to 62445, July 1st.</td>
<td>Ty Ty P&amp;n Co., Ty Ty</td>
<td>62445 to 63045, July 1st.</td>
</tr>
<tr>
<td>R. O. Summers, Ty Ty</td>
<td>65582 to 65782, July 1st.</td>
<td>F. F. Stokes, Chula, 65783 to 65883, July 1st.</td>
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E. L. Powell, Tifton, 65884 to 65934, July 1st.
T. W. Wrench, Folkston, 65935 to 66235, July 1st.
C. A. Dunwoody, Baxley, 66236 to 66336, July 1st.
Tift County Plants Farms, Tifton, 66337 to 66437, July 1st.
B. J. Head, Alma, 66539 to 66739, July 1st.
E. W. Oliver, Ty Ty, 66740 to 66790, July 1st.
John H. McMillan, Enigma, 66791 to 66891, July 1st.
J. H. Crisp, Fender, 67194 to 67294, July 1st.
J. R. Cauthern, Fender, 67295 to 67395, July 1st.
S. E. Hollis, Baxley, 67447 to 67547, July 1st.
Davis Plant Co., Albany, 67951 to 68091, July 1st.
Baxley Plant Co., Baxley, 67951 to 68952, July 1st.
C. W. Waughtel, Homeland, 68353 to 68853, July 1st.
J. D. Abercrombie, Ashburn, 68944 to 69894, July 1st.
J. B. Hollingsworth, Ty Ty, 69961 to 69961, July 1st.
Joe Lawrence & Co., Ashburn, 69962 to 69962, July 1st.
D. J. Branch, Ashburn, 69935 to 69945, July 1st.
Jefferson Farms, Albany, 69978 to 69978, July 1st.
T. S. Shannon, Stanton, 69982 to 69982, July 1st.
Blakeley Farms, Blakeley, 69984 to 70183, July 1st.
G. M. Willis, Tifton, 70235 to 70335, July 1st.
Fred Schrero, Ousley, 70437 to 70677, July 1st.
Ingram & Co., Jesup, 70638 to 70738, July 1st.
E. A. Williams, Sylvester, 70871 to 70971, July 1st.
George I Roberts, Ashburn, 70972 to 71022, July 1st.
E. A. Goodwin, Lenox, 71023 to 71123, July 1st.
G. N. Jones, Ashburn, 71124 to 71194, July 1st.
Clark Plant Co., Thomasville, 71519 to 72019, July 1st.
Myers Seed & Plant Co, Tifton, 72027 to 72127, July 1st.
Co-operative Plant Co., Homeland, 72128 to 72328, July 1st.
Webbs Stock & Plant Farm, Pavo, 72400 to 72500, July 1st.
Z. E. Dismuke, Mystic, 72501 to 72701, July 1st.
D. H. Deen, Alma, 72702 to 72952, July 1st.
J. H. Whiten, Baxley, 72953 to 72960, July 1st.
W. J. Bales, Ashburn, 73061 to 73161, July 1st.
Brier Hill Plantation, Thomasville, 73494 to 74194, July 1st.
Thomasville Plant Co. Thomasville, 74195 to 74695, July 1st.
Carlisle Seed & Plant Co., Flowery Branch, 74596 to 74711, July 1st.
H. & R. Ballard, Pavo, 74712 to 75354, July 1st.
A. M. Dickson, Tifton, 75325 to 75425, July 1st.
J. A. Freemien, Barwick, 75848 to 76048, July 1st.
A. Winslow, Demorest, 76370 to 76384, July 1st.
W. L. Thompson, Alma, 76787 to 77287, July 1st.
Mrs. E. A. Lambert, Denton, 77359 to 77459, July 1st.
C. M. Rayborn & Co., Pavo, 77450 to 77560, July 1st.
W. N. Gantt, Hazlehurst, 77961 to 78062, July 1st.
W. B. Shipp & Co., Cordele, 78063 to 78113, July 1st.
W. W. Lindsey, Tifton, 78315 to 78415, July 1st.
W. J. Campbell, Bellville, 78417 to 78517, July 1st.
C. H. Garrison, Pavo, 78544 to 78844, July 1st.
Mrs. J. L. Hawkins, Hatley, 78845 to 79895, July 1st.
P. J. Burkman Co., Alusta, 32407 to 32505, July 1st.
C. A. & D. L. Flennel Co. Atlanta, 38171 to 38240, July 1st.
G. H. Hasting, Atlanta, 41300 to 41390, July 1st.
Ashford Park Nursery, Atlanta, 42120 to 42145, July 1st.
C. W. Brown, Baconton, 43126 to 43224, July 1st.
CITRUS QUARANTINE

