

THE  
NORTH CAROLINA COLLEGE  
OF  
AGRICULTURE AND MECHANIC ARTS,  
WEST RALEIGH.

1904-1905.



RALEIGH:  
E. M. UZZELL & Co., STATE PRINTERS AND BINDERS.  
1905.

# CALENDAR.

1905.							1906.						
JANUARY.							JULY.						
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## COLLEGE CALENDAR.

1905.

Thursday, July	13,	{ Entrance examination at each county { court-house, 10 A. M.
Wednesday, September	6,	{ Entrance examination at the College, { 9 A. M.
Thursday, September	7,	First Term begins; Registration Day.
Wednesday, September	6,	} Examinations to remove conditions. See } page 21.
Thursday, September	7,	
Friday, September	8,	
Saturday, September	9,	
Wednesday, November	30,	Thanksgiving Day.
Thursday, December	20,	First Term ends.

1906.

Wednesday, January	3,	Second Term begins; Registration Day.
Saturday, February	3,	} Examinations to remove conditions. See } page 21.
Saturday, February	10,	
Saturday, February	17,	
Saturday, February	24,	
Saturday, March	17,	Second Term ends.
Monday, March	19,	Third Term begins; Registration Day.
Sunday, May	27,	Baccalaureate Sermon.
Monday, May	28,	Alumni Day.
Tuesday, May	29,	Annual Oration.
Wednesday, May	30,	Commencement Day.



## BOARD OF TRUSTEES.

(State Board of Agriculture).

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S. L. PATTERSON, *President ex officio*, Raleigh.  
T. K. BRUNER, *Secretary ex officio*, Raleigh.

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JOHN M. FOREHAND, Rockyhook, First District.  
J. B. STOKES, Windsor, Second District.  
WM. DUNN, New Bern, Third District.  
C. N. ALLEN, Auburn, Fourth District.  
R. W. SCOTT, Melville, Fifth District.  
A. T. MCCALLUM, Red Springs, Sixth District.  
J. P. McRAE, Laurinburg, Seventh District.  
R. L. DOUGHTON, Laurel Springs, Eighth District.  
S. T. WILFONG, Newton, Ninth District.  
A. CANNON, Horse Shoe, Tenth District.

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

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FRANK WOOD, Edenton.  
E. M. KOONCE, Jacksonville.  
W. H. RAGAN, High Point.  
DAVID CLARK, Charlotte.  
W. J. PEELE, Raleigh.  
J. FRANK RAY, Franklin.  
CHARLES W. GOLD, Wilson.  
S. L. PATTERSON, Commissioner of Agriculture, *ex officio*.  
GEORGE T. WINSTON, President of the College, *ex officio*.

## FACULTY.

---

- GEORGE TAYLOE WINSTON, A.M., LL.D., President and Professor of Political Economy.
- WILLIAM ALPHONSO WITHERS, A.M., Professor of Chemistry.
- DANIEL HARVEY HILL, A.M., Professor of English.
- WALLACE CARL RIDDICK, A.B., C.E., Professor of Civil Engineering and Mathematics.
- FREDERICK ELISHA PHELPS, Captain U. S. Army (retired), Professor of Military Science and Tactics.
- HENRY MERRYMAN WILSON, A.B., Professor of Textile Industry.
- CHARLES WILLIAM BURKETT, M.Sc., Ph.D., Professor of Agriculture.
- THOMAS MURRITT DICK, U. S. N., Professor of Mechanical Engineering.
- TAIT BUTLER, V.S., Professor of Veterinary Science.
- FRANK LINCOLN STEVENS, M.S., Ph.D., Professor of Botany and Vegetable Pathology.
- ELLERY BURTON PAINE, M.S., Professor of Physics and Electrical Engineering.
- BENJAMIN WESLEY KILGORE, M.S., Lecturer on Soils and Fertilizers.
- H. HAROLD HUME, B.Agr., M.S., Lecturer on Horticulture.
- ROBERT E. LEE YATES, A.M., Assistant Professor of Mathematics.
- CHALMER KIRK McCLELLAND, M.S., Assistant Professor of Agriculture.
- CHARLES BENJAMIN PARK, Superintendent of Shops.
- THOMAS NELSON, Instructor in Weaving and Designing.
- VIRGIL WILLIAM BRAGG, Instructor in Wood-working.
- FRANKLIN SHERMAN, B.S.A., Instructor in Entomology.
- JOHN CHESTER KENDALL, B.S., Instructor in Dairying.

- CARROLL LAMB MANN, B.S., Instructor in Mathematics.  
PINCKNEY GUSTAVE DEAL, Instructor in Forge Shop.  
THOMAS SIMEON LANG, B.S., C.E., Instructor in Civil Engineering.  
GEORGE SUMMEY, JR., Ph.D., Instructor in English.  
WINFRED MORSE ADAMS, B.S., Instructor in Electrical Engineering.  
GUY ALEXANDER ROBERTS, B.S., D.V.S., Instructor in Zoology and Anatomy.  
ALBERT ADAMS HASKELL, B.S., Instructor in Organic Chemistry and Dyeing.  
HARLEE MacCALL, Instructor in Mathematics.  
OLIVER MAX GARDNER, B.S., Instructor in Inorganic Chemistry.  
CHARLES FREDERICK VON HERRMANN, Instructor in Meteorology.  
GEORGE McPHAIL SMITH, B.S., Ph.D., Instructor in Analytical Chemistry and Metallurgy.  
ROYAL LINFIELD WALES, B.S., Instructor in Mechanical Engineering.  
CHARLES WALKER, Ph.D., Instructor in Chemistry.  
ALFRED DE ST. AMANT, B.S., Instructor in Drawing.  
RANDOLPH FITZHUGH MASON, B.A., Instructor in English.  
GORDON MANSIR BENTLEY, B.S.A., M.A., Assistant in Entomology.

