

THE
NORTH CAROLINA COLLEGE
OF
AGRICULTURE AND MECHANIC ARTS,
RALEIGH.
1899—1900.

PRESSES OF E. M. UZZELL,
RALEIGH, N. C.

TABLE OF CONTENTS.

	PAGE.
Calendar	4
Board of Trustees.....	5
Faculty	6
General Information.....	10
Courses of Instruction.....	18
Subjects of Instruction	35
Catalogue of Students.....	55
Tenth Annual Commencement	64
Register of Alumni.....	68

COLLEGE CALENDAR.

1900.

Saturday,	July	28,	{ Entrance examination at each county court-house, 10 A. M.
Tuesday,	September	4,	{ Entrance examination at the College, 9 A. M.
Wednesday,	September	5,	First Term begins; Registration Day.
Thursday,	November	29,	Thanksgiving Day.
Thursday,	December	20,	First Term ends.

1901.

Thursday,	January	3,	Second Term begins; Registration Day.
Monday,	February	11,	Announcement of Subjects of Theses.
Friday,	March	15,	Second Term ends.
Monday,	March	18,	Third Term begins; Registration Day.
Friday,	May	17,	Last Day for submitting Theses.
Friday,	May	24,	Examinations end.
Sunday,	May	26,	Baccalaureate Sermon.
Monday,	May	27,	Alumni Day.
Tuesday,	May	28,	{ Annual Oration. Meeting of Board of Trustees.
Wednesday,	May	29,	Commencement Day.

BOARD OF TRUSTEES.

W. S. PRIMROSE, *President*, Raleigh.

R. L. SMITH, *Secretary*, Albemarle.

W. S. PRIMROSE, Raleigh	State-at-Large	1901
A. LEAZAR, Mooresville	State-at-Large	1901
H. E. FRIES, Salem	State-at-Large	1901
D. A. TOMPKINS, Charlotte	Sixth District	1901
T. B. TWITTY, Rutherfordton	State-at-Large	1901
FRANK WOOD, Edenton	First District	1901
J. C. L. HARRIS, Raleigh	State-at-Large	1903
L. C. EDWARDS, Oxford	State-at-Large	1903
JOHN W. HARDEN, JR., Raleigh	State-at-Large	1901
H. E. BONITZ, Wilmington	State-at-Large	1901
MATT MOORE, Kenansville	Third District	1901
J. Z. WALLER, Burlington	Fifth District	1901
W. H. RAGAN, High Point	State-at-Large	1901
DAVID CLARK, Charlotte	State-at-Large	1901
R. L. SMITH, Albemarle	State-at-Large	1901
P. J. SINCLAIR, Marion	State-at-Large	1901
J. B. STOKES, Windsor	Second District	1901
W. J. PEELE, Raleigh	Fourth District	1901
E. Y. WEBB, Shelby	Seventh District	1901
W. C. FIELDS, Sparta	Eighth District	1901
J. FRANK RAY, Franklin	Ninth District	1901
GEO. T. WINSTON, President of the College		<i>Ex officio.</i>

EXECUTIVE COMMITTEE.

W. S. PRIMROSE, *Chairman*; A. LEAZAR, and H. E. FRIES.

COLLEGE FINANCE COMMITTEE.

W. H. RAGAN, *Chairman*; J. F. RAY, and DAVID CLARK.

STATION FINANCE COMMITTEE.

W. C. FIELDS, *Chairman*; J. B. STOKES, and E. Y. WEBB.

FACULTY.

- GEORGE TAYLOE WINSTON, A.M., LL.D., President and Professor of Political Economy.
- WILBUR FISK MASSEY, C.E., Professor of Horticulture, Arboriculture and Botany.
- WILLIAM ALPHONSO WITHERS, A.M., Professor of Pure and Agricultural Chemistry.
- DANIEL HARVEY HILL, A.M., Professor of English.
- WALLACE CARL RIDDICK, A.B., C.E., Professor of Civil Engineering and Mathematics.
- BENJAMIN IRBY, M.S., Professor of Agriculture.
- FREDERICK AUGUSTUS WEIHE, M.E., Ph.D., Professor of Physics and Electrical Engineering.
- CHARLES WALTER SCRIBNER, A.B., M.E., Professor of Mechanical Engineering.
- ROBERT E. LEE YATES, A.M., Instructor in Mathematics.
- CHARLES MARCELLUS PRITCHETT, B.S., M.E., C.E., Instructor in Mechanical Engineering.
- CHARLES BENJAMIN PARK, Superintendent of Shops.
- JAMES ADRIAN BIZZELL, B.S., Instructor in Chemistry.
- THOMAS LOFTIN WRIGHT, B.S., Instructor in Mathematics and English.
- CHARLES WALTER HYAMS, Instructor in Botany and Entomology.
- JAMES MARTIN JOHNSON, B.S., M.S., Instructor in Animal Industry.
- GEORGE STRONACH FRAPS, B.S., Ph.D., Instructor in Chemistry.
- ALEXANDER RHODES, Instructor in Horticulture.
- NUMA REID STANSEL, B.S., Instructor in Military Science and Tactics, and Assistant in Electrical Engineering.

GEORGE FRANKS IVEY, A.B., Instructor in Textile Industry.
WILLIAM ANDERSON SYME, B.S., Instructor in Chemistry.
JOHN WILLIAM CARROLL, B.S., Assistant in Dairying.
CARROLL LAMB MANN, B.S., Assistant in Civil Engineering.
BENJAMIN CAREY FENNELL, B.S., Assistant in Mechanical Engineering.
FRANCIS MARION FOY, JR., B.S., Assistant in Physics and Electrical Engineering.
ANDREW THOMAS SMITH, Assistant in Shop Work.

OTHER OFFICERS.

EDWIN BENTLEY OWEN, B.S., Librarian.
JOHN MEADE FIX, Bursar.
ARTHUR FINN BOWEN, Registrar and Secretary.
ELIZABETH VANDER VEER DARBY, Stenographer.
BENJAMIN SMITH SKINNER, Farm Superintendent.
SUSAN COLWELL CARROLL, Matron.
JAMES RUFUS ROGERS, A.B., M.D., Physician.

AGRICULTURAL EXPERIMENT STATION DEPARTMENT.

GEORGE TAYLOE WINSTON, A.M., LL.D., President and Director.
WILLIAM ALPHONSO WITHERS, A.M., Chemist.
BENJAMIN IRBY, M.S., Agriculturist.
WILBUR FISK MASSEY, C.E., Horticulturist.
GEORGE STRONACH FRAPS, Ph.D., Assistant Chemist.
JAMES ADRIAN BIZZELL, B.S., Assistant Chemist.
ALEXANDER RHODES, Assistant Horticulturist.
CHARLES WALTER HYAMS, Assistant Botanist and Entomologist.
JAMES MARTIN JOHNSON, M.S., Assistant in Animal Industry.
JOHN MEADE FIX, Bursar.
ARTHUR FINN BOWEN, Secretary.
ELIZABETH VANDER VEER DARBY, Stenographer.

MILITARY ORGANIZATION.

NUMA REID STANSEL, Commandant.

Staff.

HENRY ALLEN HUGGINS, Major.

ANDREW THOMAS SMITH, Captain.

FLOYD DE ROSS, First Lieutenant and Adjutant.

SOLOMON ALEXANDER VEST, First Lieutenant and Quartermaster.

Non-commissioned Staff.

KEMP ALEXANDER, Sergeant-major.

GEORGE ROLAND HARRELL, Color Sergeant.

Band.

ANDREW THOMAS SMITH, Director.

FLETCHER HESS BARNHARDT, EDWARD OSCAR SMITH,
Principal Musicians.

JESSE JAMES LILES, Drum-major.

BENJAMIN OLIVER HOOD, ZOLLY MOSBY BOWDEN, Sergeants.

JOSEPH PLATT TURNER, Chief Trumpeter.

Company Officers.

Co. A—J. H. BUNN, Captain; J. W. SHORE, First Lieutenant; R. H. MORRISON, Second Lieutenant; W. H. PERSON, First Sergeant; W. E. ROSE, Second Sergeant; J. L. MCKINNON, Third Sergeant; F. G. CRUTCHFIELD, Fourth Sergeant; W. S. STURGILL, Fifth Sergeant; W. P. CRAIG, First Corporal; V. Y. MOSS, Second Corporal; R. I. HOWARD, Third Corporal; R. G. CRAVER, Fourth Corporal.

Co. B—J. E. PORTER, Captain; I. O. SCHEUB, First Lieutenant; M. M. HARRIS, Second Lieutenant; W. T. SMITH, First Sergeant; F. H. BONITZ, Second Sergeant; W. F. PATE, Third Sergeant; B. V. WRIGHT,

Fourth Sergeant; B. J. BROWN, Fifth Sergeant; B. N. SULLIVAN, First Corporal; I. McPHAIL, Second Corporal; T. O. POMEROY, Third Corporal; J. E. PEARSON, Fourth Corporal.

Co. C—R. M. WAGSTAFF, Captain; L. G. BERRY, First Lieutenant; G. JONES, Second Lieutenant; R. F. RICHARDSON, First Sergeant; L. O. LOUGEE, Second Sergeant; W. L. CRAVEN, Third Sergeant; G. M. DAVIS, Fourth Sergeant; B. M. GRAVES, Fifth Sergeant; C. H. McQUEEN, First Corporal; C. D. WELCH, Second Corporal; B. B. CARR, Third Corporal; J. L. FEREBEE, Fourth Corporal.

Co. D—R. L. BERNHARDT, Captain; L. H. MANN, First Lieutenant; G. H. WHITING, Second Lieutenant; P. COLLINS, First Sergeant; W. D. FAUCETTE, Second Sergeant; I. N. SANDERS, Third Sergeant; W. O. BENNETT, Fourth Sergeant; C. A. NICHOLS, Fifth Sergeant; R. E. SNOWDEN, First Corporal; L. MOSELEY, Second Corporal; H. G. DORSETT, Third Corporal; A. L. CLARK, Fourth Corporal.

GENERAL INFORMATION.

The North Carolina College of Agriculture and Mechanic Arts owes its existence to the combined liberality of the United States Government and the late R. S. Pullen, of Raleigh. The Congress of the United States in 1862 passed a law donating to each State public lands "for the endowment, support, and maintenance of at least one college, whose leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The income from this grant, amounting to \$7,500 annually, was appropriated in 1887 by the Legislature of the State for the establishment and yearly maintenance of this College. Sufficient land for the College site and farm was donated by the late R. S. Pullen. The College was formally opened for students October 1st, 1889, with one building and five teachers.

Additional funds were provided afterwards by the National Congress for the support of the College and the State Agricultural Experiment Station, which is now a department of the College.

An annual appropriation of \$10,000 is made by the Legislature of North Carolina, this being the only money received directly from the State.

The College is beautifully located in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects. There is an abundant supply of water from deep wells, and the natural slope of the land furnishes perfect drainage.

The College now owns six hundred acres of land and twelve buildings, and its teaching force consists of twenty-four persons. Its library contains three thousand volumes, and its reading-room is well supplied with journals, magazines and periodicals relating to agriculture, engineering, and the mechanic arts. Both library and reading-room are accessible to students eight hours a day. There are also special reference libraries in connection with the various laboratories, drawing-rooms, and work-shops.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station is a department of the College. It was established originally as a division of the State Department of Agriculture, in accordance with an Act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by Act of Congress of March 2d, 1887, which made a liberal donation to each State for the purpose of investigations in agriculture and for publishing the same.

The Experiment Station offices and laboratories are located in the Main Building of the College. The horticultural experiment farm contains twenty-three acres, and is well equipped with barns and other necessary houses. For agricultural experiments, sufficient land is reserved on the College farm, about twenty-five acres being appropriated to this purpose annually. Publications for the benefit of truckers, nurserymen, stock-raisers and other farmers are prepared by the Station and sent out free of charge to any one who desires them. A request to this effect, addressed "Agricultural Experiment Station, Raleigh, N. C.," will receive attention.

The Station conducts a large correspondence with farmers and others concerning agricultural matters. It is always glad to receive and to answer questions.

THE PURPOSE OF THE COLLEGE.

The College is an institution where young men of character, energy, and ambition may fit themselves for useful and honorable work in any line of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, machinists, electricians, chemists, mill-workers, manufacturers, stock-raisers, fruit-growers, truckers, and dairymen, by giving them not only a liberal but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Animal Industry, Horticulture, Mechanical Engineering, Civil Engineering, Electrical Engineering, Textile Industry, Chemistry, and Architecture. It also offers practical training in Carpentry, Wood-turning, Blacksmithing, Machinery-work, Mill-work, Boiler-tending, Engine-tending, and Dynamo-tending.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal edu-

cation are not omitted. Thorough instruction is given in English, Mathematics, History, Civics, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, Physical Geography, Geology, and Mineralogy.

The College is not a place for young men who desire merely a general education without manual or technical training; nor for lads lacking in physical development, mental capacity, or moral fibre; nor for those that are unable or unwilling to observe regularity, system, and order in their daily work.

MANUAL TRAINING.

Students who desire may employ their whole time in manual training. The carpenter shop, the wood-turning shop, the blacksmith shop, the machine shop, the drawing and designing-rooms, the barns, dairies, fields and green-houses afford facilities whereby young men of limited education may obtain very useful training and profitable skill. Farm boys, carpenters, lads aiming to be mechanics, machinists, electricians, engine-tenders, boiler-tenders, or dynamo-tenders, may find very profitable instruction at the College in a course lasting one year, or even less. Very many lads have come to the institution with practically no advantages of previous training, and have left it fairly well equipped for successful work.

A first prize of ten dollars and a second prize of five dollars are awarded annually to the student in the Freshman Class who earns the largest and the next largest amount of money by agricultural labor on the College farm.

DISCIPLINE.

The College is under military discipline and the students are regularly organized into a battalion. A printed copy of the rules and regulations is furnished each student on admission, and he is expected to conform to the same during his connection with the institution. The discipline is intended to secure studious and economical habits, with punctuality, system, and order in the performance of all duties. A cheap and durable uniform, which is required to be worn on all occasions, prevents extravagance and folly in dress; rooms plainly furnished and a mess-hall economically managed by the College prevent extravagance in living; regular study hours, day and night, with proper restrictions as to visiting Raleigh, check, or at least minimize, tendencies to idleness, vice, and rowdyism.

Regular reports of scholarship and conduct are made to parents and guardians three times a year. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself or to the College. Every effort is made to develop lads into strong, intelligent, high-toned men; and proper patience, forbearance, and sympathy are used in this great work; but the College is in no sense a reform-school, and its work must not be hindered by the presence of lads that are grossly and inherently vicious, idle or incompetent.

COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to the formation of good character, the development of manly physical vigor, and the promotion of literary, scientific, and technical research and training.