The regulations of the Commission provide for the entire prohibition of citrus stock from other states except by special permit. This special permit is secured from this Commission after careful investigation and all permits issued expire within thirty days. Not only is this of great importance as a protection to this state against the introduction of citrus canker but it is of great importance to other states who are making heroic efforts to get this disease under control. Owing to the very rigid quarantine on citrus stock only a very few plants are being shipped into the state and all the shipments of the past season were covered by eight permits. A list of these permits issued is as follows:

Name, Address, Numbers, and Expiration Date.
Glen St. Mary Nurs. Co., Glen St. Mary, Fla., 18935, 30 days.
Glen St. Mary Nurs. Co., Glen St. Mary, Fla., 52384, 30 days.
Glen St. Mary Nurs. Co., Glen St. Mary, Fla., 72020, 30 days.
Glen St. Mary Nurs. Co., Glen St. Mary, Fla., 78517 to 78521, 30 days.

FOREIGN SHIPMENTS

No foreign shipments reached our state this past season. This was undoubtedly due to the war conditions in Europe and the curtailment in the transportation facilities for all purposes other than those pertaining directly to the prosecution of the war. The shipments from Holland, Belgium and France were quite normal from year to year until the close of 1918.

COTTON BOLL WEEVIL QUARANTINE

Owing to the greatly increased requirements due to the continued advance of the boll weevil this work was prosecuted during the past year with the help and cooperation of the Bureau of Entomology, United States Department of Agriculture. Mr. J. A. Berly formerly of the research section of the Division of Entomology took up this work and the results secured were satisfactory to both the Bureau and this Commission.

This branch of the service has become heavier and more exacting as it is very necessary that the weevil lines be kept under observation, that free territory be properly protected and that the various demands of our people are satisfied as far as possible. This work constitutes an insect control problem, an exacting quarantine problem and a problem requiring painstaking care and tact. It is very exacting due to the necessity of operating the Quarantine Lines safely and at the same time equitably for all concerned. This problem was especially complex during the past year owing to the pressure produced by the food production campaign and the distri-
that the danger would be small but these shipments were traced
and it was found that the following shipments reached South Car-
olina and the information was given to this Commission by Dr.
W. D. Hunter, who is in charge of the pink boll worm investigation:

**Consignee, Place, and Total Number Bales.**
Arkwright Mills, Spartanburg, S. C., 100.
Beaufort Manufacturing Co., Spartanburg S. C., 300.
Grendell Mills, Greer, S. C., 50.
Peham Mills, Greer, S. C., 50.
Leathers & Mathews, Spartanburg, 350.
Glenwood Cotton Mills, Easley, 200.
Cooper & Griffin, Greenville, 250.
Pendleton Manufacturing Co., Pendleton, 50.
Woodside Cotton Mills, Greenville, 200.

Plans were immediately completed by the Federal Horticultural
Board and this Commission and regular and systematic inspections
were made of the fields around the mills and also such farms that
had received seed from such mills for fertilizing purposes. This
work was prosecuted from the time the shipments were discovered
until the beginning of hibernation at the close of 1918. Fortunately
ly no infestation was discovered and there is a feeling of confidence
that no infestation will develop in consequence of these shipments.
No doubt the extreme minimum temperatures of the winter of 1918
prevented to a great extent the spreading of any specimens that may
have been in the shipments and this is especially plausible owing
to the tropical nature of the pest.

**THE EUROPEAN CORN BORER**

Another pest of recent introduction into the United States is the
European Corn Borer, *Pyrausta nubilalis* Hubner, and at this writing
appears to be probably the most injurious plant pest that has
yet been introduced into this country. It has already spread over
an area of 400 square miles near Boston, Mass., and over half of
this area near Albany, N. Y. This pest was first discovered in this
country in 1917 and probably was introduced several years before.
How it came has not yet been determined but it is thought that it
was introduced in shipments of raw hemp imported from Europe
and used in cordage factories.

This pest bores and tunnels through all parts of the corn and
annihilates the ears and stalks. It attacks oats, potatoes, tomatoes,
beans, beets, spinach, celery, timothy, dahlia, chrysanthemum, glad-
olus, geraniums and many weeds and other grasses. There are
two generations a year and the winter is passed in the larva or
borer stage within infested plants.