#### OTHER OFFICERS.

- ARTHUR FINN BOWEN, Bursar.  
FREDERICK ERASTUS SLOAN, P.S., Registrar.  
Miss CAROLINE BALDWIN SHERMAN, Librarian.  
BENJAMIN SMITH SKINNER, Farm Superintendent and Steward.  
JAMES RUFUS ROGERS, A.B., M.D., Physician.  
WILLIAM SIMMS KIENHOLZ, B.S., Athletic Director.  
Mrs. DAISY LEWIS, Hospital Matron.

**AGRICULTURAL EXPERIMENT STATION DEPARTMENT.**

GEORGE TAYLOE WINSTON, A.M., LL.D., President.  
BENJAMIN WESLEY KILGORE, M.S., Director.  
WILLIAM ALPHONSO WITHERS, A.M., Chemist.  
WILBUR FISK MASSEY, C.E., Horticulturist.  
CHARLES WILLIAM BURKETT, M.Sc., Ph.D., Agriculturist.  
TAIT BUTLER, V.S., Veterinarian.  
FRANK LINCOLN STEVENS, M.S., Ph.D., Biologist.  
FRANKLIN SHERMAN, JR., B.S. Agr., Entomologist.  
JOHN STRAUCHON JEFFREY, Poultryman.  
CHARLES WALKER, Ph.D., Assistant Chemist.  
JOHN CHESTER KENDALL, B.S., Assistant, Dairy Husbandry.  
BENJAMIN FRANKLIN WALTON, B.S., Asst., Field Experiments.  
ARTHUR FINN BOWEN, Bursar.

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**MILITARY ORGANIZATION.**

CAPTAIN FREDERICK E. PHELPS, U. S. Army (retired),  
Commandant.

**Staff.**

W. M. CHAMBERS, Major.  
S. D. WALL, Captain and Adjutant.  
S. GRAYDON, Captain and Quartermaster.  
W. G. KNOX, Sergeant-Major.  
W. S. TOMLINSON, Quartermaster Sergeant.  
T. M. LYKES, Color Sergeant.

**Band.**

E. T. ROBERSON, Instructor.  
H. B. CARTWRIGHT, Captain.  
J. A. PARK, First Lieutenant.

H. M. LILY, Second Lieutenant.  
J. G. HARDISON, First Sergeant.  
W. C. PIVER, Second Sergeant.  
T. J. OGBURN, Chief Trumpeter.  
R. H. HARPER, Drum Major and Captain.

**Company A.**

O. L. BAGLEY, Captain.  
F. W. HADLEY, First Lieutenant.  
W. G. FINCH, Second Lieutenant.  
S. H. CLARKE, First Sergeant.  
D. A. COX, Second Sergeant.  
L. MOORE, Third Sergeant.  
B. B. EDGERTON, Fourth Sergeant.  
J. B. LYNCH, First Corporal.  
W. B. TRUITT, Second Corporal.  
G. R. HARDESTY, Third Corporal.  
B. B. EVERETT, Fourth Corporal.

**Company D.**

L. M. HOFFMAN, Captain.  
S. N. KNOX, First Lieutenant.  
A. C. WILKINSON, Second Lieutenant.  
L. T. WINSTON, First Sergeant.  
J. D. CLARK, Second Sergeant.  
W. B. MOORMAN, Third Sergeant.  
S. O. PERKINS, Fourth Sergeant.  
J. O. SHUFORD, First Corporal.  
A. C. JONES, Second Corporal.  
A. H. BORDEN, Third Corporal.  
G. F. HINSHAW, Fourth Corporal.

**Company B.**

E. G. PORTER, JR., Captain.  
G. G. LYNCH, First Lieutenant.  
H. F. CHREITZBERG, JR., Second Lieutenant.  
R. H. TILLMAN, First Sergeant.  
J. H. HANSELMAN, Second Sergeant.  
L. L. VAUGHAN, Third Sergeant.  
PETER VALEAR, Fourth Sergeant.  
L. J. SCHWAB, First Corporal.  
F. T. MILLER, Second Corporal.  
J. L. HEMPHILL, Third Corporal.  
P. W. HARDIE, Fourth Corporal.

**Company C.**

J. D. SPINKS, Captain.  
W. J. WALKER, First Lieutenant.  
L. A. MURR, Second Lieutenant.  
D. W. ROBERTSON, First Sergeant.  
J. G. MORRISON, Second Sergeant.  
G. P. ASBURY, Third Sergeant.  
A. B. PIVER, Fourth Sergeant.  
E. N. PEGRAM, First Corporal.  
C. E. STANCILL, Second Corporal.  
L. B. WHITEHURST, Third Corporal.  
E. F. MEADOR, Fourth Corporal.