The **Young Men's Christian Association**, containing in its membership representatives of all the Christian denominations, meets regularly for conference, study, and worship, and exerts a wholesome influence throughout the College.

The **Pullen and Leazar Literary Societies** afford excellent opportunity for practice in declamation, debate, composition, and parliamentary law, as well as opportunities for social pleasure and recreation.

The **Technical Societies** stimulate special work in agriculture, mechanics, and the sciences. Their work consists in reviews of the various technical journals and reports of original investigations conducted in the College.

The **Alumni Association** meets on Monday of each year preceding Commencement day, transacts its annual business, hears the Alumni oration and attends the annual Alumni banquet. During the present year this Association has established a Student Aid Fund to assist needy students in obtaining their education at the College by making them small loans.

The **Athletic Association** is intended to promote physical health and manly spirit through athletic sport and gymnastic training. Under the direction of the Athletic Committee of the Faculty, it promotes practice in base-ball, foot-ball, and track athletics. The College is provided with extensive grounds, which furnish ample facilities for military drill, athletic sports, and gymnastic training.

Secret Societies, Greek letter fraternities and like organizations are not thought to be for the best interests of the College, and are not permitted.

REQUISITES FOR ADMISSION.

Applicants for admission must be sixteen years of age and must bring certificates of good moral character from the last school attended. Applicants for admission to the Full (or Technical) Courses will be examined on the following subjects: Arithmetic (complete), Algebra (through simple equations), English Grammar, Analysis and Composition, American History. Applicants for admission to the Short (or Manual) Courses will be examined on Arithmetic (through decimal fractions), English Grammar, Analysis and Composition, and American History. Applicants for admission to the Special Courses will not be required to stand any entrance examinations, but they must be over eighteen years of age.

ENTRANCE EXAMINATIONS.

Entrance examinations will be held by the County Superintendents of Instruction in each court-house in the State at 10 o'clock A. M. the last Saturday in July of each year. The date for 1900 is July 28th. These examinations will save the expense of a trip to Raleigh in case the candidate should fail, or if there should not be room enough for him in the College. Entrance examinations will be held also at the College on the first Wednesday in September of each year. The date for 1900 is September 5th, 9 o'clock A. M.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to Special Courses.
2. School-teachers holding teachers' certificates.
3. Graduates of High Schools and Academies whose courses of study are approved by the Faculty of this College.

SESSION.

The College session lasts nine months, opening annually the first Thursday in September and closing the last Wednesday in May, with a vacation of about ten days at Christmas.

EXPENSES.

The annual expenses are as follows:

Tuition, \$20; Lodging, \$10; Fuel and Lights, \$12.50; Furniture, \$2; Library, \$1; Incidental, \$1; Medical Fee and Medicine, \$4.50; Board, \$72; total, \$123. Payments are made monthly in advance. There is no deduction for less time than one month, except for board. Each student is required to wear the College uniform, which costs \$16.85, and must be paid for when received. A cheap set of overalls should be purchased for shop and field work. Each student must supply four sheets, two pillow-cases, four towels and two counterpanes, which he can bring from home, and must purchase his own books, stationery, drawing instruments and materials, which he can obtain at the College. Students who are willing to work may reduce their total annual expenses to one hundred dollars.

UNIFORM.

As stated above, the College uniform must be worn by all students excepting special students in Agriculture and Mechanic Arts. The uniform is of strong gray cloth, and with care it will last a year. New students are especially cautioned not to bring with them to the College a supply of citizen's clothing, as the uniform must be worn on all occasions.

FREE TUITION.

Scholarships, conferring free tuition and lodging, are given to needy boys of talent and character. As far as possible, these scholarships are distributed among the counties of the State. Appointments are made only by the President of the College upon written recommendation of any member of the Legislature. The scholarships are not intended for people who have property. Certificates of inability to pay must be made by the applicant and indorsed by the person recommending him. A scholarship once bestowed will be retained by the holder until graduation, unless he should prove neglectful of his studies or guilty of serious misconduct.

SELF-HELP.

Many students pay their own expenses, either wholly or partly, by doing various kinds of work. There is regular employment for a limited number, enabling them to earn from \$4 to \$10 a month. There

is also occasional employment, paying from \$2.50 to \$5 a month. New students should not rely upon securing employment the first four months. Except when arrangements have previously been made with the College authorities, young men in needy circumstances are not advised to come to the College, unless during the year they can have at their command at least one hundred dollars.

STUDENT LOAN FUND.

The Alumni Association of the College has established a small fund to be lent to needy students of talent and character. The loans are made at six per cent., and good security is required. Sufficient time is given for repayment to enable the student to earn the money himself. The amount lent each student is limited. The purpose is to help young men who are willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, *alumni* and friends of education generally. The fund is administered by the College Bursar, under the direction of the President. At present the fund amounts to ninety dollars.

BOARD AND LODGING.

All students are expected to board in the College mess-hall and room in the College dormitories. An abundant supply of plain, nourishing food, with as large variety as possible, is furnished absolutely at cost. The charge at present is \$8 per month, payable in advance, with reduction in case of withdrawal during the month.

Rooms in the College dormitories are supplied with electric lights, steam heat and all necessary furniture, excepting sheets, pillow-cases, bed spreads and towels, which each student must furnish for himself. The charge for lodging is by the month, and there is no reduction in case of withdrawal. Lodging in the College buildings will not be supplied to special students, who are permitted, however, to board in the mess-hall, if they so desire.

Any student over twenty-one years of age is permitted to room and board outside the College.

CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspec-

tions, at frequent intervals, are made by the College physician. There is an abundant supply of pure water from twelve deep wells. Each cadet has a regular routine of daily life, including abundant physical exercise in the shops and on the drill-grounds.

In case of sickness a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing. The Infirmary is a two-story brick building, containing a sitting-room, seven bed-rooms, three bath-rooms, a kitchen, linen-room, doctor's office and medicine closet. The rooms are large, well ventilated, well lighted and heated with open fire-places. Each room opens upon a large pleasant portico. The furnishing and equipment of the rooms are such as is suitable to hospitals. The College physician visits the Infirmary daily at 10 o'clock, and in cases of serious illness, as frequently as may be required.

COURSES OF INSTRUCTION.

The College offers regular courses of instruction in the following lines:

1st. Agriculture (including Agriculture, Animal Industry, and Horticulture).

2d. Engineering (including Mechanical Engineering, Civil Engineering, Electrical Engineering, and Chemical Engineering).

3d. Textile Industry.

Students wishing to pursue any one of these lines of study may select a Full (or Technical) Course, requiring four years for its completion; a Short (or Manual) Course, requiring two years; or a Special Course, requiring about three months. Graduate Courses, also, are offered for the benefit of those who have completed the Full Courses.

The Full Courses offer a combination of practical and theoretical work, about half of the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, green-houses, dairies, fields, and mills. They are intended to furnish both technical and liberal education. The Bachelor's degree is conferred upon any one who completes a Full Course.

The Short Courses include nearly all the practical work of the Full Courses, with less theoretical instruction. They are intended for students who desire chiefly manual training or for those who are unable to complete the Full Courses. There are Short Courses in Agriculture, in the Textile Industry, and in the Mechanic Arts (including Carpentry, Wood-turning, Blacksmithing, Machinery-work, Mill-work, Boiler-tending, Engine-tending, and Dynamo-tending).

The Special Courses are intended for persons of limited means, or limited opportunity, who desire special training in any single line. Each course is arranged to suit individual needs. Any one of the following lines may be selected: Boiler-tending, Engine-tending or Dynamo-tending, Machine-work, Cotton Mill-work, Carpentry, Forging, Drawing, and Designing.

The Graduate Courses, extending over two years and leading to advanced degrees, are intended for students who have completed the Full Courses, and who desire further instruction and training along

special lines. Upon completion of the Graduate Courses, the following degrees are conferred: Master of Agriculture, Mechanical Engineer, Civil Engineer, Electrical Engineer, Chemical Engineer.

The Faculty earnestly advises all students to pursue a Full Course of instruction, and if possible after graduation, to take one or more years of graduate study.

COURSES IN AGRICULTURE.

These courses are intended to educate farmers, stock-raisers, poultry-raisers, dairymen, truckers, florists, fruit-growers, agricultural chemists, botanists, and entomologists.

I. Full (or Technical) Course, leading to the degree of Bachelor of Agriculture.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Agricultural Practice -----	--	--	4
Free-hand Drawing -----	4	--	--
Mechanical Drawing -----	--	4	4
Carpenter Shop -----	4	4	--
Forge Shop -----	2	2	--
Lathe Shop -----	2	2	--
Algebra -----	5	5	--
Geometry -----	--	--	5
Book-keeping -----	1	1	1
Elementary Physics -----	2	2	2
Physical Geography -----	--	--	2
Plant Morphology -----	--	--	4
Physiology -----	2	--	--
Rhetoric and Composition -----	3	3	3
History -----	2	2	2
Civics -----	--	2	--
Military Drill -----	3	3	3

Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Elements of Agriculture	2	--	--
Staple Crops	--	--	2
Dairying	--	2	--
Breeds of Live Stock	--	--	5
Agricultural Practice	--	4	4
Pomology	2	--	--
Green-house Propagation	4	4	--
Architecture	1	1	1
Architectural Drawing	4	--	--
Geometry	5	--	--
Trigonometry	--	5	--
Inorganic Chemistry	3	3	3
Inorganic Chemistry (laboratory)	4	4	4
Entomology	--	2	2
Entomology (practice)	--	--	4
Higher Rhetoric	3	3	--
American Literature	--	--	3
Military Drill	3	3	3

Junior Year.

Farm Drainage	4	--	--
Meteorology	--	--	4
Cattle-feeding	--	4	--
Dairy Bacteriology	--	3	--
Veterinary Science	--	--	3
Agricultural Practice	--	4	4
Landscape Gardening	--	2	--
Forestry	--	--	2
Surveying	3	--	--
Surveying (field work)	4	--	--
Organic Chemistry	2	2	2
Qualitative Analysis	6	6	6
Geology	2	2	2
Physiological Botany	2	--	--
Botanical Laboratory	4	4	4
English Literature	--	3	3
English History	3	--	--
Military Drill	3	3	3

Senior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Agricultural Economics.....	--	--	4
Experiment Station Methods.....	--	--	3
Stock-breeding.....	--	4	--
Agricultural Practice.....	4	4	4
Market Gardening.....	3	--	--
Floriculture.....	--	3	--
Plant-breeding.....	--	--	3
Horticultural Practice.....	2	2	2
Agricultural Chemistry.....	3	3	--
Quantitative Methods.....	1	1	1
Quantitative Analysis.....	6	6	6
Vertebrate Zoology.....	4	--	--
English.....	2	2	2
Political Economy.....	2	2	2
Military Science.....	1	1	1
Military Drill.....	3	3	3

II. Short (or Manual) Course (two years).

First Year.

Elements of Agriculture.....	2	--	--
Staple Crops.....	--	--	2
Dairying.....	--	2	--
Agricultural Practice.....	4	4	4
Pomology.....	2	--	--
Horticultural Practice.....	4	4	--
Free-hand Drawing.....	4	--	--
Mechanical Drawing.....	--	4	4
Shop.....	4	4	4
Arithmetic.....	5	--	--
Algebra.....	--	5	5
Plant Morphology.....	--	--	4
Entomology.....	--	2	2
English Composition.....	3	3	3
American History.....	2	2	2
Military Drill.....	3	3	3

Second Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Farm Drainage.....	4	--	--
Cattle-feeding.....	--	4	--
Breeds of Live Stock.....	--	--	5
Dairy Bacteriology.....	--	3	--
Veterinary Science.....	--	--	3
Agricultural Practice.....	--	4	4
Agricultural Practice (special).....	4	4	4
Landscape Gardening.....	--	2	--
Forestry.....	--	--	2
Horticultural Practice.....	4	4	--
Agricultural Chemistry.....	3	3	--
Architecture.....	1	1	1
Architectural Drawing.....	4	--	--
Book-keeping.....	1	1	1
Physical Geography.....	--	--	2
Physiological Botany.....	2	--	--
Physiology.....	2	--	--
Civics.....	--	2	--
Military Drill.....	3	3	3

III. Special Course, beginning January 3.

	NO. OF HOURS PER WEEK.
Dairying.....	2
Cattle-feeding.....	2
Agricultural Practice.....	8
Market Gardening.....	3
Fertilizers.....	3
Entomology.....	2
Shop.....	4
Book-keeping.....	1

. IV. Graduate Courses (2 years), leading to the Degree of Master of Agriculture. These courses will be arranged to suit each individual case.

COURSE IN MECHANICAL ENGINEERING.

I. Full (or Technical) Course, leading to the Degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing -----	4	--	--
Mechanical Drawing -----	--	4	4
Carpenter Shop -----	4	4	4
Forge Shop -----	2	2	2
Lathe Shop -----	2	2	2
Algebra -----	5	5	--
Geometry -----	--	--	5
Book-keeping -----	1	1	1
Elementary Physics -----	2	2	2
Physical Geography -----	--	--	2
Physiology -----	2	--	--
Rhetoric and Composition -----	3	3	3
History -----	2	2	2
Civics -----	--	2	--
Military Drill -----	3	3	3

Sophomore Year.

Steam Engine -----	1	1	1
Mechanical Drawing -----	2	2	2
Turning and Pattern Shop -----	5	5	5
Architecture -----	1	1	1
Architectural Drawing -----	4	4	4
Geometry -----	5	--	--
Trigonometry -----	--	5	--
Analytical Geometry -----	--	--	5
Mechanics -----	2	2	2
Inorganic Chemistry -----	3	3	3
Inorganic Chemistry (laboratory) -----	4	4	4
Higher Rhetoric -----	3	3	--
American Literature -----	--	--	3
Military Drill -----	3	3	3

Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam Engineering.....	4	4	--
Mechanics of Engineering.....	--	--	4
Drawing and Designing.....	5	5	5
Valve Gears.....	2	--	--
Graphic Statics.....	--	2	2
Forge Shop.....	4	4	4
Analytical Geometry.....	5	--	--
Calculus.....	--	5	5
Electricity and Magnetism.....	3	--	--
Heat and Light.....	--	3	3
Physical Laboratory.....	4	4	4
English Literature.....	--	3	3
English History.....	3	--	--
Military Drill.....	3	3	3

Senior Year.