In order to combat this threatening danger it is necessary to
strictly enforce our present quarantine regulations with great vigi-
lance and to have our powers enlarged in reference to specific arti-
icles. Recommendations will be submitted as soon as certain information now sought has been obtained. The Bureau of Entomology suggests the following articles as sources of danger. Green sweet corn or roasting ears, corn on cob, corn cobs, corn stalks, celery, Swiss chard, beet tops, Spinach, spring beans, oat straw, dahlia, chrysanthemums, gladiolus, geranium plants and such additional materials the necessity for which will become apparent as the investigations progress.

In order to determine upon ways and means by which this dangerous situation may best be met the National Association of Commissioners of Agriculture, State Entomologists and Representatives of the United States Department of Agriculture will be held at Chancellors Hall, State Education Building, Albany, N. Y., on Thursday and Friday, August 28 and 29, 1919. Albany was chosen in order to give visiting quarantine officers an opportunity to see the pest in action and to examine the work done by the State of New York. The Entomologist is planning to attend this conference owing to the rapid spread of the pest and the great importance of our own annual corn crop.

INSECT OUTBREAKS

The past year was marked by a historic outbreak of the Red Spider. The insect was well organized in the fall of 1917 and the extreme minimum temperatures of the winter of 1917-18 were not unfavorable to this species but destructive to its natural insect enemies and this most probably accounts for the severe invasion of 1918-19. The extreme minimum temperatures of 1917-18 destroyed our imported Australian lady bug colonies which had so successfully controlled the Cottony Cushion Scale which had invaded Charleston. During the past year new colonies were again successfully started and proper precautions will be taken for their protection against the extreme minimum temperatures during the winter months. Whether this Australian lady bird beetle can be permanently colonized is not known owing to incomplete information in regard to the lowest winter temperatures it can survive. However, if it is found impossible to permanently colonize it we believe that a recolonization from year to year is very simple and entirely practical.

TAKE ALL AND FLAG SMUT

Take All and Flag Smut are two very destructive diseases and in the month of May of this year both of these diseases were found in Southern Illinois and a conference of Pathologists was immediately called at St. Louis, for the purpose of examining these diseases in
the field. Mr. Seal, of our staff, attended this conference and since his return has kept a sharp lookout for these two diseases. So far, they have not been found in South Carolina. It seems now that a quarantine established by the Federal Board of Horticulture will provide for the protection in the future. We shall, however, make every effort to keep up with this work and it may be necessary for the Commission to establish a quarantine in connection with these diseases.

NEW AND DANGEROUS DISEASES

POTATO WART

During the past year potato wart, a very destructive disease to Irish potato plants has been found in Pennsylvania and an investigation of the outbreak has revealed the fact that the shipment of seed potatoes asme into this country in 1912 before the Federal Inspection Service was organized. Shipments of the potatoes of the same lot which carried the disease into Pennsylvania have been traced to this state and the Federal Board of Horticulture in cooperation with the State Pathologists are engaged at present in making a survey of the gardens and potato fields with a view of determining whether or not the disease is present here. This is a very important matter as to the future potato industry and the work will therefore be followed with a great deal of interest. In case the disease is found in South Carolina, it will, of course, be necessary for the Commission to draw up regulations governing the movement of potatoes from infested districts.

Yours very truly,

H. W. BARRE,
Pathologist.

A. F. CONRADI,
Entomologist.
Dr. W. M. Riggs, President,
Clemson College, S. C.
Dear Dr. Riggs:

I have the honor to submit herewith my report for the period
beginning July 1, 1918 and ending June 30, 1919.

**Black Leg.** Seven outbreaks of this disease were investigated by
Veterinarians of this office and in each case all exposed animals
were vaccinated.

This office has prepared for use and shipped to citizens of this
state approximately eighteen thousand doses of Black Leg Vaccine.

**Glanders.** Veterinarians from this office have investigated ten
cases reported to be Glanders, but on investigation the animals
were found to be suffering from Chronic Nasal Catarrh, and other
non-infectious and non-contagious diseases. It is gratifying to re-
port that Glanders has not appeared in the state this year.