**Company E.**

J. H. PEIRCE, Captain.  
L. G. LYKES, First Lieutenant.  
W. W. WATT, Second Lieutenant.  
C. W. HODGES, First Sergeant.

D. M. CLARK, Second Sergeant.  
J. W. CLARK, Third Sergeant.  
M. H. CHESBRO, Fourth Sergeant.  
R. H. CARTER, First Corporal.  
H. S. MONTAGUE, Second Corporal.  
R. H. SMITH, Third Corporal.  
W. C. STAPLES, Fourth Corporal.

**Company F.**

A. T. KENYON, Captain.  
S. M. VIELE, First Lieutenant.  
J. R. SMITH, Second Lieutenant.  
W. F. BROCK, First Sergeant.  
A. W. GREGORY, Second Sergeant.  
J. P. LOVILL, Third Sergeant.  
J. E. MOORE, Fourth Sergeant.  
J. L. FERGUSON, First Corporal.  
L. F. CARLETON, Second Corporal.  
C. S. TATE, Third Corporal.  
J. L. SMITH, Fourth Corporal.

## GENERAL INFORMATION.

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The North Carolina College of Agriculture and Mechanic Arts owes its existence to the combined liberality of the United States Government and of R. S. Pullen, of Raleigh, together with the patriotic efforts of a few far-sighted men who saw that in the industrial life of North Carolina the time had come when trained and educated leaders were necessary. The first act of the General Assembly of this State in relation to the College was ratified in 1885, the bill which afterwards became a law, having been introduced by A. Leazar, Esq. The Congress of the United States in 1862 passed a bill, introduced by Senator Justin S. Morrill, of Vermont, giving 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 given by the late R. S. Pullen. The College was formally opened for students October 1, 1889.

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

The College is beautifully located on the extension of Hillsboro street 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 twelve deep wells. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns six hundred acres of land and sixteen buildings, and its teaching force consists of thirty-six specialists. Its laboratories, drawing-rooms and work-shops are well equipped. Its library contains four thousand volumes, and its reading-room is well supplied with literary and technical journals and newspapers.



**BUILDINGS.**

**The Main Building** is of brick, with brownstone trimmings, and is one hundred and seventy by sixty-four feet; part four stories in height and the remainder two. The lower floors contain the offices of the President and the Bursar, several recitation-rooms, chemical and physical laboratories and the armory. The upper stories are occupied by students.

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

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

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

**The Textile Building** is a two-story brick building one hundred and twenty-five by seventy-five feet, with a basement. Its construction is similar to a cotton mill, being an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

**Pullen Hall**—In honor of the late R. Stanhope Pullen, the greatest benefactor of the College, the large new building recently finished has been called Pullen Hall. The basement of this building is used as a dining-room and seats five hundred students. The first story is used for library, reading-room and lecture-rooms. The second story serves as the College auditorium. This room is commodious, comfortable and well lighted.

**The Agricultural Hall** is a three-story buff press-brick building with granite trimmings and is 208 by 74 feet. The lower or basement floor contains the class-rooms and laboratories for work in the Department of Animal Husbandry and Dairying. Ample provision is made for butter-making, stock judging, farm butchering and cold-storage accommodations for the products.

The second floor contains the offices of the department, class-rooms for animal husbandry and agronomy, and laboratories for soil physics and agricultural machinery.

On the top floor are the rooms devoted to botany and vegetable pathology, zoology, physiology, and veterinary medicine. There are well-equipped class-rooms and large, well-lighted laboratories.

The building affords the best accommodations for education in agriculture and applied subjects, and is especially adapted to its needs.

**Watauga Hall** is a three-story brick building, trimmed with brownstone and containing sixty rooms for dormitories. There is also a large dormitory in the attic, and in the basement are bath-rooms, which are free for students' use.

**Dormitories.**—In addition to Watauga Hall, one three-story and three two-story brick buildings are used exclusively for dormitories.

**The Infirmary** is a two-story brick building, containing a sitting-room, seven bed-rooms, three bath-rooms, a kitchen, linen-room, College Physician'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 are used in modern hospitals.

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

**The Barn** is a frame building of modern design and carefully planned for the purposes to which it is devoted. The barn is fifty by seventy-two feet and three stories high.

**Fire Protection.**—The College is supplied with a steam-pump, reservoir, hydrants and fire-hose to protect the buildings from burning.

**Heat and Light.**—All the College buildings are lighted by electricity from a plant managed by the students, under the direction of the Professor of Electrical Engineering.

The third and fourth dormitories, Primrose Hall and the green-houses attached are heated by hot water; the Textile Building is heated by the Sturtevant hot-air system, and the other College buildings are heated by the Warren-Webster vacuum system of building-heating.

### 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 2, 1887, which made a liberal donation to each State for the purpose of investigations in agriculture

and for publishing the same. The bill, which subsequently became a law, was introduced by Representative William H. Hatch of Missouri.

The Director's office is in the Agricultural Building in Raleigh and the laboratories are in the main building at the College. The experimental work in agriculture, horticulture, stock and poultry raising, and dairying is conducted on the College farm, and the investigations in plant diseases and chemistry in the College laboratories.

The Station is always glad to welcome visitors and to show them the work in progress. The Station conducts a large correspondence with farmers and others concerning agricultural matters. It takes pleasure in receiving and answering questions.

Publications relating to general farming matters and embodying the results of experiments are published and sent free to all citizens of the State who request them. A request addressed to the Agricultural Experiment Station, Raleigh, N. C., will bring these publications and answers to letters.