Mechanics of Engineering.....	3	3	3
Mechanics of Machinery.....	--	3	--
Graphics of Mechanism.....	--	--	3
Machine Design.....	4	4	4
Boiler Design.....	2	2	2
Engineering Laboratory.....	4	4	4
Machine Shop.....	6	6	6
Hydraulics.....	--	3	3
Dynamo Machinery.....	3	--	--
Industrial Chemistry.....	--	--	2
Calculus.....	3	--	--
English.....	2	2	2
Political Economy.....	2	2	2
Military Science.....	1	1	1
Military Drill.....	3	3	3

II. Short (or Manual) Course in Mechanic Arts (two years).**First Year.**

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Drawing -----	8	8	8
Shop -----	16	16	16
Arithmetic -----	5,	--	--
Algebra -----	--	5	5
English Composition -----	3	3	3
American History -----	2	2	2
Military Drill -----	3	3	3

Second Year.

Mechanical Technology -----	3	3	3
Drawing -----	8	8	8
Shop -----	18	18	18
Algebra -----	5	5	--
Geometry -----	--	--	5
Elementary Physics -----	2	2	2
Military Drill -----	3	3	3

III. Special Course. Boiler-tending, Engine-tending, and Dynamo-tending; Machine-work; Cotton-milling, Carpentry, Forging, Drawing, and Designing.

IV. Graduate Courses (2 years), leading to the Degree of Mechanical Engineer. These courses are arranged to suit each individual case.

COURSE IN CIVIL ENGINEERING.

I. Full Course, leading to the Degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing.....	4	--	--
Mechanical Drawing.....	--	4	4
Carpenter Shop.....	4	4	4
Forge Shop.....	2	2	2
Lathe Shop.....	2	2	2
Algebra.....	5	5	--
Geometry.....	--	--	5
Book-keeping.....	1	1	1
Elementary Physics.....	2	2	2
Physical Geography.....	--	--	2
Physiology.....	2	--	--
Rhetoric and Composition.....	3	3	3
History.....	2	2	2
Civics.....	--	2	--
Military Drill.....	3	3	3

Sophomore Year.

Steam Engine.....	1	1	1
Mechanical Drawing.....	2	2	2
Turning and Pattern Shop.....	5	5	5
Architecture.....	1	1	1
Architectural Drawing.....	4	4	4
Geometry.....	5	--	--
Trigonometry.....	--	5	--
Analytical Geometry.....	--	--	5
Mechanics.....	2	2	2
Inorganic Chemistry.....	3	3	3
Inorganic Chemistry (laboratory).....	4	4	4
Higher Rhetoric.....	3	3	--
American Literature.....	--	--	3
Military Drill.....	3	3	3

Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam Engineering-----	4	4	--
Mechanics of Engineering-----	--	--	4
Drawing and Designing-----	5	5	5
Valve Gears-----	2	--	--
Graphic Statics-----	--	2	2
Forge Shop-----	4	4	4
Analytical Geometry-----	5	--	--
Calculus-----	--	5	5
Electricity and Magnetism-----	3	--	--
Heat and Light-----	--	3	3
Physical Laboratory-----	4	4	4
English Literature-----	--	3	3
English History-----	3	--	--
Military Drill-----	3	3	3

Senior Year.

Mechanics of Engineering-----	3	3	--
Engineering Laboratory-----	4	4	--
Machine Shops-----	4	4	4
Hydraulics-----	--	3	3
Surveying-----	3	--	--
Railroad and Municipal Engineering-----	--	3	3
Surveying (field work)-----	4	4	8
Roofs and Bridges-----	4	--	--
Bridge Design-----	--	4	4
Industrial Chemistry-----	--	--	2
Calculus-----	3	--	--
English-----	2	2	2
Political Economy-----	2	2	2
Military Science-----	1	1	1
Military Drill-----	3	3	3

II. Graduate Course (2 years), leading to the Degree of Civil Engineer.

COURSES IN ELECTRICAL ENGINEERING.

I. Full Course, leading to the Degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing	4	--	--
Mechanical Drawing	--	4	4
Carpenter Shop	4	4	4
Forge Shop	2	2	2
Lathe Shop	2	2	2
Algebra	5	5	--
Geometry	--	--	5
Book-keeping	1	1	1
Elementary Physics	2	2	2
Physical Geography	--	--	2
Physiology	2	--	--
Rhetoric and Composition	3	3	3
History	2	2	2
Civics	--	2	--
Military Drill	3	3	3

Sophomore Year.

Steam Engine	1	1	1
Mechanical Drawing	2	2	2
Turning and Pattern Shop	5	5	5
Architecture	1	1	1
Architectural Drawing	4	4	4
Geometry	5	--	--
Trigonometry	--	5	--
Analytical Geometry	--	--	5
Mechanics	2	2	2
Inorganic Chemistry	3	3	3
Inorganic Chemistry (laboratory)	4	4	4
Higher Rhetoric	3	3	--
American Literature	--	--	3
Military Drill	3	3	3

Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam Engineering	4	4	--
Mechanics of Engineering	--	--	4
Drawing and Designing	5	5	5
Valve Gears	2	--	--
Graphic Statics	--	2	2
Forge Shop	4	4	4
Analytical Geometry	5	--	--
Calculus	--	5	5
Electricity and Magnetism	3	--	--
Heat and Light	--	3	3
Physical Laboratory	4	4	4
English Literature	--	3	3
English History	3	--	--
Military Drill	3	3	3

Senior Year.

— Mechanics of Engineering	3	3	--
Machine Design	4	4	4
Engineering Laboratory	4	--	--
Machine Shop	4	4	4
Hydraulics	--	3	3
Dynamo Machinery	3	3	3
Electrical Laboratory	4	8	8
Industrial Chemistry	--	--	2
Calculus	3	--	--
English	2	2	2
Political Economy	2	2	2
Military Science	1	1	1
Military Drill	3	3	3

II. Graduate Course (two years), leading to the Degree of Electrical Engineer.

COURSE IN CHEMICAL ENGINEERING.

For young men seeking employment in the analytical or engineering departments of the various chemical industries, such as the manufacture of soap, paper, leather, vegetable oils, glass, porcelain, illuminating gas, sulphuric acid, fertilizers, etc.

I. Full Course, leading to the Degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing	4	--	--
Mechanical Drawing	--	4	4
Carpenter Shop	4	4	4
Forge Shop	2	2	2
Lathe Shop	2	2	2
Algebra	5	5	--
Geometry	--	--	5
Book-keeping	1	1	1
Elementary Physics	2	2	2
Physical Geography	--	--	2
Physiology	2	--	--
Rhetoric and Composition	3	3	3
History	2	2	2
Civics	--	2	--
Military Drill	3	3	3

Sophomore Year.

Steam Engine	1	1	1
Mechanical Drawing	2	2	2
Turning and Pattern Shop	5	5	5
Architecture	1	1	1
Architectural Drawing	4	4	4
Geometry	5	--	--
Trigonometry	--	5	--
Analytical Geometry	--	--	5
Mechanics	2	2	2
Inorganic Chemistry	3	3	3
Inorganic Chemistry (laboratory)	4	4	4
Higher Rhetoric	3	3	--
American Literature	--	--	3
Military Drill	3	3	3

Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam Engineering -----	4	4	--
Mechanics of Engineering -----	--	--	4
Drawing and Designing -----	5	5	5
Analytical Geometry -----	5	--	--
Calculus -----	--	5	5
Electricity and Magnetism -----	3	--	--
Heat and Light -----	--	3	3
Physical Laboratory -----	4	4	4
Qualitative Analysis -----	6	6	6
English Literature -----	--	3	3
English History -----	3	--	--
Military Drill -----	3	3	3

Senior Year.

Mechanics of Engineering -----	3	3	--
Machine Design -----	4	4	4
Engineering Laboratory -----	4	4	4
Hydraulics -----	--	3	3
Dynamo Machinery -----	3	--	--
Industrial Chemistry -----	2	2	2
Quantitative Methods -----	1	1	1
Quantitative Analysis -----	8	8	8
Theoretical Chemistry -----	--	--	2
English -----	2	2	2
Political Economy -----	2	2	2
Military Science -----	1	1	1
Military Drill -----	3	3	3

II. Graduate Course (two years), leading to the Degree of Chemical Engineer.

COURSES IN TEXTILE INDUSTRY.

I. Full Course, leading to the Degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing	4	--	--
Mechanical Drawing	--	4	4
Carpenter Shop	4	4	4
Forge Shop	2	2	2
Lathe Shop	2	2	2
Algebra	5	5	--
Geometry	--	--	5
Book-keeping	1	1	1
Elementary Physics	2	2	2
Physical Geography	--	--	2
Physiology	2	--	--
Rhetoric and Composition	3	3	3
History	2	2	2
Civics	--	2	--
Military Drill	3	3	3

Sophomore Year.

Steam Engine	1	1	1
Mechanical Drawing	2	2	2
Turning and Pattern Shop	5	5	5
Architecture	1	1	1
Architectural Drawing	4	4	4
Geometry	5	--	--
Trigonometry	--	5	--
Analytical Geometry	--	--	5
Mechanics	2	2	2
Inorganic Chemistry	3	3	3
Inorganic Chemistry (laboratory)	4	4	4
Higher Rhetoric	3	3	--
American Literature	--	--	3
Military Drill	3	3	3

Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Cotton-milling	5	5	5
Cotton Machinery (practice)	6	6	6
Drawing and Designing	5	5	5
Analytical Geometry	5	--	--
Calculus	--	5	5
Organic Chemistry	2	2	2
Qualitative Analysis	4	4	4
English Literature	--	3	3
English History	3	--	--
Military Drill	3	3	3

Senior Year.

Mechanics of Engineering	3	--	--
Mechanics of Machinery	--	3	--
Graphics of Mechanism	--	--	3
Machine Design	4	4	4
Cotton-milling	5	5	5
Cotton Machinery (practice)	8	8	8
Textile Chemistry and Dyeing	3	3	3
Textile Chemistry and Dyeing (laboratory)	3	3	3
English	2	2	2
Political Economy	2	2	2
Military Science	1	1	1
Military Drill	3	3	3

II. Short (or Manual) Course (two years).

First Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Drawing-----	5	5	5
Shop-----	10	10	10
Cotton-milling-----	5	5	5
Cotton Machinery (practice)-----	6	6	6
Arithmetic-----	5	—	—
Algebra-----	—	5	5
English Composition-----	3	3	3
Military Drill-----	3	3	3

Second Year.

Mechanical Technology-----	3	3	3
Drawing-----	8	5	5
Shop-----	2	2	2
Cotton-milling-----	5	5	5
Cotton Machinery (practice)-----	8	8	8
Algebra-----	5	5	—
Geometry-----	—	—	5
Physics-----	2	2	2
Military Drill-----	3	3	3

III. Special Course in Mill-work and Mill Calculations.

SUBJECTS OF INSTRUCTION.

The following detailed statement of the subjects of instruction in the College is intended to supply minute information, not only for those who may pursue the regular courses heretofore described, but also for special students seeking instruction in only one or two subjects.

As a rule, students are required to pursue one of the regular courses of instruction, either a full course of four years or a short course of two years; but mature and experienced persons, under the guidance of the Faculty, may pursue special courses, embracing, if desired, only one subject. Such special students are excused from military exercises as well as from wearing the uniform, and are not expected to room in the College dormitories.

AGRICULTURE.

1. Elements of Agriculture.—Bailey's *Principles of Agriculture*. Two hours, first term. Required of Sophomores. This is a very excellent introduction to the study of Agriculture, treating as it does of the formation of soils, tillage, fertilizers, forage crops, harvesting of crops, etc. It deals more in principles than in facts. Professor IRBY.

2. Staple Crops.—Lectures. Two hours, third term. Required of Sophomores. The most important crops of the State are described and discussed. The best methods of preparing the soil for the same, and the best cultivation and harvesting of crops. Professor IRBY.

3. Farm Drainage.—French's *Farm Drainage*. Four hours, first term. Required of Juniors. Farm drainage in all its phases is discussed: open ditches, pole drains, stone drains, plank drains, and last and best of all, tile drains. The students are taught to reconnoiter the ground, survey the land, take the levels, dig the ditches, and lay the tile. Professor IRBY.

4. Meteorology.—Davis. Four hours, third term. Required of Juniors in Agriculture. Especial attention is paid to the climatology of North Carolina. The students are made to realize the importance of a knowledge of this new science, and its relation to Agriculture. Professor IRBY.

5. Experiment Station Methods.—Three hours, third term. Required of Seniors in Agriculture. This consists in reviewing and discussing the leading State and United States bulletins. Professor IRBY.

6. Agricultural Economics.—Lectures. Four hours, third term. Required of Seniors. This consists of a course of lectures and is intended as a "cap stone" for the four years' course, as nearly all the subjects previously discussed are briefly reiterated and emphasized, especially the more practical subjects that have to deal with the business affairs of the farm. It is a final talk with the boys before they go out in the world to pursue their chosen vocations. Different styles of farming are discussed, such as special *vs.* diversified, intensive *vs.* extensive, and the arrangement of these are given somewhat in detail. Due attention is given to the selection, arrangement, equipment, and running of farms. Professor IRBY.

ANIMAL INDUSTRY.

1. Dairying.—Wing's *Milk and its Products*. Two hours, second term. Required of Sophomores in Agriculture. This is a treatise on composition, secretion, testing, and fermenting of milk. Ripening of cream and finishing butter for the market. Mr. JOHNSON.

2. Breeds of Live Stock.—Curtis's *Horses, Cattle, Sheep, and Swine*. Five hours, third term. Required of Sophomores in Agriculture. This book gives the student a good general idea of the comparative merits of the different breeds of live stock on the farm.

The "make-up" of a horse is studied and discussed. Why some are strong, and others are fleet, how one breed is developed for the saddle, while another is for the heavy dray, and still another for the turf.

Why some cattle are better for the production of milk, or of butter, while others are adapted for beef production.

How the different breeds of sheep and hogs were developed for their several purposes.

Poultry is also discussed in this connection. Mr. JOHNSON.

3. Dairy Bacteriology.—Russell's *Dairy Bacteriology*. Three hours, second term. Required of Juniors in Agriculture. This course gives the student an idea how cream is ripened, and of the different microscopic developments, beneficial and otherwise, that are going on in the dairy. Mr. JOHNSON.

4. Cattle-feeding.—Lectures. Four hours, second term. Required

of Juniors in Agriculture. Reference books: Armsby, Stewart, and Henry. Topics: best feed stuffs, composition of feeds, balancing of rations, and best methods of caring for stock. Mr. JOHNSON.

5. Veterinary Science.—Law's. Three hours, third term. Required of Juniors in Agriculture. Only the most common diseases are discussed and their prevention and treatment given. Mr. JOHNSON.

6. Stock-breeding.—Miles. Four hours, second term. Required of Seniors in Agriculture. In this they learn the power and importance of heredity, atavism, law of correlation, cross-breeding, and grading. The importance of pedigrees and the keeping of official records is impressed on their minds. How the different breeds were produced, and how the different breeders' associations are formed and maintained. Professor IRBY.