**Hog Cholera.** There has been many outbreaks of this disease in
the state during the past year, but the death rate of hogs due to
cholera has been greatly reduced by the use of the serum and virus
treatment and enforcing sanitary regulations. Veterinarians of this
office have investigated twenty-five outbreaks of this disease. In
each case all exposed animals were vaccinated and sanitary meas-
ures were outlined to prevent further spread of this disease.

**Hemorrhagic Septicemia.** Veterinarians from this office have in-
vestigated eight outbreaks of this disease during the past year and
in each case prescribed treatment which proved successful in pre-
venting further loss.

**Forage Poisoning.** This office has investigated twenty outbreaks
of this disease in the past year. In each case where the instructions
of the Veterinarian were carried out there was no further loss.

**Contagious Abortion.** Five outbreaks of contagious abortion in
cattle were investigated by Veterinarians of this office during the
past year. Preventive treatment was advised in each case.

**Rabies.** Veterinarians of this office investigated six outbreaks of
this disease during the past year. All exposed animals were either
placed in quarantine or destroyed. In each case the Anti-Rabie Vaccine was recommended for all exposed animals which were not destroyed.

**Necro-Bacillosis in Swine.** Eight outbreaks of this disease were investigated during the past year. Effective treatment was prescribed in each case.

**Infectious Vaginitis.** This office investigated two outbreaks of this disease during the past year. In each case treatment was prescribed which proved effective in curing the affected animals and preventing further spread of the disease.

**Swine Plague.** This office has investigated eight outbreaks of this disease during the past year. In each case the Veterinarian administered Swine Plague Bacterin to all the affected and exposed animals.

**Swine Paralysis.** Ten cases of this disease were investigated by Veterinarians of this office during the past year and in each case effective treatment was prescribed.

**Mycotic Stomatitis.** Six outbreaks of this disease were investigated by this office during the past year and in each case effective treatment was prescribed.

**Miscellaneous.** This office received during the past year twenty-five reports of outbreaks of suspected contagious diseases, but on investigation these cases proved to be non-contagious.

**Correspondence.** No less than four thousand letters containing information pertaining to the treatment of diseases in live stock have been sent out from this office during the past year.

**Importation of Live Stock.** This office has received during the past year certificates of Health covering the shipment of 32,772 head of horses and mules, 3,635 head of cattle and 4,500 head of swine.

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**REPORT OF WORK AT CLEMSON LIVE STOCK SANITARY OFFICE, COLUMBIA**

During the past year over four hundred outbreaks of diseases in hogs were investigated by Veterinarians from this office. Approximately ten thousand head of hogs have been vaccinated by Veterinarians from this office. One hundred and thirty-five premises were quarantined to prevent the spread of cholera. The Sani-
tary force of this office consists of two Veterinarians employed by
the State and one Federal Veterinarian. These gentlemen deserve
much credit for the valuable service they are rendering. We have
been very fortunate in having assigned to Hog Cholera Control
Work in this State, Federal Veterinarians who have proven them-
selves to be most efficient in this work. These men have rendered
valuable service.

Dr. Clark F. Hartman, Federal Veterinarian, was assigned to
Hog Cholera Control Work in this state in November 1917, and
continued in this work in the state until March 15, 1919. Dr. Hart-
man was succeeded by Dr. W. E. White, Federal Veterinarian. It
has been a pleasure to have had associated with this office such effi-
cient men as are Dr. Hartman and Dr. White.

A Clerk is employed in this office whose entire time is given to
packing and shipping serum, and stenographic work.

During the past year there has been shipped to citizens of this
state, from the Clemson and Columbia offices, 2,150,000 mills of
serum which was furnished at cost.

The Veterinarians of this office have instructed all the County
Agents in the administration of the serum and virus treatment.
The County Agents have proven themselves most efficient in this
work. The results obtained through the serum and virus treat-
ment administered by these gentlemen have been most excellent.
Too much credit cannot be given the County Agents for their splen-
did cooperation with this office and the valuable service they are
rendering in assisting in the control of Hog Cholera.

The Legislature at its last meeting appropriated $10,000.00 for
Live Stock Sanitary Work to be conducted from the Columbia
Office, $5,000.00 of which is spent in Tuberculosis Control Work
which work is under the supervision of Dr. W. K. Lewis and
$5,000.00 is apportioned to this office for Hog Cholera Control
work. Five thousand dollars is not a sufficient sum to pay the
salaries and traveling expenses of two Veterinarians and also the
salary of a clerk. In fact, if we desire to retain the services of two
Veterinarians in Hog Cholera Control work for the remainder of
this year, it will be necesary for the College to pay the salary and
traveling expenses of one of the Veterinarians until the Legislature
again makes an appropriation for this work.