### **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 requisites to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, 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, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, Metallurgy, Chemistry, Dyeing, Textile Industry, and Architecture. It also offers practical training in Carpentry, Wood-turning, Blacksmithing, Machinists' Work, Mill-work, Boiler-tending, Engine-tending, Dynamo-tending and Installation, Electric-light Wiring, Armature Winding and other subjects relating to practical electricity.

Although the leading purpose of the College is to furnish technical and practical instruction, yet other subjects essential to a liberal education are not omitted. Thorough instruction is given in English, Mathematics, History, Political Economy, Physics, Chemistry, Botany, Zoology, Physiology, and Geology.

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.

### PRIZES.

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 labor on the College farm.

The Arthur H. Thomas Company of Philadelphia offers to the Biological Club as a prize an "Aplanatic Triplet" hand magnifier, to be awarded for the most deserving work in biology.

The Zenner Disinfectant Company, Detroit, Mich., offers a silver medal to the student making the best report on the Live Stock Exhibit at the State Fair. The value of this medal is \$25.

The North Carolina State Fair Association offers a prize of \$5 to the student preparing the best essay on the Live Stock Exhibit at the State Fair.

### DISCIPLINE.

The College is under military discipline and the students are regularly organized into a battalion. A printed copy of 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 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.

Every effort is made to develop 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 young men who are grossly vicious, idle or incompetent.

### REPORTS AND SCHOLARSHIP.

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 mani-

festly 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.

### RELIGIOUS INFLUENCES.

All students are required to attend chapel exercises in Pullen Auditorium each morning. These services are conducted by the President, by some member of the Faculty or by some visiting minister.

Each student is required to attend religious service in Raleigh on Sunday morning at the church of his choice.

Services are also held in Pullen Auditorium on the second Sunday evening of each month. During the year 1904-'05 these services were conducted by the following ministers:

September—The Rev. R. F. Bumpass, Raleigh.

October—The Rev. J. C. Masee, Raleigh.

November—The Rev. Alex. L. Phillips, D.D., Richmond, Va.

December—The Rev. W. M. Butler, Raleigh.

January—The Rev. F. A. Bishop, Raleigh.

February—The Rev. W. C. Tyree, D.D., Raleigh.

March—The Rev. R. S. Stevenson, Raleigh.

April—The Rev. A. H. Moment, D.D., Raleigh.

May—The Rev. I. McK. Pittenger, D.D., Raleigh.

**The Young Men's Christian Association**, containing in its membership representatives of all the Christian denominations, meets regularly each Sunday afternoon at 2:30 o'clock for conference, Bible study and worship, and exerts a wholesome influence throughout the College.

The members of this Association will meet and welcome new students at the railroad station.

### ATHLETICS.

The College is provided with extensive grounds, which furnish ample facilities for military drill and athletic sports.

Out-door sports are directly managed by the Athletic Association and are under the control of a committee of the Faculty.

The Faculty rules governing athletics are as follows:

1. No student shall be eligible for an athletic team in this College unless he be registered on or before October 12th.

2. No student shall be eligible for an athletic team in this College who is deficient in scholarship.

3. No student shall be eligible for an athletic team in this College who pursues less than seventeen hours of College work a week.

4. No student who has received, or is receiving now, or has been promised, directly or indirectly, any money or compensation in lieu of money for athletic services, or who has been a member of an incorporated league team, shall be eligible for any athletic team in this College.

The **Athletic Association** is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty it promotes practice in base-ball, foot-ball, track athletics, etc.

### LIBRARY AND READING-ROOMS.

The College Library occupies the first story of Pullen Hall. The reading-room is supplied regularly with about one hundred and fifty magazines and journals of various kinds, and yearly additions are being made to this number. The library contains about four thousand volumes. There are also reference libraries in the different departments. The library is kept open from 9 A. M. to 6 P. M. The Librarian is always present to assist students in finding desired information.

The Olivia Raney Library in Raleigh, containing now about seven thousand volumes, is free to the students and they have the privilege of borrowing books from it. Students also have the privilege of consulting books in the State Library.

### STATE MUSEUM.

Students have free access to the large collections of the State Museum. These collections furnish most excellent opportunities for studies in Geology, Mineralogy, Mining, Forestry, and Natural History.

### COLLEGE SOCIETIES.

Such college organizations are encouraged as tend to form good character, to develop manly physical vigor and to promote literary, scientific and technical research and training.

**Farmers' Institute.**—The students in the Winter Course in Dairying and Agriculture meet every Wednesday night during the winter term for a discussion of practical agricultural problems. The meetings are conducted in the manner of a Farmers' Institute and give training in conducting farmers' meetings, *ex tempore* speaking on

agricultural questions, and the writing and reading of reports on various farm operations.

**The Rural Science Club** meets semi-monthly for the discussion of agricultural subjects, review of current agricultural publications, and reports on personal experiments and the work of the College farm and Experiment Station.

**The Biological Club** meets semi-monthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations. A prize is awarded at an annual contest for the best presentation of results of original research by the members.

**The Berzelius Chemical Society** meets fortnightly for the discussion of chemical subjects and for review of the current chemical literature, with which the College is well supplied.

**Electrical Engineering Society.**—The members of the Society meet once a week in the physical laboratory. To review the articles on electrical engineering in the current journals is one of the chief objects of the Society. The Society has at its disposal the best periodicals, most of which are furnished free of charge by the publishers.