7. Practice Work.—Four hours, third term. Required of Freshmen in Agricultural Course. Professor IRBY.

8. Practice Work.—Four hours, second and third term. Required of Sophomores in Agricultural Course. Work in barn, dairy, and field correlating with the work in the class-room. Judging cattle with the score-card, milking, feeding the stock, testing milk, running the separator and churn. Professor IRBY and Mr. JOHNSON.

10. Practice Work.—Four hours, first, second, and third terms. Required of Seniors in Agricultural Course. This includes work with stock, work and observation on different field operations, setting up and running of farm machinery, and planning various farm buildings. Professor IRBY.

HORTICULTURE.

1. Market Gardening.—The theory and practice of growing vegetables in the open ground and under glass commercially. Lectures three hours during the first term. Required of Seniors in Agriculture. Mr. RHODES.

2. Floriculture.—Lectures on commercial floriculture, construction of horticultural buildings, green-house management and general trade methods. Three hours during the second term. Required of Seniors in Agriculture. Mr. RHODES.

3. Landscape Gardening.—Lectures on the history of garden art and styles of ornamental gardening, planning of country places and farm homes and improvement of grounds in general. Two hours, second term. Required of Juniors in Agriculture. Professor MASSEY.

4. Forestry.—Lectures on forest influences and methods of forest management, timbers, and forest products. Two hours, third term. Required of Juniors in Agriculture. Professor MASSY.

5. Green-house Propagation and Garden Practice.—Four hours' first and second terms. Required of Sophomores in Agriculture. Mr. RHODES.

6. Plant-breeding.—Lectures on the improvement of cultivated plants by cross fertilization and selection. Three hours, third term. Required of Seniors in Agriculture. Mr. RHODES.

7. Horticultural Practice.—Green-house management and commercial methods. Two hours. Required of Seniors in Agriculture. Mr. RHODES.

8. Pomology.—Two hours during Winter term. Bailey's *Principles of Fruit Growing*. Mr. RHODES.

MECHANICAL ENGINEERING.

1a. Free-hand Drawing.—An elementary drill in the use of the pencil, beginning with simple forms. Sketches of objects, usually some piece of a machine. Four hours, first term. Required of all Freshmen. Mr. PRITCHETT and Mr. FENNELL.

1b. Elementary Mechanical Drawing.—Use of instruments. Drawing practice on elementary machine pieces. Elementary projections. Drawings made to scale, from working sketches of pieces of machines. Four hours, second and third terms. Required of all Freshmen. Mr. PRITCHETT and Mr. FENNELL.

1c. Mechanical Drawing.—Isometric sketches from mechanical drawings. Elements of machine designs. Working sketches and drawings of simple machine parts from the model. Shadow lines. Two hours. Required of Sophomores in Engineering and in Textile Industry. Mr. PRITCHETT.

1d. Drawing and Designing.—Making working sketches, finished drawings, tracings and blue prints, from the tools and machines in the laboratories. Designing parts of tools or some piece of mechanism. Five hours. Required of Juniors in Engineering and in Textile Industry. Professor SCRIBNER and Mr. FENNELL.

2a. Carpenter Shop.—Bench work in wood. (Instruction in care and use of tools. Principle of the cutting edge). Exercises made from working drawings, involving use of various tools, fitting of joints, etc. Making and finishing simple articles. Four hours. Required of all Freshmen. Mr. PRITCHETT.

2b. Lathe Shop.—Use of wood lathe. Care and adjustment of

parts. Care of shafting, pulleys, and belting. Care of lathe tools. Form and position of cutting edges. Uses of different tools. Elementary exercises in wood-turning. Two hours, first and second terms. Required of all Freshmen. Two hours, third term. Required of Freshmen in Engineering, in Textile Industry, and in Science. Mr. SMITH.

2c. Wood-working and Pattern Shop.—Use and care of wood-working machinery. Nature and use of different kinds of wood. Exercises made from working drawings on lathes and other tools. Principles of pattern-making. Construction of various patterns. Five hours. Required of Sophomores in Engineering, and in Textile Industry. Mr. SMITH.

3a. Forge Shop.—The names, uses, and care of ordinary forge tools. The fire, its preparation. Effect and adjustment of blast, proper use and economy of fuel. Characteristics of wrought iron, how affected by heat; forging; welding; burning. Practice in making simple exercises by forging and welding of iron. Two hours, first and second terms. Required of all Freshmen. Two hours, third term. Required of Freshmen in Engineering and in Textile Industry. Mr. PARK.

3b. Forge Shop.—Effect of heat on iron and steel, theory of welding, and use of fluxes. Hard and soft steel, welding, hardening and tempering steel, tool-temper, spring-temper, case hardening. Practice in making iron and steel tools and difficult forging and welding and tempering. Four hours. Required of Juniors in Mechanical, Civil and Electrical Engineering. Mr. PARK.

3c. Machine Shop.—Bench and machine work in iron, steel, and brass. Use and care of hand tools, and machine tools. Care of bearings, shafting, belting, pulleys, and similar accessories. Cutting tools; proper form and position of the cutting edge; speed and weight of cutting with different materials. Simple exercises in turning, planing, gear-cutting, etc., construction of parts of a steam-engine, dynamo, or some other machine, or of laboratory apparatus involving machine tool work. Six hours. Required of Seniors in Mechanical Engineering. Four hours. Required of Seniors in Civil and Electrical Engineering. Mr. PARK.

4. Steam-engine.—Descriptive study of Engines and Boilers, covering the details of cylinders, pistons, valves, connecting-rods, bed plates, foundations, and the ordinary types of boilers with their settings. Holmes' *The Steam Engine*, supplemented by sketching from cuts, drawings, and such engines and boilers as are accessible. One

hour. Required of Sophomores in the Engineering and Textile courses. PROFESSOR SCRIBNER.

5. Valve Gears.—General theory of the slide-valve and link motions, and its application in the study and design of the valve mechanism of steam-engines; problems and exercises. McCord's *The Slide Valve*. Two hours, first term. Required of Juniors in Mechanical, Civil, and Electrical Engineering. MR. FENNEL.

6. Steam Engineering.—Nature and measurement of heat, its effect on gases and water, theory of the Steam-engine. Expansion and cushioning, indicator-cards, simple and compound engines, the condenser, steam-jacket, steam-engine efficiencies. Mechanics of the reciprocating parts, fly-wheel and governor, various types—such as the plain slide-valve; the Corliss; the high-speed automatic engine. Types of boilers, materials used, construction, staying, settings, furnaces and chimneys, fittings and appliances, boiler power, use and care of boilers, fuels and combustion, corrosive and incrustation. Holmes' *Steam Engine*, Peabody and Miller's *Steam Boilers*, lectures, and reference books. Four hours, first and second terms. Required of Juniors in Engineering. PROFESSOR SCRIBNER.

7. Boiler Design.—Determination of proper proportions for grate and heating surfaces, area and length of flues and tubes, diameter and thickness of shell, arrangement and proportions of stays, etc., for various forms of boilers. Making sketches and working drawings from original designs (Wilson, Peabody & Miller, Barr, etc.). Each student is required to design every part of a boiler after one of the well-known types, stationary, marine or locomotive (no two having the same), and to make complete working drawings and tracings. Two hours. Required of Seniors in Mechanical Engineering. PROFESSOR SCRIBNER.

8. Steam-engine Design.—Determination of the proper proportions for cylinders, valves, pistons, rods, shafts, fly-wheels, etc. Making rough sketches and working drawings from original designs. Unwin's *Machine Design*, Part II. Each student is required to design the principal parts of an engine after one of the well-known types, calculating the parts when the question of strength enters, and following the general design of the chosen type when the proportions are matters of experience. Two hours, for Post-graduates. PROFESSOR SCRIBNER.

9. Mechanics of Machinery.—Application of the laws of forces to machines, determination of motive or driving forces, including consideration of acceleration, inertia, friction, wear, and efficiency

by use of analytical methods; solution of problems. Kennedy's *Mechanics of Machinery*, also lecture notes and reference books. Three hours, second term. Required of Seniors in Mechanical Engineering and Textile Science. Professor SCRIBNER.

10. **Graphics of Mechanism.**—Analysis of the action of forces on machines, as in 9, by the use of graphical methods. Hermann's *Graphic Statics of Mechanisms*. Also Weisbach and reference books. Three hours, third term. Required of Seniors in Mechanical Engineering and in Textile Industry. Professor SCRIBNER.

11. **Mechanics of Engineering.**—Nature and measure of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Study of materials, law of stress and strain, bending and resisting moments, shear and moment diagrams, shear and elastic curves of cantilever, simple, restrained, and continuous beams, column formulas, torsion, maximum, internal stresses, common flexure theory tested by experiment, problems in beams, analysis and design, specifications. Church's *Mechanics of Engineering*. Four hours, third term. Required of Juniors in Engineering. Three hours, first and second terms. Required of Seniors in Engineering and Textile courses, and in Science, taking group A. Professor SCRIBNER.

12. **Machine Design.**—Complete design and drawing of some piece of mechanism, involving cam motion, gearing, etc., design of some piece of machinery, such as a punch, shears, riveting machine, crane, pump, hoist, water-motor, etc., studies and sketches of existing machines, determination of dimensions according to practice. *Unwin, Reuleaux, Kent, Haswell, Klein, Weisbach, Richards*, etc. Four hours. Required of Seniors and Post-graduates in Mechanical, Chemical and Electrical Engineering, and in Textile Industry. Professor SCRIBNER.

13. **Engineering Laboratory.**—Determination of leverages and velocity ratios, manipulation of laboratory apparatus, testing gauges, indicator springs, dynamometers, weirs, boilers, engines, pumps, investigation of efficiencies of hoists, screws, etc., tests of materials for strength, co-efficient of friction. Four hours. Required of Seniors and Post-graduates in Mechanical and Chemical Engineering. Four hours, first and second terms. Required of Seniors in Civil Engineering. Four hours, first term. Required of Seniors in Electrical Engineering. Professor SCRIBNER and Mr. FENNEL.

14. **Thermodynamics.**—Mechanical theory of heat. Application

to steam, air and gas-engines, and refrigerating machinery. Two hours, for Post-graduates. Professor SCRIBNER.

15. Hydrodynamics.—The design of reaction and impulse turbines, measurement of flowing water, description and discussion of experiments. Hydraulic pressure engines. Bodmer's *Hydraulic Motors*. Two hours, for Post-graduates. Professor SCRIBNER.

CIVIL ENGINEERING.

1. Graphical Statics.—Determination of stresses in frame structures by the graphical methods. Two hours, second and third terms. Lectures and original problems. Required of Juniors in Mechanical, Civil and Electrical Engineering. Professor RIDDICK.

2. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, railroad surveying, road-making. Three hours, first term. Text-book and lectures. Required of Seniors in Civil Engineering and of Juniors in Agriculture. Professor RIDDICK.

3. Surveying, Field Work.—Use of instruments, compass level, transit and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes and platting. Four hours, first term. Required of Seniors in Civil Engineering and of Juniors in Agriculture.

4. Railroad and Municipal Engineering.—Three hours, second and third terms. Searles' *Field Engineering*. Lectures. Required of Seniors in Civil Engineering. Professor RIDDICK.

5. Railroad and Municipal Engineering.—Field work. Four hours, second term; eight hours, third term. Required of Seniors in Civil Engineering. Professor RIDDICK.

6. Roofs, Bridges, and Arches.—Determination of stresses in roof and bridge trusses by the analytical method, design, and construction of arches, roofs, and bridges. Merriman's *Roofs and Bridges*. Original problems. Four hours, throughout the year. Required of Seniors in Civil Engineering. Professor RIDDICK.

7. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Three hours, second and third terms. Text-book, Merriman's *Hydraulics*. Required of Seniors in Engineering. Professor RIDDICK.

ELECTRICAL ENGINEERING.

1. Dynamo Machinery.—Practical units. Dynamo-electric machines. Dynamos. Motors and transformers. Efficiency of machines. Installation and care of machinery. Calculations for wiring. Purchase of machinery. Three hours, first term. Required of Seniors in Mechanical, Electrical, and Chemical Engineering. Three hours, second and third terms. Required of Seniors in Electrical Engineering. Mr. STANSEL.

2. Electrical Engineering Laboratory.—Measurements of power; efficiency of tests; characteristic curves; standardizing of measuring instruments; photometry. Four hours, first term; eight hours, second and third terms. Required of Seniors in Electrical Engineering. Mr. STANSEL.

ARCHITECTURE.

1. Architecture.—Building materials, method of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. One hour throughout the entire year. Required of Sophomores in all courses. Professor RIDDICK.

2. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Four hours, first term. Required of all Sophomores. Four hours, second and third terms. Required of Sophomores in Engineering, in Science, and in Textile Industry. Mr. Fox.

TEXTILE INDUSTRY.

1. Cotton Manufacturing (for Juniors).—Picking machinery. Cards. Revolving-flat and top-flat compared. Drawing-frames and railway-heads. Slubbers, intermediates, speeders, and jacks. Spinning-frames. Spoolers, warpers, slashers, and looms. Twisters and reels. The proper drafts, speeds, and production of above machines. Different makes compared. Principles of construction explained.

2. Cotton Milling (for Juniors).—Effect of excessive and deficient speed of pickers and cards. Card-grinding. Importance of good grinding. Different methods of grinding. Comparison of work with different speeds and drafts of railway-heads and drawing-frames. Metallic rolls. Effect of excessive draft on speeders. Proper speed of spinning-frames for different work. Exhaustive experiments regarding strength and elasticity of yarn. Practical work on spoolers,

warpers, and slashers. Wet and dry twisting. Weaving. Hand and power looms. Loom-fixing. Practical work in cloth-room.

3. Cotton Manufacturing (for Seniors).—Advanced study of card-room machinery. Principles of construction. Study of combers, doublers, and lap machines. Methods of making roving for fine yarn. The mule. Detailed study of different motions. More advanced study of twistors, spoolers, warpers, and slashers. Sizing. Necessary properties of sizing materials.

4. Cotton Milling (for Seniors).—Exhaustive experiments regarding setting of cards and methods of grinding. Changing machines for making different numbers of roving. Proper adjustment for Sea-land and other long staple cottons. Detailed work on combers. Spinning fine yarns on spinning-frames. Spinning hosiery yarn on mules and frames. Slashing fine yarn. Test of different sizing compounds. Cone-winding, reeling, and Dunn warping. Different methods of preparing yarn and cloth for the market. Details of selling yarn and cloth.

5. Designing (for Seniors).—Designing twills. All kinds of twill motions explained. Box-looms. Weaving with dobies. Leno weaving. The Jacquard loom. Harmony of colors. Fancy weaving on hand and power looms.