The hog industry in this state is increasing from year to year
and owing to the large number of valuable breeding stock that is in
this state, it is necessary that the Hog Cholera Control work be
pushed in order that it may be made possible for the hog raisers of
this state to continue in this industry.

In my mind Hog Cholera Control work is one of the most im-
portant branches of Live Stock Sanitary work and I feel it is our
duty to impress on the Legislature the importance of appropriating adequate funds for the eradication of this disease. I would recommend that the Legislature be asked to appropriate at least $25,000 for this work next year. If this amount is appropriated for Hog Cholera Control work, as State Veterinarian, I can guarantee that the State will be saved in hogs at least twenty times this amount annually.

Of course it is possible for this office to do a great deal of good work on an appropriation of $5,000.00, but we cannot hope to even control this disease when the appropriation for this work is so small that it will not permit the employment of a force of Veterinarians sufficient to render the services which the citizens of the state expect of this office and which service we should be rendering. My interests in the Live Stock industry in this State prompts me to call attention to the above mentioned facts. Certainly if hog raising is to be made profitable in South Carolina, Hog Cholera Must Be Eradicated, and the only way that the eradication of this disease can be made possible is for the Legislature to appropriate sufficient funds for this purpose.

The expenditures for the Columbia office are as follows:

Expenditures—Clemson College Live Stock Sanitary Office of Columbia—January 1, 1919 to November 1, 1919.

Tuberculosis Eradication—

- Salar'ees .................................. $1,900.00
- Traveling Expense ....................... 645.04
- Miscellaneous ........................... 30.30 — $2,575.34

Hog Cholera Control—

- Salaries .................................. $3,134.16
- Traveling Expense ....................... 1,612.00
- Office Rent .............................. 341.20
- Telephone Rent .......................... 52.90
- Office Equipment ....................... 218.65
- Miscellaneous ........................... 151.20 — 5,510.11

Total to November 1st, 1919 ............... $8,085.45

Remainder of $10,000 appropriation will be used during November and December.

Respectfully submitted,
R. O. FEELEY,
State Veterinarian.

P. S.—Attached hereto are reports of Dr. W. K. Lewis, Assistant State Veterinarian and Inspector in Charge of Tick Eradication and Tuberculosis Eradication, Columbia Office.
TICK ERADICATION

Clemson College Live Stock
Sanitary Office of Columbia.
November 1, 1919.

Dr. W. M. Riggs, President,
Thru Dr. R. O. Feeley, State Veterinarian,
Clemson Agricultural College,
Clemson College, South Carolina.
Dear Sir:

I have the honor of submitting herewith a report of Tick Eradication conducted by Clemson Agricultural College cooperating with the Bureau of Animal Industry, U. S. Department of Agriculture, in the State of South Carolina, from January 1, 1919, to October 31, 1919, inclusive:

**Territory Worked:**
Work was conducted in twenty counties, comprising a total area of 16,340 square miles.

**Class of Work:**
The entire area of the State being released from Federal quarantine on December, 1918, the term “Final” will be used in defining the work and the counties in which work was conducted during the year.

**Final Work:**
The greater part of the work was confined to the coastal-plain counties, viz: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper and Williamsburg, comprising an area of 8,739 square miles. In these counties the cattle are permitted the use of the “free ranges” of their respective and adjoining counties. These “free ranges” comprise the greater, and in some instances the entire, area of the county, and embrace large bays, savannas and swamps as well as the cut-over timber lands. The cattle having access to this class of pasturage and being of a more or less wild nature, the “rounding up” and dipping every fourteen days is a very difficult task. Satisfactory results, however, were obtained in the above counties.

Final work was also conducted in the counties of Aiken, Chesterfield, Clarendon, Edgefield, Fairfield, Florence Kershaw, Lancaster, Marion and Orangeburg, comprising an area of 7,601 square miles. In these counties reinspections were made to verify our former work and a few premises are held under local quarantine until we are sure they are absolutely free of ticks. With the exception of Clarendon, the work has been, or will be, completed in the above counties this year.