**The Textile Society** meets once a month for the discussion of subjects relating to cotton manufacturing. Articles in current journals are also discussed. The Society has placed in the library the best textile periodicals, some of which are furnished free of charge by the publishers.

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

**The Dramatic Club** presents at least one play each year to the students and people of Raleigh. The plays selected are of high literary character and offer full opportunities for artistic and clever acting.

**The Glee Club** is composed of about twenty young men, embracing the best musical talent of the College. It aims to give one concert each year, and afterwards to sing at various College entertainments and functions during the year.

**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. This Association purposes raising funds to erect an Alumni Building at the College.

**REQUISITES FOR ADMISSION.**

Applicants for admission must be at least sixteen years of age and must bring certificates of good moral character from the school last attended.

**To the Four Year Courses.**—Applicants for admission to the Freshman Class of all four year courses will be examined on the following subjects: Arithmetic (complete), Algebra (through simple equations), English Grammar, Analysis and Composition, and American History. No student will be admitted to the Freshman Class whose examination papers are seriously faulty in spelling, grammar, punctuation or division into paragraphs.

**To the Two Year Courses.**—Applicants for admission to the two year course in Textile Industry will take the same examinations as those required of candidates for admission to the Freshman Class.

Applicants for admission to the two year courses in Agriculture and in Mechanic Arts will be examined on Arithmetic (through decimal fractions), English Grammar and Composition, and American History.

Applicants for admission to the two year course in Agriculture, if they are twenty years of age, or over, will not be required to take the entrance examinations.

**To the Winter Courses.**—No entrance examination is required of candidates for admission to the winter courses. No one under eighteen years of age will be admitted to a winter course.

**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 second Thursday in July of each year. The date for 1905 is July 13th. 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 at 9 o'clock A. M. on Wednesday preceding the opening day. The date for 1905 is September 6th.

**ADMISSION WITHOUT EXAMINATION.**

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, over eighteen years of age.
2. Applicants for admission to the two year course in Agriculture, if they are over twenty years of age.



3. School-teachers holding teachers' certificates.
4. Graduates of those High Schools and Academies whose certificates are accepted by the Faculty of this College.

### CONDITION EXAMINATIONS.

Examinations will be held during September and February for the removal of conditions. Students will be admitted to these examinations without charge.

During 1905-1906 these examinations will be held on the following days, beginning at 9 o'clock A. M.:

Wednesday, September 6th, and Saturday, February 3d—Agriculture, Horticulture, Civil Engineering, Architecture, Mechanical Engineering, Electrical Engineering, Mining, Metallurgy, and Textile Industry.

Thursday, September 7th, and Saturday, February 10th—Chemistry, Dyeing, Physics, Geology, Mineralogy, Botany and Vegetable Pathology, Zoology, Entomology, Veterinary Science, History, Political Economy, Military Science.

Friday, September 8th, and Saturday, February 17th—English.

Saturday, September 9th, and Saturday, February 24th—Mathematics.

Special examinations for the removal of conditions may be held at other times only upon petition to the Faculty, said petition to be accompanied by a receipt from the Bursar for one dollar for each special examination. All moneys collected as fees for special examinations will be turned over to the loan fund for needy students.

Conditions not removed within a year can be removed only by taking the subject again in class, except that a student who enters college with conditions in practice work may be allowed to carry half of his conditions in practice work to the second year if he remove half of these conditions during his first year.

In order to be graduated, a student must be clear of all conditions before beginning the March examinations of the Senior Year.

A student who fails in three studies at any term will be dropped to a lower class or from the College rolls.

The Registrar will include in the report of each student for each term a list of conditions against the student and a notice of the time at which condition examinations will be held.

### SESSION.

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

**EXPENSES.\***

The total expenses of a student for the first year are as follows:

Tuition . . . . .	\$20.00
Room rent . . . . .	10.00
Fuel and lights . . . . .	12.50
Furniture . . . . .	2.00
Library . . . . .	2.00
Incidental . . . . .	1.00
Medical attention and medicine . . . . .	5.00
Physical culture . . . . .	2.00
Lectures . . . . .	1.00
Registration . . . . .	2.00
Board . . . . .	72.00
Shop (material and use of tools) . . . . .	1.00
Drawing (material furnished) . . . . .	1.00
Uniform and cap . . . . .	14.30
Drawing instruments (complete outfit) . . . . .	8.85
Books (estimated cost) . . . . .	5.00
Laundry (estimated cost) . . . . .	10.00

Total expenses for year . . . . . \$109.65

Freshmen and first year students in Agriculture are not required to take drawing or shop work. The total of their expenses for the year is \$158.80.

A student on entering college will need about forty dollars to meet his various dues for the first month.

Students having scholarships do not pay tuition. Their total expenses are \$149.65. The first three items above, namely, tuition, room rent and fuel and lights, amounting to \$42.50, are collected in monthly payments of \$4.75 a month, on the first of each month, with no deduction for less time than one month. The registration, furniture, physical culture and medical fees are collected one-half (\$5.50) in September, or whenever the student enters, and one-half (\$5.50) in January. Students registering on the day appointed for registration are excused from paying the registration fee. Library, incidental, and lecture fees (\$4.00) are collected in September, or whenever the student

\* The above statement of expenses covers charges made in former years in the College. It is probable that changes will be made during the coming year, increasing the expenses to about two hundred dollars per annum, in order to meet the increased cost of food supplies, labor, etc. It is also probable that, beginning with the next session, term payments will be required of students at the beginning of the three terms in September, January and March, instead of monthly, as heretofore.

enters. Board is payable in installments of \$8 per month on the first day of each month from September to May, inclusive. Board for less time than one month is charged for at the rate of fifty cents a day. Choice is given between paying by the month or by the day. The College Bursar is forbidden by the Trustees to give credit, and there is no deviation from this rule.