6. Mill Engineering (for Seniors).—Proper speed, draft, and production of all machines. Necessary number and size of different machines. Floor space necessary. Proper arrangement in the mill. Arrangement and size of shafting, pulleys, and belts. Rope transmission. Water, steam, and electric power considered. Proper conditions for use of each. Amount of fuel and water necessary. Arrangement of buildings. Detailed plan of construction. Fire protection. Electric lighting. Different methods of heating. Sanitary arrangements. Cost of buildings. Detailed plans for tenement houses.

MATHEMATICS.

1. Arithmetic.—Begin with decimal fractions and complete the subject. Five hours, first term. Milne's *Standard Arithmetic*. Required of first year students in short courses. Mr. YATES and Mr. WRIGHT.

3. Advanced Algebra.—Begin at quadratic equations, general theory of equations, solution of higher equations, etc. Five hours, first and second terms. Wells' *Higher Algebra*. Required of all Freshmen in regular courses, and of second year students in short

courses in Mechanic Arts and Textile Industry. Mr. YATES and Mr. WRIGHT.

4. Geometry.—Plane and solid. Five hours, third term. Required of all Freshmen in regular courses, and of second year students in short courses in Mechanic Arts and Textile Industry. Five hours, first term. Required of all Sophomores. Wentworth's *Plane and Solid Geometry*. Mr. YATES.

5. Trigonometry.—Five hours, second term. Required of all Sophomores. Mr. YATES.

6. Analytical Geometry.—Conic sections, higher plane curves, Geometry of three dimensions. Five hours, third term of Sophomore year, and first term of Junior year. Required of students in Engineering, and Textile Industry. Nichols' *Analytical Geometry*. Mr. YATES.

7. Calculus.—Differential and integral elements of differential equations. Five hours, second and third terms of Junior year. Required of students in Engineering, in Science, and in Textile Industry. Three hours, first term of Senior year. Required of students in Mechanical, Civil, and Electrical Engineering. Taylor's *Elements of Calculus*. Professor RIDDICK.

8. Book-keeping.—The work in the text-books supplemented by numerous original examples and sets for practice. One hour. Required of all Freshmen. Mr. YATES.

PHYSICS.

1. Elementary Physics.—Fundamental units of measurement. British and metric standard measures. Properties of matter. Definitions of force, work, and power. Laws of motion. Principles of machines. Mechanics of fluids. Sound. Introduction to the study of heat and light. Two hours. Required of all Freshmen. Professor WEIHE.

2. Mechanics.—Kinematics, force, work, friction, energy, composition and resolutions of forces, moments. Centre of gravity. Two hours. Required of Sophomores in Engineering and Textile Industry. Professor WEIHE.

3. Electricity and Magnetism.—Frictional electricity. Electrostatics. Magnetism. Current electricity. Ohm's law. Joule's law. Electromagnetics. Electrical measurements. Principles of electrical machines. Three hours, first term. Required of Juniors in Engineering. Mr. STANSEL.

4. Heat and Light.—Heat: Properties of heat; thermometry; calorimetry; property of gases; thermodynamics. Light: Properties of light; reflection; refraction; photometry. Three hours, second and third terms. Required of Juniors in Engineering. Professor WEIHE.

5. Physical Laboratory.—Measurement of length, area, and volume, weighing, determinations of density; laws of force and velocity; pendulum. Electric and magnetic measurements. Four hours. Required of Juniors in Engineering. Professor WEIHE and Mr. FOY.

CHEMISTRY.

1a. Inorganic Chemistry.—Remsen's *Introduction to the Study of Chemistry*. Three hours. Required of all Sophomores. The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures and recitations are illustrated with experiments and the exhibition of specimens. Professor WITHERS and Dr. FRAPS.

1b. Inorganic Chemistry.—Laboratory work. Remsen and Randall's *Laboratory Guide*. Four hours. Required of all Sophomores. The student performs under the eye of the instructor experiments designed to illustrate and emphasize the work of the class-room. He records in a note-book his observations and the conclusions drawn from them. Mr. SYME.

2. Qualitative Analysis.—Laboratory work. Caldwell's *Chemical Analysis*. Six hours. Required of Juniors in Agriculture and in Chemical Engineering. Four hours. Required of the Juniors in Textile Industry. The student is taught to detect the presence of the more common elements in unknown substances. Stress is laid upon the principles involved in the tests. Mr. SYME.

3a. Organic Chemistry.—Remsen's *Introduction to the Study of the Compounds of Carbon*. Two hours. Required of Juniors in Agriculture and in Textile Industry. The fundamental principles of organic chemistry and the more important compounds are taken up. Dr. FRAPS.

3b. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual*. Six hours. Elective for Post-graduates in Chemistry. This work is designed to familiarize the student with the more important organic compounds, and with the processes involved in their preparation. Dr. FRAPS.

4. Theoretical Chemistry.—Meyer's *Outlines of Theoretical Chem-*

istry. Two hours, third term. Required of Seniors in Chemical Engineering. Professor WITHERS.

5. Quantitative Methods.—One hour. Required of Seniors in Agriculture and in Chemical Engineering. A discussion of the methods and principles involved in quantitative analysis. Professor WITHERS.

6a. Quantitative Analysis.—Laboratory work. Six hours. Required of Seniors in Agriculture. Eight hours. Required of Seniors in Chemical Engineering. After the completion of the determinations given in Caldwell's *Chemical Analysis* the work of the student is arranged to correspond with his course of study. Professor WITHERS and Mr. BIZZELL.

6b. Quantitative Analysis.—Laboratory work. A continuation of 6a. Elective for Post-graduates in Chemistry. Professor WITHERS.

7. Agricultural Chemistry.—Three hours, first and second terms. Required of Seniors in Agriculture. Attention is given to a consideration of the atmosphere as a plant-feeder; the constituents of the plant and their functions; the chemistry of soils and fertilizers; the preparation of manures and composts; the composition of feeding stuffs; the principles of feeding animals, etc. Professor WITHERS.

8a. Industrial Chemistry.—Thorpe's *Outlines of Industrial Chemistry*. Two hours, first and second terms. Required of Seniors in Chemical Engineering. A discussion of the processes and principles involved in the more important chemical industries. Professor WITHERS.

8b. Industrial Chemistry.—Two hours. Required of Seniors in Engineering. A discussion of the materials of engineering. Professor WITHERS.

9a. Textile Chemistry and Dyeing.—Lectures. Reference book, Hummel's *Dyeing of Textile Fabrics*. Three hours. Required of Seniors in Textile Industry. A study of the chemistry of the cotton fiber and the principles involved in bleaching, dyeing, and printing. Dr. FRAPS.

9b. Textile Chemistry and Dyeing.—Laboratory work. Three hours. Required of Seniors in course in Textile Industry. The experiments are designed to accompany course 9a. Dr. FRAPS.

Post-graduates in chemistry may take any of the subjects given above, which were not taken by them as under-graduates.

GEOLOGY.

1. **Physical Geography.**—Two hours, third term. Required of all Freshmen. Lectures on agencies instrumental in the formation of strata, including geographical distribution of vegetable and animal life over the earth's surface. Professor MASSEY.

2. **Geology**, with special reference to Palaeontology. Two hours. Required of Juniors in Agriculture. Mr. HYAMS.

BOTANY.

1. **Plant Morphology.**—Four hours' practice, third term. Required of Freshmen in Agriculture. Mr. HYAMS.

2. **Structural Botany.**—Two hours, first term. Bailey's *Lessons with Plants*. Required of Sophomores in Agriculture. Mr. HYAMS.

3. **Physiological Botany.**—Lectures. Two hours, first term. Required of Juniors in Agriculture. Professor MASSEY.

4. **Botanical Laboratory.**—Systematic Botany and Histology. Four hours. Required of Juniors in Agriculture. Mr. HYAMS.

5. **Biology.**—Lectures one hour, and Laboratory work five hours through the year. Dodge and Huxley and Martin. Professor MASSEY.

6. **Elements of Bacteriology.**—Abbott. Elective for Post-graduates. Professor MASSEY.

ZOOLOGY.

1. **Economic Entomology.**—Two hours, second and third terms. Required of Sophomores in Agriculture. Mr. HYAMS.

2. **Entomology.**—Field and laboratory work in the collection and identification of insects and the formation of collections. Four hours, third term. Required of Sophomores in Agriculture. Mr. HYAMS.

3. **Human Physiology.**—Lectures. Two hours, first term. Required of all Freshmen. Lectures will be illustrated by charts and models. Professor IRBY.

4. **Vertebrate Zoology.**—Packard. Four hours, first term. Required of Seniors in Agriculture. This gives them a good general idea of the classification of the animal kingdom, and enables them to study and appreciate animal life, and the benefits of the animal kingdom to man. Mr. JOHNSON.

ENGLISH.

1. Introductory Rhetoric and Composition.—Hill's *Foundations of Rhetoric* and Buehler's *Exercise Book* are used as texts. These are accompanied by drill on the forms of the language, and in the formation of correct sentences. Compositions, abstracts or outlines are required weekly. Students are taught to plan all work, and earnest effort is made to develop their constructive faculties. Three hours. Required of all Freshmen. Professor HILL and Mr. WRIGHT.

2. Rhetoric.—Genuing's *Rhetoric*. Painsstaking sentence and paragraphic study. Study of themes in narration and description. Many exercises in planning the organic parts of a composition. Three hours for first and second terms. Required of all Sophomores. Professor HILL.

3. American Literature.—By means of text-books and as far as possible by parallel reading, students are introduced to what is best in American Literature. An endeavor is made to study books at first hand. Three hours, third term. Required of all Sophomores. Professor HILL.

4. English Literature.—The development of English literature in its great periods and through its most representative men. Much parallel reading. Three hours, second and third terms. Required of all Juniors. Professor HILL.

5. Studies in Classic Prose.—A critical study of the methods and styles of some English masters. In a general way Minto's plan of prose study is followed. Two hours, one term. Required of all Seniors. Professor HILL.

6. Practice in Expository and Argumentative Themes.—Two hours, one term. Required of all Seniors. Professor HILL.

HISTORY.

1. Ancient and Modern History.—The student, by means of text-book and informal lectures, is introduced to the leading facts in the world's history, and to the significance and consequences of these facts. While historic sequence is carefully noted, the student follows, as far as possible, the topical method. Two hours. Required of all Freshmen.

2. English History.—The first term of the Junior year is devoted to a study of English history. The text is supplemented by lectures on important periods. Three hours, first term. Required of all Juniors.

CIVICS AND POLITICAL ECONOMY.

1. **Civics.**—This course gives a brief view of the State and Federal Governments, their functions and practical workings, together with a full consideration of the rights and duties of citizenship. Instruction is given by lectures and text-books. Required of Freshmen. Second term, two hours. President WINSTON.

2. **Political Economy.**—This course deals with public problems relating to the production, distribution, and exchange of wealth. The leading topics discussed are capital, wages, money, transportation, and taxation. Instruction is given by lectures and text-books. Required of Seniors. One year, two hours. President WINSTON.

MILITARY SCIENCE.

Drill.—Schools of the Soldier, Company, and Battalion in close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three hours. Required of all classes. Commandant and officers of the Battalion.

Tactics.—Theoretical instruction in the Schools of the Soldier, Company, and Battalion in Close and Extended Order; Ceremonies, etc. One hour. Required of all Seniors. Mr. STANSEL.

EQUIPMENT FOR INSTRUCTION.

The College possesses the following equipment for instruction:

In Agriculture.—The farm includes six hundred acres, with one hundred under cultivation, a large basement barn, 50 x 72 feet, three stories; first floor occupied by cattle; second story by horses, machinery, tools, grain bins, etc.; third story, by hay, which is elevated by a Ricker & Montgomery hay-carrier. Just outside the barn are two seventy-ton circular silos. These are connected with a No. 18 Ohio Standard feed and ensilage cutter. The power for cutting is supplied by an eight-horse power Skinner engine. The dairy building contains three rooms and a cellar, besides a large room above, used as an Agricultural Society hall, in which the students' Agricultural Society meets on Saturday nights. The dairy is supplied with a De Laval Separator, Babcock Tester, rectangular churn, butter-worker, cheap heating apparatus, etc. The cellar is cemented, and has a cemented trough on one side, through which flows water from a spring situated above the dairy. This is an abundant water supply, and serves a useful purpose in ripening cream.

The live stock consists of two grade percheron mares, two mules, a few specimens of pure bred Jersey, Guernsey, Short-horn and Holstein-Friesian cattle, with their grades, and purchased native and grade cows. Poland China swine are bred pure and from high-class specimens, from which breeding stock will be sold as a part of the farm productions.

The poultry yards contain the following breeds: Black Langshans, White and Silver-faced Wyandottes, White and Barred Plymouth Rocks, Black Minorcas, Leghorns, and Pekin Ducks.

Horticulture.—Twenty-three acres of land comprise the Horticultural Experiment farm. There is ample equipment of barns, silos, stock, and machinery. There are five communicating green-houses separated by glass partitions so that different night temperatures can be maintained to suit the various purposes to which the houses are devoted. In addition, there is one glass structure, without heat, for the culture of foreign grapes. Here is kept a general collection of plants for botanical study and for practice in Floriculture, and in two of the houses, winter forcing of vegetables and fruits is carried on, in order that the students may have practice in a line of work that is rapidly assuming commercial importance in the State. The building and green-houses are heated in the most complete manner by hot water.

The entire basement of Primrose Hall is used as a Horticultural Laboratory, where practice in grafting, potting, and cross fertilization of plants is constantly going on.

Botany.—The Botanical Laboratory is equipped with sixteen compound microscopes of the best American and European makes, a supply of dissection lenses, and chemicals and staining fluids used in histological work. The Herbarium is fairly good, and is being added to by collections and exchanges. The collection of weed seeds and of cultivated plants is very full, and is an important factor in the acquirement of a knowledge of the appearance of various seeds and fruits. It is intended, as rapidly as possible, to fully equip the laboratory for advanced work in bacteriology.

In Chemistry.—The chemical laboratories are in the main building. They are supplied with fume closets, evaporating baths, drying chambers, blast lamps, and extra tile-covered tables. The tables are of yellow heart-pine, with oak tops. Each student is provided with one large and two small drawers, and one cupboard for keeping apparatus. Each working space is provided with gas, distilled water, re-agents, and a sink. The laboratory of quantitative analysis will

accommodate thirty-two students, sixteen of whom may work simultaneously, and the laboratory of general chemistry will accommodate fifty-six students, twenty-eight of whom may work simultaneously.

The chemical library contains a carefully selected list of standard reference books and chemical journals, which the more advanced students are expected to use very freely.

In Physics and Electrical Engineering.—The recitation-rooms and laboratories of the Department of Physics and Electrical Engineering are situated in the basement of the principal building. They are spacious, well lighted and provided with a number of solid brick piers, built directly on the ground. A dark room for general optical work, and particularly for photometric measurements, has been provided.