As it is impossible to impose restrictions upon the drifting or
straying of the cattle in the coastal plain counties, where "free range" conditions prevail, areas that were freed of ticks this year will undoubtedly become reinfested this fall and winter, consequently it will be necessary to continue the dipping of all cattle infested with or exposed to ticks until the last tick has been eradicated. It will also be necessary to make reinspections of all the cattle from time to time in not only the "free range" counties but in some of the stock-law counties as well, as a precautionary measure.

Results:

Cooperative Tick Eradication between Clemson Agricultural College and the Bureau of Animal Industry, U. S. Department of Agriculture, was inaugurated April, 1914. Prior to that date the cattle owners of the State, in the infested areas, were sustaining an annual loss of $1,500,000.00 due to the effects of ticks; at this time the loss is negligible.

Tick Eradication has made it possible for the safe importation of purebred and high grade cattle to improve the quality of our native cattle in those counties and areas where the tick has been completely eradicated. As a result of the introduction of purebred sires into our herds a great improvement in the quality of the cattle is very noticeable.

It is gratifying to note the great increase in the value of our cattle since Cooperative Tick Eradication was inaugurated in the State. Since the year 1914, milk cows have increased 128 per cent in value, and other cattle have increased 131 per cent in value.

While there has been a great increase in the value of all kinds of live stock within the past four or five years, yet by comparison it is noted that in our great live stock States of the Middle-West the cattle have not increased in value more than 50 to 75 per cent during the same period. It can be conservatively stated, therefore, that 50 per cent of the increased valuation in the State of South Carolina can be attributed to Tick Eradication.

**U. S. Bureau of Animal Industry Expenditures**

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<th>Month</th>
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<th>Incidentally</th>
<th>Total</th>
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<td>7,307.01</td>
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<td>3,493.82</td>
<td>1,200.00</td>
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Total $50,840.55 $7,861.32 $58,701.87
Salaries:
Expenditures under this heading include salaries of Inspector in Charge, supervising veterinarians, a clerk and cattle inspectors.

Incidentals:
Expenditures under this heading include traveling expenses of Inspector in Charge, supervising veterinarians and maintenance of office in Columbia, S. C.

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<tr>
<th>Month</th>
<th>Veterinarians</th>
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State Expenditures

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<th>Salaries</th>
<th>Incidentals</th>
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<td>October</td>
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<td><strong>Total</strong></td>
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<td><strong>$23,899.11</strong></td>
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Salaries:
Expenditures under this heading include salaries of Inspector in Charge, a clerk and cattle inspectors.

Incidentals:
Expenditures under this heading include chemicals (for preparing arsenical solution to disinfect cattle), utensils and containers for same, printing regulations, quarantine and permit books, disinfection notices, etc., also traveling expenses of Inspector in Charge.
Number of State Men Employed and Designation

<table>
<thead>
<tr>
<th>Month</th>
<th>Veterinarians</th>
<th>Cattle Inspectors</th>
<th>Clerk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>February</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>March</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>April</td>
<td>1</td>
<td>68</td>
<td>1</td>
<td>70</td>
</tr>
<tr>
<td>May</td>
<td>1</td>
<td>58</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>June</td>
<td>1</td>
<td>18</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>July</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>August</td>
<td>1</td>
<td>20</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>September</td>
<td>1</td>
<td>14</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>October</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>10</td>
</tr>
</tbody>
</table>

The Inspector in Charge is employed jointly by the State and the U. S. Bureau of Animal Industry, each paying one-half his salary and alternate monthly traveling expenses.

Force in Tick Eradication Work

(Paid jointly by State of South Carolina and U. S. Dept. of Agri.)