Drawing instruments are not required in the Freshman Class nor in the First Year Mechanics Arts course until the beginning of the second term. These instruments are furnished by the College at cost to all students requiring them. New students are advised not to purchase instruments before consulting the drawing instructors.

The College rooms are supplied with necessary furniture. Each student should bring with him two pairs of blankets, two pairs of sheets, two pillow-cases and two bed-spreads for single bed.

In addition to the fees enumerated above, students are required to pay fees as follows: A fee of \$1 from students taking work in biological, physical or electrical laboratory, for material furnished. The deposits for the Chemistry Department are as follows: Inorganic laboratory, \$3; analytical laboratory, \$5; organic laboratory, \$4; determinative mineralogy and assaying, \$3. A deposit of \$3 from Juniors and \$4 from Seniors taking dyeing laboratory, to cover breakages. A deposit of \$5 from textile students, to cover cost of designing, supplies, tools, etc. Any unused portion of deposits to chemical and dyeing laboratories or to the textile department will be returned at the end of the year. If the deposit made is not sufficient to cover breakages and cost of material furnished, the students are required to make good the deficiency.

### UNIFORM.

The College uniform must be worn by all students except winter course students. It must be purchased at the College from the contractor. The uniform is of a 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 citizens' clothing, as the uniform must be worn on all occasions. Each student is required to wear an overcoat during cold weather. Overcoats may be brought from home or purchased in the city. In order to secure uniformity, dark colors (black or dark gray) are required.

### FREE TUITION.

Scholarships, one hundred and twenty in number, conferring free tuition, 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 members 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 endorsed by the person recommending him.

### 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. The work offered is mainly on the farm, in the barn, milking and feeding cattle, etc., and is for agricultural students only. There is very little work available for others, except serving in the dining-room. Young men should not rely upon material help from work the first year, as most of the work is given to students who have had a year's experience at the College. Application for work should be made before the student comes to college.

### 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 to 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 \$960.97.

### BOARD AND LODGING.

All students are expected to board in the College mess-hall and to 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.

Rooms in the College dormitories are supplied with electric lights, steam heat and all necessary furniture, except sheets, blankets, 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.

### 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 inspections, at frequent intervals, are made by the College physician. There is an abundant supply of pure water from twelve deep wells. Each student 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 College physician visits the Infirmary daily at 10 o'clock, and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times.

## COURSES OF INSTRUCTION.

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The College offers the following Courses of Instruction :

### **I. Four Year Courses :**

- 1st. Agriculture** (including Agriculture, Horticulture, Veterinary Science, Biology, and Agricultural Chemistry).
- 2d. Engineering** (including Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining Engineering, and Industrial Chemistry).
- 3d. Textile Industry** or Cotton Manufacturing (including Carding, Spinning, Weaving, Designing, and Dyeing).

These 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 degree of Bachelor of Agriculture is conferred upon a graduate in the Four Year Course in Agriculture. The degree of Bachelor of Science is conferred upon a graduate of the Four Year Course in Chemistry or Dyeing, and the degree of Bachelor of Engineering upon a graduate of either of the other Four Year Courses.

**II. Short Courses** of two years (not leading to a degree) in Agriculture, in Textile Industry, in the Mechanic Arts (including Carpentry, Wood-turning, Blacksmithing, Machine-shop Work, Drawing, and Dynamo and Engine Tending, and in Applied Electricity.

The Short Courses include nearly all the practical work of the Four Year Courses, with less theoretical instruction. They are intended for students who desire chiefly manual training or for those who are unable to complete the Four Year Courses.

**III. Winter Courses** in Agriculture and Dairying, beginning at the opening of College in January and extending to the close of the term ending in March.

**IV. Normal Courses** for the training of teachers along industrial lines.

### **V. The Summer School.**

**VI. Graduate Courses**, extending over two years and leading to advanced degrees, are intended for students who have completed the Four Year Courses and who desire further instruction and training along special lines.

## AGRICULTURAL COURSES.

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### I. The Four Year Course in Agriculture.

#### Ia. The Two Year Course in Agriculture.

#### Ib. The Winter Course in Agriculture and Dairying.

**Aim and Scope.**—The aim of the Agricultural Courses is to train young men in both the science and the practice of their profession. It is believed that every young man preparing to farm needs a double education—one that is practical, to fit him for his profession; another that is cultural, to fit him to live.

In order to meet the necessities of all young men who desire instruction in Agriculture, the College offers four distinct courses:

The four year course aims to give a training that is thoroughly practical as well as scientific in Agriculture and its various branches, such as Stock-raising, Dairying, and Horticulture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course more than one-half is prescribed in the sciences. This is done for the training and information they give, and to prepare for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domains of science, the course is essentially scientific rather than literary. Yet the College is mindful of the fundamental character of English Literature and of Political Economy as training studies, and reasonable attention to these studies is required.

The two year course is designed to meet the needs of those who are unable to take the longer course. It is especially devoted to the practical study of Agriculture and Horticulture and their various branches, and the natural sciences which are so closely related to farming.