The equipment consists of apparatus for illustrating the principles of physical science and for instruction and practice in experiments, measurements and testing. The instruments are all up-to-date and well selected, and are particularly efficient for work in electricity.

In the electrical engineering laboratory are one series, one shunt and one compound dynamo, and two alternators. Connections have also been made with the electric plant of the city of Raleigh, enabling more advanced students to do some testing with strong currents and three-phase currents. The electric light plant of the College is also used for commercial testing.

The department possesses a very good library of standard books on all branches of physics. The students are referred to them in their work.

In Civil Engineering there is a complete equipment of all instruments necessary to civil engineering field work.

In Mechanical Engineering.—The drawing and recitation-rooms, laboratory and shops of the Department of Mechanical Engineering are in the Engineering Building. They are of ample size and well lighted, and are arranged to be heated either by the exhaust steam from the engine or by live steam. On the first floor are a recitation-room, engineering laboratory, machine shop, forge shop, wood-turning shop, and carpenter shop. On the second floor are the office, three drawing-rooms, a recitation-room, and a library. In the latter various scientific and technical journals are kept on file, the trade circulars of prominent engineering firms, drawings and photographs of machinery, and tabulated data, as well as a large number of engineering books, the use of which is required. In this way modern engineering practice is made in a measure familiar.

The laboratory is provided with the necessary apparatus for making boiler and engine tests and other work of an experimental character. The equipment consists of a two-horse power engine, a ten-horse power engine (both of which were built by the students), a large Ericsson hot-air pumping engine, a machine for testing belt friction, apparatus for making analysis of flue gases, a hydraulic ram, a large Sturtevant fan and engine, a small water-motor, a Worthington water-meter, friction brakes, weirs, indicators, planimeters, slide rules, thermometers, calimeters, a Crosby gauge tester, tanks, scales, and other apparatus for making tests.

In addition to the laboratory, there is a boiler-house equipped with three thirty-horse power boilers, several pumps, and a jet condenser, all of which are available for experimental purposes.

The shops are equipped as follows:

The carpenter shop contains thirty-four carpenters' benches and all the necessary tools for each bench.

The wood-turning shop contains ten 12-inch swing lathes, a saw and dado machine, a 20-inch planer, a mortising and boring machine, a 30-inch band saw, a large jig saw, a 8-inch sticker, a mitering machine, a grindstone, a steam glue-pot, and six benches equipped with iron vises and all the tools necessary for pattern-making. Each lathe is fully equipped with turning tools.

The forge shop contains twenty-three forges, each of which is provided with an anvil and forging tools, besides which there is a full equipment for general use in the shop.

The machine shop contains a 18-inch-swing Davis & Egan lathe with 10-foot bed, a 14-inch Winsor lathe with 3-foot bed, a 13-inch Barnes lathe with 5-foot bed, a 24-inch upright Bickford drill press, a Brown and Sharp universal milling machine with all attachments, a 20-inch by 5-foot Pease planer, a large emery tool grinding machine and six vises with benches and lockers.

The tool-room is well equipped with the necessary hand and pipe tools.

The power for the shops is furnished by a 25-horse-power Woodbury engine. When the shops are running one of the students has charge of the engine and another of the boilers.

The **Main Building** is of brick, with brownstone trimmings, and is 70 by 60 feet; part four stories in height, and the remainder two. The lower floors contain the offices of the President and the Bursar; the library; several recitation-rooms; chemical and physical labora-

tories, the chapel, and the armory. The upper stories are occupied by students.

In this, as in the other buildings, every precaution has been taken to secure good sanitation. The rooms are all well lighted, well ventilated, and conveniently arranged.

The Engineering Building is a plain, substantial, two-story brick building, with large annex. It contains the laboratories, drawing-rooms and recitation-rooms, and shops of the department.

The Boiler-house is a single-story brick building, containing boilers, fire-pumps, and the machinery connected with the steam-heating plant.

Primrose Hall and Plant-houses is a two-story brick building, which has attached a fine range of glass structures. The lower, or basement floor, is occupied by the Horticultural laboratory and boiler-room. The upper floor contains a large lecture-room and a laboratory. The plant-houses are five in number, and are immediately accessible from the lecture-rooms and laboratories.

The Dairy and Barn are frame buildings, of modern design, and carefully planned for the purposes to which they are devoted. The barn is 50 by 72 feet and three stories high; the dairy is 20 by 40 feet and two stories high, the upper story being used as the Agricultural Society hall.

The Library and Reading-room now contain about three thousand books and magazines. Additions are being made every year, and the way now seems clear for rapidly increasing the numbers.

There are reference libraries for the use of students in the departments of Agriculture, Horticulture, Chemistry, Physics, English, Mechanical and Civil Engineering.

1899-1900

CATALOGUE OF STUDENTS. 28

GRADUATES. 9

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>	<i>Major Course.</i>
JOHN HENDERSON BIRDSONG,	Raleigh,	Wake,	Chemistry.
B. S. '99, N. C. College of Agriculture and Mechanic Arts.			
BENJAMIN CARY FENNEL,	Raleigh,	Wake,	Mech. Eng.
B. S. '98, N. C. College of Agriculture and Mechanic Arts.			
FRANCIS MARION FOY, JR.,	Scott's Hill,	Pender,	Elect. Eng.
B. S. '99, N. C. College of Agriculture and Mechanic Arts.			
CARROLL LAMB MANN,	Engelhard,	Hyde,	Civil Eng.
B. S. '99, N. C. College of Agriculture and Mechanic Arts.			
EUGENE LEROY PARKER,	Raleigh,	Wake,	Chemistry.
B. S. '99, N. C. College of Agriculture and Mechanic Arts.			
ANDREW THOMAS SMITH,	Oxford,	Granville,	Mech. Eng.
'99, N. C. College of Agriculture and Mechanic Arts.			
NUMA REID STANSEL,	Allenton,	Robeson,	Elect. Eng.
B. S. '98, N. C. College of Agriculture and Mechanic Arts.			
GEORGE FREDERICK SYME,	Raleigh,	Wake,	Civil Eng.
B. S. '98, N. C. College of Agriculture and Mechanic Arts.			
WILLIAM ANDERSON SYME,	Raleigh,	Wake,	Chemistry.
B. S. '99, N. C. College of Agriculture and Mechanic Arts.			

SENIOR CLASS. 27

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
KEMP ALEXANDER,	Harrisburg,	Cabarrus.
LESLIE LYLE ALLEN,	Louisburg,	Franklin.
ROBERT LINN BERNHARDT,	Salisbury,	Rowan.
LESLIE GRAHAM BERRY,	Washington,	Beaufort.
JAMES HARRY BUNN,	Henderson,	Vance.
PAUL COLLINS,	Raleigh,	Wake.
JAMES BAKER HALL, JR.,	Scotland Neck,	Halifax.
SAMUEL MERRILL HANFF,	Raleigh,	Wake.
GEORGE ROLAND HARRELL,	Kelford,	Bertie.
MARION MORGAN HARRIS,	Fairfield,	Hyde.
WILLIAM THEOPHILUS HINTON,	Greensboro,	Guilford.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
HENRY ALLEN HUGGINS,	Wilmington,	New Hanover.
GARLAND JONES, JR.,	Raleigh,	Wake.
LOUIS HENRY MANN,	Middleton,	Hyde.
ROBERT HALL MORRISON,	Mariposa,	Lincoln.
WILLIAM MONTGOMERY PEEBSON,	Kittrell,	Vance.
JUNIUS EDWARD PORTER,	Emerson,	Bladen.
ROGER FRANCIS RICHARDSON,	Selma,	Johnston.
WILLIAM EDWIN ROSÉ,	Statesville,	Iredell.
FLOYD DEROSS,	Charlotte,	Mecklenburg.
IRA OBED SCHAUB,	Culler,	Stokes.
JOHN WADE SHORE,	Booneville,	Yadkin.
WILLIAM TURNER SMITH,	Godwin,	Cumberland.
THOMAS FULLER TERRELL,	Raleigh,	Wake.
SIMPSON ALEXANDER VEST,	Tobaccoville,	Forsyth
ROSCOE MARVIN WAGSTAFF,	Olive Hill,	Person.
GAITHER HALL WHITING,	Raleigh,	Wake.

JUNIOR CLASS. 28

FLETCHER HESS BARNHARDT,	Norwood,	Stanly.
WILLIAM OSBORNE BENNETT, JR.,	Wadesboro,	Anson.
FRED WILHELM BONITZ,	Wilmington,	New Hanover.
ZOLY MOSBY BOWDEN,	Redland,	Davie.
WILLIAM DUNN BRIGGS,	Raleigh,	Wake.
WILLIAM PESCUD CRAIG,	Marion,	McDowell.
WILLIAM LOIS CRAVEN,	Concord,	Cabarrus.
FELIX GRAY CRUTCHFIELD,	Winston,	Forsyth.
GEORGE MASLIN DAVIS,	Greensboro,	Guilford.
WILLIAM DOLLISON FAUCETTE,	Halifax,	Halifax.
BENJAMIN OLIVER HOOD,	Asheville,	Buncombe.
MARTIN KELLOGG,	Sunbury,	Gates.
JESSE JAMES LILES,	Wadesboro,	Anson.
LEWIS OMER LOUGEE,	Raleigh,	Wake.
COLON REID LOVE,	Mandale,	Chatham.
JOHN LUTHER MCKINNON,	Laurinburg,	Richmond.
CHARLES HARDEN MCQUEEN,	Morven,	Anson.
WILLIAM ALFRED MYATT, JR.,	Raleigh,	Wake.
LESLIE MONTEIRO NORMAN,	Richmond,	Henrico, Va.
WILLIAM FRANKLIN PATE,	Snow Hill,	Greene.
JOHN E. RAMSEY,	Salisbury,	Rowan.
ISAAC NEWTON SANDERS,	Swansboro,	Onslow.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
EDWARD OSCAR SMITH,	Crystal Hill,	Halifax, Va.
WALTER STEPHEN STURGILL,	Sturgill,	Ashe.
BEVERLY NATHANIEL SULLIVAN,	Bethania,	Forsyth.
RICHARD EPAPHRODITUS TIMBERLAKE,	Youngsville,	Franklin.
CHARLES AUGUSTUS WATSON,	Raleigh,	Wake.
BENJAMIN VADEN WRIGHT,	Cohaire,	Sampson.

Irregulars. 6

BEDFORD JETHRO BROWN,	Charlotte,	Mecklenburg.
WILBUR CARTER COOKE,	Louisburg,	Franklin.
BERTIE MASON GRAVES,	Winton,	Hertford.
ALFRED GALLOWAY HANKINS,	Wilmington,	New Hanover.
CHARLES ARTHUR NICHOLS,	Barnard,	Madison.
JOHN SMALLWOOD WHITLEY,	Williamston,	Martin.

SOPHOMORE CLASS. 47

CHARLES NICK ALLEN,	Auburn,	Wake.
WILLIAM DAVID BOSEMAN,	Rocky Mount,	Nash.
WILLIAM McDOWELL BURGIN, JR.,	Marion,	McDowell.
OLIVER CARTER,	Garland,	Sampson.
BENJAMIN BOWDEN CARR, JR.,	Mt. Olive,	Duplin.
JUNIUS SIDNEY CATES,	Swepsonville,	Alamance.
ALEXANDER LILLINGTON CLARK,	Weldon,	Halifax.
ROBERT BAXTER COCHRAN,	Statesville,	Iredell.
ROY GRAHAM CRAVER,	Reeds,	Davidson.
HENRY GRADY DORSETTE,	St. Lawrence,	Chatham.
ALLIN DRAKE,	Hendersonville,	Henderson.
HERBERT WILSON DYSART,	Marion,	McDowell.
JAMES LUMSDEN FERREBEE,	Belcross,	Camden.
JOSEPH EDGAR FULP,	Fulp,	Stokes.
WALTER LINDSAY FULP,	Fulp,	Stokes.
JOSEPH NELSON GARREN,	Limestone,	Buncombe.
KOHLER GREENFIELD,	Kernersville,	Forsyth.
THOMAS WESTMEL GRIFFIN,	Lewiston,	Bertie.
ROBERT IRVING HOWARD,	Conetoe,	Edgecombe.
WILLIAM FRANKLIN INGRAM,	Mt. Gilead,	Montgomery.
ALBERT RANSOM JOHNSON,	Yale,	Henderson.
WILEY NATHANIEL KREEGER,	King,	Stokes.
GEORGE MEYERS McDONALD,	Rockingham,	Richmond.
CHARLIE OWEN McNAIR,	Wilmington,	New Hanover.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
JAMES PURDIE McNEILL,	Conway,	Horry, S. C.
ISAIAH MCPHAIL,	Clinton,	Sampson.
MILES WASHINGTON MASKE,	Polkton,	Anson.
HUGH ALEXANDER MORSON,	Raleigh,	Wake.
LAURIE MOSELEY,	Kinston,	Lenoir.
VASSAR YOUNG MOSS,	Zacho,	Granville.
JOHN ADOLPH NUNN,	New Bern,	Craven.
JAMES LAFAYETTE PARKER,	Cypress Creek,	Bladen.
GEORGE DAVIS PARSLEY, JR.,	Wilmington,	New Hanover.
JOHN ELLIS PEARSON,	Saluda,	Polk.
THEODORE OBER POMEROY,	Graham,	Alamance.
WILLIAM BENEDICT REINHARDT,	Reinhardt,	Lincoln.
THOMAS STRADLEY ROGERS,	Lyons,	Granville.
ROBERT PHILIPS SADLER,	Dixie,	Mecklenburg.
WILLIAM SIDNEY SMETHURST,	Raleigh,	Wake.
MARVIN GREEN SMITH,	Raleigh,	Wake.
WILLIAM ERNEST SNOW,	High Point,	Guilford.
RUSSELL ELSTNER SNOWDEN,	Elizabeth City,	Pasquotank.
LEROY CLARK STEELE,	Turnersburg,	Iredell.
ARTHUR KENDALL THOMAS,	Thomasville,	Davidson.
PINKNEY LAWSON TROTTER,	Charlotte,	Mecklenburg.
JOSEPH PLATT TURNER,	Norwood,	Stanly.
CLEVELAND DOUGLASS WELCH,	Waynesville,	Haywood.

Irregulars. 6

GEORGE FRANCIS MARION DAIL,	Snow Hill,	Greene.
FREDERICK GASKILL PARKER,	New London,	Stanly.
JOHN HOUSTON SHUFORD,	Sandifer,	Mecklenburg.
SIDNEY HAYWOOD SMITH,	Lexington,	Davidson.
WILLIAM STAMEY STACY,	Morganton,	Burke.
ALVIN BUFORD WATSON,	Concord,	Cabarrus.