<table>
<thead>
<tr>
<th>Position</th>
<th>Name W</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspector in Charge</td>
<td>W. K. Lewis</td>
<td>$3,000.00</td>
</tr>
<tr>
<td>2. Veterinary Inspector</td>
<td>Clarke Hedley</td>
<td>1,920.00</td>
</tr>
<tr>
<td>3. Veterinary Inspector</td>
<td>H. B. Hood</td>
<td>1,920.00</td>
</tr>
<tr>
<td>4. Veterinary Inspector</td>
<td>F. S. Hope</td>
<td>1,920.00</td>
</tr>
<tr>
<td>5. Veterinary Inspector</td>
<td>C. A. Krause</td>
<td>1,920.00</td>
</tr>
<tr>
<td>6. Veterinary Inspector</td>
<td>Z. C. Boyd</td>
<td>1,700.00</td>
</tr>
<tr>
<td>7. Veterinary Inspector</td>
<td>H. S. Brundage</td>
<td>1,620.00</td>
</tr>
<tr>
<td>8. Cattle Inspector</td>
<td>S. H. Williams</td>
<td>1,560.00</td>
</tr>
<tr>
<td>9. Cattle Inspector</td>
<td>W. F. Gaillard</td>
<td>1,500.00</td>
</tr>
<tr>
<td>10. Cattle Inspector</td>
<td>W. G. Cantley</td>
<td>1,500.00</td>
</tr>
<tr>
<td>11. Cattle Inspector</td>
<td>D. E. Benton</td>
<td>1,380.00</td>
</tr>
<tr>
<td>12. Cattle Inspector</td>
<td>H. J. McKenzie</td>
<td>1,380.00</td>
</tr>
<tr>
<td>13. Cattle Inspector</td>
<td>L. W. Avant</td>
<td>1,320.00</td>
</tr>
<tr>
<td>14. Cattle Inspector</td>
<td>J. K. Bourne</td>
<td>1,320.00</td>
</tr>
<tr>
<td>15. Cattle Inspector</td>
<td>Ellis Harrelson</td>
<td>1,320.00</td>
</tr>
<tr>
<td>16. Cattle Inspector</td>
<td>J. C. Kinsey</td>
<td>1,320.00</td>
</tr>
<tr>
<td>17. Cattle Inspector</td>
<td>W. A. Porter</td>
<td>1,320.00</td>
</tr>
<tr>
<td>18. Clerk</td>
<td>R. K. Donly</td>
<td>1,440.00</td>
</tr>
<tr>
<td>19. Clerk</td>
<td>George Smith</td>
<td>1,400.00</td>
</tr>
<tr>
<td>20. Cattle Inspector</td>
<td>V. E. McCormack</td>
<td>900.00</td>
</tr>
</tbody>
</table>

21 to 90.—Seventy cattle inspectors at $100.00 per month for time employed: J. O. Ackerman, A. M. Addison, J. G. Bailey, J. H. Bailey, B. B. Bishop, William Bivens, L. F. Bryan, E. C. Bryant.

91 to 99.—Nine cattle inspectors at $70.00 per month: W. M. Barnwell, G. S. Cuthbert, J. E. Gillis, R. K. Johnson, W. T. Johnson, A. A. Patterson, Jr. S. W. Wilburn, E. E. Wyndham and S. W. Wilburn.

The following statement shows the expenditures from various sources from 1907 to November 1, 1919:

<table>
<thead>
<tr>
<th>Year</th>
<th>U. S. Dept of Agri</th>
<th>Clemson State College</th>
<th>Appropriat'n</th>
<th>Appropri'a'n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1907</td>
<td>$ 5,125.00</td>
<td>$ 1,860.00</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>1908</td>
<td>15,207.00</td>
<td>4,535.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1909</td>
<td>19,367.00</td>
<td>8,524.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1910</td>
<td>15,915.00</td>
<td>9,960.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1911</td>
<td>12,674.00</td>
<td>10,051.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1912</td>
<td>14,537.00</td>
<td>8,308.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1913</td>
<td>16,146.00</td>
<td>9,369.00</td>
<td>1,083.00</td>
<td></td>
</tr>
<tr>
<td>1914</td>
<td>23,143.00</td>
<td>1,497.00</td>
<td>30,000.00</td>
<td></td>
</tr>
<tr>
<td>1915</td>
<td>35,479.84</td>
<td>30,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1916</td>
<td>38,598.72</td>
<td>30,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1917</td>
<td>64,811.65</td>
<td>30,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1918</td>
<td>74,102.77</td>
<td>30,000.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1919 (to Nov. 1)</td>
<td>58,701.87</td>
<td>28,675.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Totals  $393,808.85  $54,104.00  $178,675.72  $1,083.00

Respectfully submitted,

W. K. LEWIS,
Inspector in Charge and
Assistant State Veterinarian.
TUBERCULOSIS ERADICATION

Clemson College Live Stock
Sanitary Office of Columbia.
November 1, 1919.

Dr. W. M. Riggs, President,
Thru Dr. R. O. Feeley, State Veterinarian,
Clemson Agricultural College,
Clemson College, South Carolina.