The ten weeks winter course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention.

The ten weeks dairy course is a course in practical butter-making in accordance with the most approved methods of the modern creamery.

**Methods of Instruction.**—Instruction is by laboratory work, supplemented by text-books, lectures, and reference readings, which are almost constantly assigned from standard volumes and periodicals.

The equipment for the technical work of the course is rapidly increasing. The Department of Agriculture is fitting up laboratories for investigation in Soil Physics and in the mechanical analysis of soils. The dairy department is equipped with a modern creamery for pasteurizing, separating, creaming and churning and for investigation in dairy bacteriology.

The department makes free use of the fields, orchards and gardens, in which the Agricultural Experiment Station conducts experiments in methods of culture, in effects of several practices upon yield and upon fertility, in varieties of fruit, of vegetables and of forage crops. The methods employed and the results obtained are freely used for instruction.

In work other than purely technical the agricultural students meet the same instructors and enjoy the same privileges as other students of the College. In all departments the laboratory method is freely employed. The student uses apparatus with his own hands and consults the literature of the subject at every step.

**Self-support while a Student.**—The Board of Agriculture, in the interest of young men who are unable to meet necessary college expenses, has appropriated \$2,000 annually for student labor. This generosity on the part of the Board enables every student to pay a good part of his college expenses: some are able to meet the entire expense this way. This sum appropriated is intended solely to pay for farm work. The work is precisely the sort of work that is done on the farm—plowing, hauling, tile-laying, feeding beef cattle, feeding dairy cattle, feeding and grooming horses, running ditches and terraces, repairing machinery and tools, harvesting crops, the care of hogs, poultry, etc.

This feature in the course of Agriculture is helpful not only in defraying college expenses, but serves as a training and education as well.

**Requisites for Admission.**—Applicants for admission to the four year course in Agriculture must be at least sixteen years of age. They are examined in the following subjects: Arithmetic (complete), Algebra (through simple equations), English Grammar, and American History.

For the two year course in Agriculture no entrance examinations are required if the applicant is at least twenty years old. Applicants not twenty years old desiring to enter the two year course will stand an examination in Arithmetic (through decimal fractions), English Grammar and Composition, and American History.



For the winter courses in Agriculture and Dairying no entrance examination is required, but applicants must be over eighteen years of age.

**I. Four Year Course in Agriculture,** leading to the Degree of Bachelor of Agriculture.

**Freshman Year.**

SUBJECTS.	PERIODS PER WEEK.*		
	1st Term.	2d Term.	3d Term.
Botany, Elementary, 31 † -----	3	3	--
Botany, Systematic, 32-----	--	--	3
Zoology, 46-----	3	--	--
Physiology, 47 -----	--	3	3
Elementary Horticulture, 21-----	4	--	--
Pomology, 22-----	--	4	--
Dairying, 14 -----	--	--	4
Algebra, 88 -----	4	4	--
Geometry, 89-----	--	--	4
English, 92-----	3	3	3
Military Drill, 99-----	3	3	3

\*The lecture and recitation periods are one hour; the laboratory, shop and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

## Sophomore Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Breeds of Live Stock and Stock-judging, 1	3	--	--
Thremmatology, 2	--	3	--
Stock-feeding, 3	--	--	3
Plant Diseases, 33	3	--	--
Entomology, 51	--	3	--
Physiological Botany, 34	--	--	3
Inorganic Chemistry, 61	3	3	3
Inorganic Chemistry (laboratory), 62	2	2	2
Physics, 71	2	2	2
Free-hand Drawing, 76	2	--	--
Mechanical and Agricultural Drawing, 77	--	2	2
English, 93 and 95	2	2	2
Military Drill, 99	3	3	3

## Junior Year.

Farm Equipment, 4	4	--	--
Soils, 5	--	4	--
Farm Crops, 6	--	--	4
Veterinary Anatomy, 41	4	--	--
Veterinary Medicine, 42	--	4	--
Veterinary Practice, 43	--	--	4
Agricultural Chemistry, 66	2	2	2
Bacteriology, 36	2	2	2
Wood-work, 78	1	1	--
Forge-work, 79	1	1	--
Mechanical Technology, 80	1	1	--
Farm Machinery, 7	--	--	3
English and History, 97 and 95	2	2	2
Military Tactics, 100	1	1	1
Military Drill, 99	3	3	3

Senior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
History of Agriculture, 8.....	--	--	3
Geology, 58.....	2	2	2
English, 96 and 94.....	2	2	2
Political Economy, 98.....	2	2	2
Military Drill, 99.....	3	3	3
Elect eleven periods of the following:			
Animal Husbandry (horses), 8.....	2	--	--
Animal Husbandry (cattle), 9.....	--	2	--
Animal Husbandry (sheep and swine), 10.....	--	--	2
Agronomy, 11.....	3	--	--
Special Crops, 12.....	--	3	--
Soil Physics and Soil Management, 13.....	--	--	3
Dairy Bacteriology, 15.....	3	--	--
Experimental Dairying, 16.....	--	3	--
Dairy Seminary, 17.....	--	--	3
Veterinary Medicine, 44.....	3	3	3
Market Gardening, 23.....	3	--	--
Forestry, 24.....	--	5	--
Landscape Gardening, 25.....	--	--	3
Plant Diseases (advanced), 37.....	2	--	--
Entomology (advanced), 52.....	--	2	2
Economic Botany, 35.....	--	--	2
Industrial Chemistry, 63.....	2	2	2
Organic Chemistry, 63.....	2	2	2
Analytical Chemistry (laboratory), 64.....	5	--	--
Agricultural Chemical Analysis (laboratory), 65.....	--	5	5