FRESHMAN CLASS. 156

JOHN RICHARD ANDERSON,	Mocksville,	Davie.
WARREN OCTAVOUS ARMSTRONG,	Coch's Bridge,	New Castle, Del.
SYDNEY WOODWARD ASBURY,	Burkmont,	Burke.
WILLIAM MEBANE ATWATER,	Rialto,	Chatham.
✓EUGENE CLEVELAND BAGWELL,	Raleigh,	Wake.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
WILLIAM LEWIS BARLOWE, JR.,	Tarboro,	Edgecombe.
CLARENCE THEOPHILUS BERNHARDT,	Salisbury,	Rowan.
PAUL G. BETTS, ✓	Albemarle,	Stanly.
WILLIE MORTON BOGART, ✓	Washington,	Beaufort.
LESLIE NORWOOD BONEY, ✓	Wallace,	Duplin.
LUKE W. BONEY,	Rose Hill,	Duplin.
TOBIAS JUDSON BRIGHT,	Murphy,	Cherokee.
DAVID TULLY BRINKLEY,	Elk Park,	Mitchell.
SHERWOOD BATTLE BROCKWELL,	Raleigh,	Wake.
JAMES THOMAS BROUGHTON,	Raleigh,	Wake.
GEORGE ENNIE BROWN,	Asheville,	Buncombe.
SIDNEY GLENN BROWN,	Greensboro,	Guilford.
DANIEL STANHOPE CALDWELL,	Concord,	Cabarrus.
JOHN SAMUEL PINKNEY CARPENTER, ✓	Lincolnton,	Lincoln.
FRANK LEWIS CARTY,	Washington,	Beaufort.
WILLIAM WIGGIN CASERLEY,	Warrenton,	Warren.
BRUCE HERBERT CATES,	Varina,	Wake.
RAY CLEMENT,	Mocksville,	Davie.
JOHN ELIOT COIT ✓	Salisbury,	Rowan.
NIELSON PHARR COPPEDGE,	Rockingham,	Richmond.
SUMMEY CROUSE CORNWELL, ✓	Dallas,	Gaston.
WALTER GLUYAS CRAVEN,	Bristow,	Mecklenburg.
CHARLES LESTER CREECH, ✓	Greensboro,	Guilford.
JOHN HALSEY CROSS,	Burdette,	Mecklenburg.
EUGENE ENGLISH CULBRETH, ✓	Statesville,	Iredell.
ERNEST LEONIDAS DENTON,	Ormondsville,	Greene.
KARL REED DETTER,	Lincolnton,	Lincoln.
JOHN BRYAN DICKSON,	Raeford,	Robeson.
JUNIUS FRANKLIN DIGGS, ✓	Diggs,	Richmond.
GEORGE WASHINGTON DUNN,	Scotland Neck,	Halifax.
WILLIAM EDWARD DUNN,	Scotland Neck,	Halifax.
PAUL H. ELKINS,	Winston-Salem,	Forsyth.
DELMA DAKOTA ELLINGTON,	Raleigh,	Wake.
THEOPHILUS THOMAS ELLIS, ✓	Bearpond,	Vance.
WELDON THOMPSON ELLIS,	Stubbs,	Cleveland.
EDWARD EVERETT ETHEREEDGE, JR.,	Windsor,	Bertie.
PAUL FLETCHER FAISON, ✓	Raleigh,	Wake.
WILLIAM PATRICK FAETHING,	Durham,	Durham.
JOHN DAVID FERGUSON, ✓	Bladenboro,	Bladen.
WILLIAM GLENN FIELDS,	Sparta,	Alleghany.

CATALOGUE OF STUDENTS.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
NICHOLAS SHIPLEY FITZPATRICK,	Crowell's,	Halifax.
ROBERT B. FLAKE,	Wadesboro,	Anson.
HUGH PIERCE FOSTER, ✓	Nance,	Rockingham.
OLIVER MAX GARDNER, ✓	Shelby,	Cleveland.
LAMAR GIDNEY, ✓	Shelby,	Cleveland.
PAUL JONES GILLAM,	Windsor,	Bertie.
WILEY BRAXTON GILLAM,	Harrellsville,	Hertford.
JOHN HOWARD GLENN,	Crowder's Creek,	Gaston.
ERNEST HARRIS GOODWIN,	Raleigh,	Wake.
AMOS LAWSON GRANGER,	Rosedale,	Pasquotank.
HARMON EDWARD GRIMSLEY,	Snow Hill,	Greene.
EMIL GUNTER, ✓	Pierson,	Volusia, Fla.
HERMAN GUNTER, ✓	Pierson,	Volusia, Fla.
PERCIVAL HALL,	Winston-Salem,	Forsyth.
WILLIAM WELDON HARDGROVE,	Raleigh,	Wake.
JAMES IDIE HARDIE,	Raleigh,	Wake.
WILLIAM SHAKESPEARE HARRIS,	Mebane,	Alamance.
ROBERT ERNEST HEATH,	Monroe,	Union.
WILLIAM ARCHIBALD HEDRICK,	Salisbury,	Rowan.
JOSEPH BENJAMIN HIGGS,	Greenville,	Pitt.
ERNEST DEVAUGHN HIGHSMITH,	Harrell's Store,	Sampson.
JAMES WHEDBY HOLLEY,	Colerain,	Bertie.
HADEN HOLMES,	Salisbury,	Rowan.
JOHN DAVID IRBT,	Blackstone,	Nottoway, Va.
RICHARD IRBY, ✓	Blackstone,	Nottoway, Va.
WILLIAM GRAHAM JAMES,	Wilmington,	New Hanover.
EUGENE COLISTUS JOHNSON, ✓	Ingold,	Sampson.
JAMES NEVERSON JOYNER,	Union,	Hertford.
JAMES MATTHEW KENNEDY, ✓	McClammy,	Wayne.
WILL CALVIN KIRBY,	Charlotte,	Mecklenburg.
EDWARD LEE KNIGHT, ✓	Mildred,	Edgecombe.
JAMES ALEXANDER KNOX,	Caldwell,	Mecklenburg.
BENNETT LAND, JR., ✓	Elizabeth City,	Pasquotank.
JOHN THOMAS LAND, ✓	Poplar Branch,	Currituck.
LOUIS CHARLES LATHAM, ✓	Greenville,	Pitt.
EDGAR PELOPIDAS LEACH, ✓	Raleigh,	Wake.
WALTER MOORE LEWIS,	Morehead City,	Carteret.
GEORGE FELIX LOFTIN, ✓	Kinston,	Lenoir.
GEORGE CORPENING LOVE,	Montezuma,	Mitchell.
KENNETH LYON,	Lyons,	Granville.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
EDWIN LYTCH, ✓	Lytch,	Richmond.
WILLIAM FREDERICK McCANLESS,	Salisbury,	Rowan.
WILLIAM OGDEN MEEKS,	Clinton,	Sampson.
RICHARD MARVIN MINOR,	Oxford,	Granville.
JESSE JOHN MORRIS, ✓	Weeksville,	Pasquotank.
PAUL EUGENE MORROW,	Burlington,	Alamance.
RAFAEL SANCHEZ MOTT,	Wilkesboro,	Wilke.
SPRUNT NEWTON,	Xenia,	Duplin.
JOHN OSBORNE,	Cleveland Mills,	Cleveland.
DAVID STARR OWEN, ✓	Fayetteville,	Cumberland.
LEWIS WILSON PAGE,	Hoffman,	Richmond.
BARNIE LEE PARKER,	Hunting Creek,	Wilke.
CLAUD LAFAYETTE PARKER, ✓	Raleigh,	Wake.
JESSE EDCAR PARKER, ✓	Selma,	Johnston.
JOHN HARVEY PARKER, ✓	Hillsboro,	Orange.
DUNCAN ADOLPHUS PATE,	Gibson,	Scotland.
HENRY BRADLEY PEARCE, JR.,	Selma,	Johnston.
JAMES HICK PIERCE, ✓	Warsaw,	Duplin.
ROBERT FRANK PERKINS,	Morganton,	Burke.
EDGAR PERSONE,	Waynesville,	Haywood.
LEON JOSEPH PINNER,	Southport,	Brunswick.
JOEL POWERS, ✓	Method,	Wake.
GEORGE PARK PRIDGEN,	Warsaw,	Duplin.
ISAAC LOFTIN PRIDGEN,	Glenfield,	Greene.
ROBERT OWEN PRIMROSE, ✓	Raleigh,	Wake.
EDWARD SUTTON PURVIANCE,	Charlotte,	Mecklenburg.
FREDERICK LAWTON RICH, ✓	Seven Springs,	Wayne.
EDWARD HAYS RICKS, ✓	Enfield,	Halifax.
WILSON WHITAKER RICKS,	Enfield,	Halifax.
WILLIE STATON RIVES,	Hamilton,	Martin.
JOHN ASHBY ROBERTSON,	Burlington,	Alamance.
EUGENE THOMAS ROBESON,	Raleigh,	Wake.
GASTON WILDER ROGERS, ✓	Raleigh,	Wake.
HENRY JAMES ROGERS, JR.,	Diggs,	Richmond.
JAMIE PICKETT ROSE,	Statesville,	Iredell.
AUBREY CHARLES SHARPE,	Harrellsville,	Hertford.
BEMBREY LYNWARD SHARPE,	Harrellsville,	Hertford.
HOWARD SIMPSON,	Simpson's Store,	Rockingham.
GARSON SINCLAIR,	Marion,	McDowell.
ALLEN HOLMES SLOAN,	Morganton,	Burke.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
CHARLES WILLIAM SMALL, JR.,	Hertford,	Perquimans.
WILLIAM HOPTON SMITH, JR.,	Goldsboro,	Wayne.
WILLIAM LINCOLN SMITH, JR.,	Wilmington,	New Hanover.
JOHN HILL SPIVEY,	Lewiston,	Bertie.
ERWIN STACK,	Monroe,	Union.
EDWARD ROE STAMPS, ✓	Raleigh,	Wake.
CLARENCE RABON STIMPSON,	Turnersburg,	Iredell.
JONATHAN TAYLOR STOKES,	Windsor,	Bertie.
CLARENCE GEORGE SUGG,	Snow Hill	Greene.
CLAUD D. TAYLOR,	West Raleigh,	Wake.
JAMES VESTAL THOMAS,	New Bern,	Craven.
JOHN SANFORD THOMPSON, ✓	Raleigh,	Wake.
STEPHEN HULL THREADGILL, JR., ✓	Wadesboro,	Anson.
HERBERT A. TOMLINSON,	Raleigh,	Wake.
CHARLES EDWARD TROTTER,	Franklin,	Macon.
COLLIN PIERCE TYSON,	Norwood,	Stanly.
WRIGHT ELBERT UPCURCH, ✓	Raleigh,	Wake.
EDWARD WARREN VICK,	Selma,	Johnston.
KENNETH CLYDE WAGSTAFF,	Winstead,	Person.
ALFONSO LEWIS WALKER,	Raleigh,	Wake.
TRYON PERRY WEATHERS,	Millbrook,	Wake.
GEORGE THOMAS WHITAKER,	Letha,	Franklin.
JONATHAN WINBORNE WHITE, ✓	Greenville,	Pitt.
GEORGE BAILEY WHITEHURST,	New Bern,	Craven.
JAMES EDWARD WHITFIELD,	Franklinton,	Franklin.
F. F. WHITFIELD,	Hamlet,	Richmond.
EDWIN SEYMOUR WHITING,	Hamlet,	Richmond.
JAMES LAWSON WIDBY,	Lenoir,	Caldwell.
HOWARD ALLEN WILLEY,	Elizabeth City,	Pasquotank.
JAMES MONROE WILLIAMS,	Raleigh,	Wake.
HENRY E. WYATT, ✓	Raleigh,	Wake.

Irregulars. 5

NUMA REID COOK,	Pomona,	Guilford.
CHARLIE W. ISENHOUR,	Salisbury,	Rowan.
GALLEN DOYT MCINTOSH,	Hickory,	Catawba.
JAMES JACKSON NICHOLS,	Asheville,	Buncombe.
FRANK LEE SADLER,	Sandifer,	Mecklenburg.

SPECIAL STUDENTS. 14

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
SHOLER ENGLISH ABSEHER,	North Wilkesboro,	Wilkes.
LUCIUS ALFRED,	Wake Forest,	Wake.
GEORGE LEANDER BEALL,	Greensboro,	Guilford.
JOHN LYON BULLOCK,	Hester,	Granville.
EVERETT GOODRICH COUCH,	Southern Pines,	Moore.
WILLIAM EATON FENNER,	Halifax,	Halifax.
WILLIAM WRIGHT HAYWOOD,	Tarboro.	Edgecombe.
ARTHUR EUGENE HOLTON, JR.,	Winston-Salem,	Forsyth.
CHARLES M. NULL,	Kokomo,	Howard, Ind.
GEORGE PASCHAL,	Washington,	Dist. Colum.
HENRY PERSON,	Kittrell,	Vance.
BENJAMIN EDGAR ROGERS,	Clayton,	Johston.
GEORGE SHELLUM, JR.,	Raleigh,	Wake.
WILLIAM N. H. SMITH,	Raleigh,	Wake.

TENTH ANNUAL COMMENCEMENT,

June 7, 1899.

DEGREES CONFERRED:

BACHELOR OF SCIENCE.

In Agriculture.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
JOHN HENDERSON BIRDSONG, Thesis: Determination of Carbon Dioxide in Some Class-rooms.	Raleigh,	Wake.
EUGENE GRAY PERSON, Thesis: The Effects of Dehorning on the Quantity and Quality of the Milk-flow.	Louisburg,	Franklin.

In Engineering.

WM. DAVIDSON ALEXANDER, JR., Thesis: Construction of an Adjustable Socket for a Photometer.	Croft,	Mecklenburg.
IRA WILSON BARBER, Thesis: Construction of a Contact-maker for Determining the Curves of Alternating Currents.	Culler,	Stokes.
FRANCIS MARION FOY, JR., Thesis: Construction of a High-tension Storage Battery.	Scott's Hill,	Pender.
ALBERT SIDNEY LYON, Thesis: Construction of an Earth Inductor.	Wilton,	Granville.
CARROLL LAMB MANN, Thesis: Establishment of a Meridian Line at the N. C. College of Agriculture and Mechanic Arts.	Engelhard,	Hyde.
O'KELLY WILLIAMS MYERS, Thesis: Design of a Sewer for West Raleigh (with Sloan).	Washington,	Beaufort.
FREDERICK ERASTUS SLOAN, Thesis: Design of a Sewer for West Raleigh (with Myers).	Statesville,	Iredell.
ANDREW THOMAS SMITH, Thesis: Plans for the Improvement of the Raleigh Water Supply by Diverting the Drainage of the town of Cary from Walnut Creek.	Oxford,	Granville.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
ALEXIS PRESTON STEELE, Thesis: Design of a Double-friction Winding Drum.	Statesville,	Iredell.