Dear Sir:

I have the honor of submitting herewith a report of Bovine Tu-
berculosis Eradication conducted by Clemson Agricultural College
cooperating with the Bureau of Animal Industry, U. S. Department
of Agriculture, in the State of South Carolina, from November 1,
1918, to October 31, 1919, inclusive:

Class of Work:

The eradication of Bovine Tuberculosis is not limited to certain
areas but is extended to each county in the State. The work is not
compulsory (unless there is evidence of the disease in the herd)
but is done on request of the owner, and is being conducted not
only to eradicate tuberculosis from the cattle of the State but to es-
tablish tuberculosis free herds, under the Accredited Herd Plan,
adopted and approved by the United States Live Stock Sanitary As-
sociation, Pure-Bred Cattle Breeders Associations, the U. S. Bu-
reau of Animal Industry, and Clemson Agricultural College.

Work Conducted:

From November 1, 1918, to October 31, 1919, inclusive, the
tuberculin test was applied to a total of 235 herds containing 5,542
head of cattle 168 of which reacted and have been disposed of in
accordance with the State laws.

Bovine Tuberculosis Eradication Work is a most important one,
not only as a protection to the great live-stock industry of our
State but to society as well, and we hope that sufficient funds will
be provided to enable us to extend the work to all desiring it; at
present we can not meet the demands made upon us.

U. S. Bureau of Animal Industry Expenditures

<table>
<thead>
<tr>
<th></th>
<th>Salaries</th>
<th>Incidentally</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 1, 1918 to Oct. 31, 1919</td>
<td>$4,967.51</td>
<td>$1,161.94</td>
<td>$6,129.45</td>
</tr>
</tbody>
</table>

Salaries:

Expenditures under this heading include salaries of two veterinary
inspectors and one clerk, also salary of one State veterinary in-
spector for months of January, February and March was paid out
of Bureau appropriation. Salary of Inspector in Charge for months of February and March, 1919, was also paid out of this fund.

Incidentals:

Expenditures under this heading include traveling expenses of veterinary inspectors, office rent, etc.

Number of U. S. Bureau Employees and Designation

<table>
<thead>
<tr>
<th>Veterinarians</th>
<th>Clerk</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

State Expenditures

<table>
<thead>
<tr>
<th></th>
<th>Salaries</th>
<th>Incidentals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov. 1, 1918 to Oct. 31, 1919</td>
<td>$2,185.00</td>
<td>$903.95</td>
<td>$3,088.95</td>
</tr>
</tbody>
</table>

Salaries:
Expenditures under this heading include salaries of two veterinary inspectors.

Incidentals:
Expenditures under this heading include two veterinary inspectors traveling expenses, printing, etc.

Number of State Men and Designation

Veterinary inspectors ____________________________ 2

Force in Tuberculosis Eradication Work

(Paid jointly by State of South Carolina and U. S. Dept. of Agri.)

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspector in Charge</td>
<td>W. K. Lewis</td>
<td></td>
</tr>
<tr>
<td>2. Veterinary Inspector</td>
<td>R. R. Jeter</td>
<td>1,500.00</td>
</tr>
<tr>
<td>3. Veterinary Inspector</td>
<td>T. A. Jennings</td>
<td>1,500.00</td>
</tr>
<tr>
<td>4. Veterinary Inspector</td>
<td>L. S. Baer</td>
<td>1,620.00</td>
</tr>
<tr>
<td>5. Veterinary Inspector</td>
<td>P. J. Gallagher</td>
<td>$1,920.00</td>
</tr>
<tr>
<td>6. Clerk (Steno-typewriter)</td>
<td>Miss Margaret Robertson</td>
<td>1,000.00</td>
</tr>
</tbody>
</table>

*Note.—The salary of the Inspector in Charge is paid out of the Tick Eradication appropriation.

The following statement shows expenditures for the year 1918 and from March 1, 1919, to October 31, 1919, inclusive:
<table>
<thead>
<tr>
<th>Year</th>
<th>U. S. Dept. of Agri. Appropriation</th>
<th>State Appropriation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1918</td>
<td>$3,243.81</td>
<td>$1,879.44</td>
<td>$5,123.25</td>
</tr>
<tr>
<td>1919 (to Oct. 31)</td>
<td>5,480.11</td>
<td>2,585.54</td>
<td>8,065.65</td>
</tr>
<tr>
<td></td>
<td>$8,723.92</td>
<td>$4,464.98</td>
<td>$13,188.90</td>
</tr>
</tbody>
</table>

Respectfully,

W. K. LEWIS,
Inspector in Charge and Asst. State Veterinarian.