In Science.

CHRISTOPHER MILLER HUGHES, Thesis: Nature and Extent of Food Adulteration in the United States.	Raleigh,	Wake.
EUGENE LEROY PARKER, Thesis: The Chemistry of the Cigarette.	Raleigh,	Wake.
WILLIAM ANDERSON SYME, Thesis: Modern Biology (with Williams).	Raleigh,	Wake.
HUGH WARR, Thesis: A Study of Cans for Canned Goods.	King's Mountain,	Cleveland.
CLAUD BURGESS WILLIAMS, Thesis: Modern Biology (with Syme).	Elizabeth City,	Pasquotank.

MECHANICAL ENGINEER.

WM. ALEX. GRAHAM CLARK, Thesis: Design of a Plain Slide-valve Steam-engine.	Raleigh,	Wake.
JORDAN LEA WATSON, Thesis: Test of a Twenty-five Horse-power Automatic Steam-engine.	Raleigh,	Wake.

HONORS IN SCHOLARSHIP.

FLETCHER HESS BARNHARDT,	Stanly County.
--------------------------	----------------

HONORS FOR PUNCTUALITY.

FRANCIS MARION FOY, JR.,	Pender County.
--------------------------	----------------

PRIZES FOR WORK IN AGRICULTURE.**First Prize.**

WILLIAM STAMEY STACY,	Burke County.
-----------------------	---------------

Second Prize.

ALBERT RANSOM JOHNSON,	Henderson County.
------------------------	-------------------

REGISTER OF ALUMNI.

CLASS OF 1893.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT WILSON ALLEN, Prof. Mathematics, Preston Normal School.	B. E.,	Preston, Md.
SAMUEL ERSON ASBURY, Assistant Chemist State Agricultural Department.	B. S.,	Raleigh, N. C.
HENRY EMIL BONITZ Architect and Superintendent.	B. E.,	Wilmington, N. C.
FRANK FULLER FLOYD, Superintendent Linotype Machines for the <i>Knoxville Sentinel</i> .	B. E.,	Knoxville, Tenn.
CHARLES DUFFY FRANCKS, Farmer and Merchant.	B. E.,	Richlands, N. C.
EDWARD MOORE GIBBON, Machinist U. S. Government Dock-yard.	B. E.,	Port Royal, S. C.
GEORGE PENDER GRAY, Farm Manager.	B. S.,	Silver Lake, Fla.
CHARLES BOLLING HOLLADAY, With John L. Williams & Sons.	B. E.,	Richmond, Va.
WILLIAM MCNEILL LYTCH, Locomotive Engineer.	B. E.,	Phcenix, Fla.
WALTER JEROME MATHEWS, Engineer for the Eastern N. C. Asylum for the Insane.	B. E.,	Goldsboro, N. C.
JAMES WILLIAM MCKOY, Civil Engineer and County Surveyor.	B. E.,	Black Mountain, N. C.
FRANK THEOPHILUS MEACHAM, Farm Superintendent State School for Deaf and Dumb.	B. S.,	Morganton, N. C.
CARL DEWITT SELLARS, Engineer for Altamaha Cotton Mills.	B. E.,	Altamaha, N. C.
CHARLES EDGAR SEYMOUR, Farmer and Superintendent of Public Roads.	B. S.,	Louisburg, N. C.
BUXTON WILLIAMS THORNE, Corporation Clerk.	B. E.,	Water Valley, Miss.
WILLIAM HARRISON TURNER, With Wachovia Mills (F. & H. Fries).	B. E.,	Salem, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CHARLES BURGESS WILLIAMS, Assistant Chemist State Agricultural Department.	B. S.,	Raleigh, N. C.
LOUIS THOMAS YARBROUGH, With Southern Bell Telephone Co.	B. E.,	Raleigh, N. C.
SAMUEL MARVIN YOUNG, Of S. M. & W. J. Young.	B. E.,	Raleigh, N. C.

CLASS OF 1894.

CHARLES EDWARD CORPENING, Farmer.	B. E.,	Lenoir, N. C.
DAVID COX, JR., Architect and County Surveyor.	B. E.,	Hertford, N. C.
ROBERT DONNELL PATTERSON, JR., With American Tobacco Co.	B. S.,	Durham, N. C.
CHARLES PEARSON, Of Pearson & Ashe, Architects.	B. E.,	Raleigh, N. C.
ZEBBIE GEORGE ROGERS, Secretary and Treasurer.	B. E.,	Danville, Va.
JOHN HYER SANDERS, Locomotive Engineer for Lumber Co.	B. E.,	Chocowinity, N. C.
BENJAMIN FRANKLIN WALTON, Farmer.	B. S.,	Neuse, N. C.
JOHN McCAMY WILSON, With Salem Iron Works.	B. E.,	Salem, N. C.

FRANK THEOPHILUS MEACHAM, See Class of 1893.	M. S.,	Morgantou, N. C.
---	--------	------------------

CLASS OF 1895.

THOMAS MARTIN ASHE, Of Pearson & Ashe, Architects.	B. E.,	Raleigh, N. C.
JAMES ADRIAN BIZZELL, Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
JOHN ISHAM BLOUNT, Mechanical Engineer, with Alabama Steel and Ship-building Co.	M. E.,	Ensley, Ala.

REGISTER OF ALUMNI.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES WASHINGTON BRAWLEY,	B. S.,	Mooresville, N. C.
Traveling Salesman.		
WALTER AUSTIN BULLOCK,	B. S.,	Attapulgus, Ga.
Superintendent Tobacco Farm.		
DAVID CLARK (M. E. Cornell Univ.),	B. E.,	Charlotte, N. C.
General Manager and Treasurer Ada Cotton Mills.		
GEO. WASHINGTON CORBETT, JR.,	B. E.,	Durham, N. C.
Engineer Cotton Mill.		
EDWIN SPEIGHT DARDEN,	B. S.,	Wilson, N. C.
With Banner Tobacco Warehouse.		
WILLIAM KEARNEY DAVIS, JR.,	B. E.,	Salem, N. C.
Superintendent Southside Manufacturing Co.		
JOSEPH CHARLES DEY,	B. S.,	Norfolk, Va.
Of J. C. Dey & Co., Wholesale Grocers.		
LEE BORDEN ENNETT,	B. S.,	Cedar Point, N. C.
Farmer.		
ISAAC HENRY FOUST,	B. E.,	Charlotte, N. C.
Farmer.		
CHARLES WYLLIS GOLD,	B. S.,	Wilson, N. C.
Business Manager <i>Wilson Times</i> , Editor <i>Dixie Dairyman</i> and <i>Dixie Farmer</i> .		
WILLIAM HENRY HARRIS,	B. E.,	Atlanta, Ga.
Assistant Southern Representative The Draper Co.		
CHRISTOPHER MILLER HUGHES,	B. E.,	Raleigh, N. C.
With Commercial and Farmers Bank.		
MALCOLM BEALL HUNTER,	B. E.,	Charlotte, N. C.
Textile Instructor Lee's Business College.		
SAMUEL CHRISTOPHER MCKEOWN,	B. E.,	Conwell, S. C.
Superintendent Machine Shops.		
MANN CABE PATTERSON,	B. E.,	Richmond, Va.
With Richmond Locomotive and Machine Works.		
ABRAM HINMAN PRINCE,	B. S.,	Red Springs, N. C.
Superintendent of Experiment Farm.		
VICTOR VASHTI PRIVOTT,	B. E.,	Edenton, N. C.
With Lumber Company.		
HOWARD WISWAL, JR.,	B. E.,	Norfolk, Va.
Inspector United States Engineers.		
CHARLES GARRETT YARBROUGH,	B. E.,	Pittsburg, Pa.
With Westinghouse Electric Company.		

REGISTER OF ALUMNI

69

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CHARLES MARCELLUS PRITCHETT,	M. E.,	Raleigh, N. C.
Instructor in Mechanical Engineering N. C. College of Agriculture and Mechanic Arts.		

CLASS OF 1896.

DANIEL ALLEN,	B. S.,	Raleigh, N. C.
With S. C. Pool's Shoe Store.		
GEORGE STRONACH FRAPS,	B. S.,	Raleigh, N. C.
Ph. D. Johns Hopkins University; Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.		
MARION JACKSON GREEN,	B. S.,	Victor, N. C.
Assistant in Union Home School.		
JOHN HOWARD,	B. S.,	Tarboro, N. C.
Civil Engineer.		
WILLIAM COLBERT JACKSON,	B. S.,	Ayden, N. C.
With J. R. Smith & Bro.		
ROBERT GRAHAM MEWBORNE,	B. S.,	Richmond, Va.
Assistant Chemist Virginia-Carolina Chemical Co.		
LEVI ROMULUS WHITTED,	B. S.,	Norfolk, Va.
Draughtsman in Navy-yard.		
HENRY LLOYD WILLIAMS,	B. S.,	Merchant Mills, N. C.
Merchant.		

SAMUEL ERSON ASBURY,	M. S.,	Raleigh, N. C.
See Class of 1893.		
CHARLES BURGESS WILLIAMS,	M. S.,	Raleigh, N. C.
See Class of 1893.		
DAVID CLARK,	M. E.,	Charlotte, N. C.
See Class of 1895.		
WILLIAM HENRY HARRIS,	M. E.,	Atlanta, Ga.
See Class of 1895.		

CHARLES MARCELLUS PRITCHETT,	C. E.,	Raleigh, N. C.
See Class of 1895.		

CLASS OF 1897.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOSEPH SAMUEL BUFFALOE, Physician.	B. S.,	Garner, N. C.
JOHN WILLIAM CARROLL, Dairyman N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
CHARLES EDWARD CLARK, Manager Farm Central N. C. Hospital.	B. S.,	Raleigh, N. C.
WM. ALEXANDER GRAHAM CLARK, Student Cornell University.	B. S.,	Ithaca, N. Y.
NICHOLAS LOUIS GIBBON, With Stuart Cramer Machine Co..	B. S.,	Charlotte, N. C.
CEBURN DODD HARRIS, Student Chemistry, Johns Hopkins University.	B. S.,	Baltimore, Md.
JERE EUSTIS HIGHSMITH, Farmer.	B. S.,	Parkersburg, N. C.
CLYDE BENNETT KENDALL, Civil Engineer S. A. L.	B. S.,	Columbia, S. C.
JOSEPH LAWRENCE KNIGHT, Dairyman.	B. S.,	Raleigh, N. C.
WALTER JONES MCLENDON, JR., Erecting Machinist Lowell Machine Shop.	B. S.,	Lowell, Mass.
REPTON HALL MERRITT, Book-keeper Cotton Mill.	B. S.,	McAdenville, N. C.
ALBERT HICKS OLIVER, Dairyman and Farm Superintendent.	B. S.,	Brevard, N. C.
HUGH WILLIAMS PRIMROSE, Assistant Chemist Alabama Steel and Ship-building Co.	B. S.,	Ensley, Ala.
WILLIAM HUNTER SANDERS, Assistant Engineer Raleigh Electric Co.	B. S.,	Raleigh, N. C.
THOMAS JEHU SMITHWICK, Engineer Navy-yard.	B. S.,	Port Royal, S. C.
LEA WATSON, With D. A. Tompkins Co.	B. S.,	Charlotte, N. C.
BRADLEY JEWETT WOOTTEN, Lieutenant U. S. Army.	B. S.,	Philippine Islands.
JOHN ISHAM BLOUNT, See Class of 1895.	C. E.,	Ensley, Ala.
DAVID CLARK, See Class of 1895.	C. E.,	Charlotte, N. C.
LEVI ROMULUS WHITTED, See Class of 1896.	C. E.,	Norfolk, Va.

CLASS OF 1898.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DORSEY FROST ASBURY, Draughtsman Newport News Ship-yards.	B. S.,	Newport News, Va.
SIDNEY HAMILTON BECK, Draughtsman Newport News Ship-yards.	B. S.,	Newport News, Va.
ANSON ELIKEM COHOON, Student in Forestry, Cornell University.	B. S.,	Ithaca, N. Y.
HUGH McCULLOM CURRAN, Student in Forestry, Cornell University.	B. S.,	Ithaca, N. Y.
BENJAMIN CAREY FENNELL, Post-graduate Student, N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
ALPHEUS ROUNTREE KENNEDY, Draughtsman Newport News Ship-yards.	B. S.,	Newport News, Va.
FREDERICK CREECY LAMB, Assistant Chemist State Department of Agriculture.	B. S.,	Raleigh, N. C.
EDWIN BENTLEY OWEN, Librarian N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
MOORE PARKER, Student Lowell Textile School.	B. S.,	Lowell, Mass.
NUMA REID STANSEL, Instructor in Physics and Electrical Engineering N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
TEISAKU SUGISHITA, Engineer, Imperial Railway of Japan.	B. S.,	Tokyo, Japan.
GEORGE FREDERICK SYME, Civil Engineer, with Isthmian Canal Commission.	B. S.,	Nicaragua, C. A.

ROBT. DONNELL PATTERSON, JR., M. S., Durham, N. C.
See Class of 1894.

CLASS OF 1899.

WM. DAVIDSON ALEXANDER, JR., Mecklenburg Iron Works.	B. S.,	Charlotte, N. C.
IRA WILSON BARBER, Engineer, Naval Station.	B. S.,	Port Royal, S. C.
JOHN HENDERSON BIRDSONG, Post-graduate in Chemistry, N. C. College of Agriculture and Mechanic Arts	B. S.,	Raleigh, N. C.

REGISTER OF ALUMNI.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
FRANCIS MARION FOY, Post-graduate Electrical Engineering and Instructor, N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
ALBERT SIDNEY LYON, Electrician Weldon Electric Lighting Co.	B. S.,	Weldon, N. C.
CARROLL LAMB MANN, Isthmian Canal Commission.	B. S.,	Nicaragua, C. A.
O'KELLY WILLIAMS MYERS, Civil Engineer, with S. A. I.	B. S.,	Camden, S. C.
EUGENE LEROY PARKER, Assistant Chemist Virginia-Carolina Chemical Co.	B. S.,	Richmond, Va.
EUGENE GRAY PERSON, With Odell Cotton Mill.	B. S.,	Concord, N. C.
FREDERICK ERASTUS SLOAN, Book-keeper Weldon Milling Co.	B. S.,	Weldon, N. C.
ANDREW THOMAS SMITH, Assistant in Shop N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
ALEXIS PRESTON STEELE, Of J. C. Steele & Son's Brick Machinery Co.	B. S.,	Statesville, N. C.
WILLIAM ANDERSON SYME, Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
HUGH WARE, Farmer.	B. S.,	King's Mountain, N. C.
CLAUD BURGESS WILLIAMS, Student Richmond College of Medicine.	B. S.,	Richmond, Va.