Ia. The Two Year Course in Agriculture.  
First Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Botany, Elementary, 31.....	3	3	--
Botany, Systematic, 32.....	--	--	3
Elementary Horticulture, 21.....	--	4	--
Pomology, 22.....	--	--	4
Dairying, 14.....	4	--	--
Zoology, 46.....	3	--	--
Physiology, 47.....	--	3	3
Arithmetic, 83.....	5	--	--
Algebra, 87.....	--	5	5
English, 91.....	3	3	3
Military Drill, 99.....	3	3	3

Second Year.

Breeds of Live Stock and Stock-judging, 1.....	3	--	--
Thremmatology, 2.....	--	3	--
Stock-feeding, 3.....	--	--	3
Farm Equipment, 4.....	4	--	--
Soils, 5.....	--	4	--
Farm Crops, 6.....	--	--	4
Veterinary Anatomy, 41.....	4	--	--
Veterinary Medicine, 42.....	--	4	--
Veterinary Practice, 43.....	--	--	4
Plant Diseases, 38.....	3	--	--
Entomology, 51.....	--	3	--
Forge Work, 79.....	--	--	1
Carpentry Work, 78.....	--	--	1
Farm Machinery, 7.....	--	--	1
Inorganic Chemistry, 61.....	3	3	3
Inorganic Chemistry (laboratory), 62.....	2	2	2

**WINTER COURSES IN AGRICULTURE AND DAIRYING.**

**General Statement.**—The Winter Course in Dairying and the Winter Course in Agriculture are designed to meet the wants of young men who are ambitious to excel in their chosen vocation of farming and who feel the need of more and better preparation before taking up their life-work. The subjects presented in the two courses are those about which every young farmer should have definite and clear knowledge. In their treatment the topics are handled in such a way as to make the information to the student useful in the highest possible degree.

There is no longer any question concerning the value of advanced, definite knowledge concerning agriculture to those who follow farming. Education and training pay on the farm as they do elsewhere in life.

The expenses of the course are so little, and the good to be derived so great, no young man in North Carolina can afford to miss the opportunity of getting this training so necessary in his work. The money necessary to meet the expenses for a whole term's instruction can be earned in a month or two before attending. Therefore no young man, even though he possess but a few dollars, can afford to miss the opportunity for training in his work.

The studies offered are dairying, stock-raising, creamery practice, stock-feeding, diseases of farm animals, dairy farming, breeding farm animals, entomology, dairy chemistry, farm economics, and book-keeping. The class-room work is supplemented by practice in the creamery, barn, green-house and work-shop.

**Equipment.**—The work in dairying, which includes butter-making, milk-testing, handling cream separators, pasteurizing cream and milk, and dairy bacteriology, is given in the Dairy Building. The building is equipped with separators, milk-testers, pasteurizer, and all tools required in making butter and preparing milk or cream for the city markets.

**Requirements for Admission.**—No entrance examination is required, but the students taking either the Dairy or Winter Course must be at least eighteen years of age and should have a common-school education.

**Expenses—College Dues.**—Each student is required to pay a laboratory fee of five dollars. Tuition and instruction are entirely free.

**Other Expenses**—Books and note paper will cost from two to three dollars, and two white duck suits to wear in the dairy laboratory will cost one dollar each. The suits, however, are not required.

Board and room may be secured for \$2.50 per week. The total expenses of the whole ten weeks need not exceed thirty dollars.

### **Ib. The Winter Course in Agriculture and Dairying.**

**Butter-making.**—This course includes all practical operations of creamery management. The student works with the guidance and under the direction of the instructor at the same operations of butter-making, or pasteurizing, or milk-testing, until proficiency is obtained. He is required to follow the milk from the time it enters the laboratory and creamery until the product leaves it, and to determine the points in processes where losses occur and reasons why they occur. Six periods. Mr. KENDALL.

**Milk and Butter Production.**—This course consists of lectures and recitations on the methods of taking care of milk and the manufacturing of it into other products, also lectures upon construction, equipment and operation of creameries, dairies and milk depots. Each student is required to draw a plan of a farm dairy and prepare an estimate for equipment of same. Two periods. Mr. KENDALL.

**Feeds and Feeding and Stock-raising.**—This subject consists of an elementary study of the composition of foods; the constituents of feeding, amount, combination and form necessary to give best results with various kinds of live stock.

The student is required to calculate digestibilities and nutritive ratios and to arrange therefrom proper feeding rations. Two periods. Professor BURKETT.

**Dairy Farming.**—Lectures are given under this subject upon the history, adaption, care and management of the different breeds of dairy cattle. Dairy animals are studied by the score card, in accordance with the practice of judging animals for dairy purposes.

Instruction will also be given upon the character of food-stuffs, the relation of food to the animal, and kind and quality of food for the best milk production. Two periods. Professor BURKETT.

**Soil Study.**—Lectures and recitations upon composition, formation, kinds and physical properties of soil and their improvement by cultivation, natural and artificial fertilizers, drainage, etc.

The work in classroom is supplemented by work in the field and soil physics laboratory. One period. Assistant Professor McCLELLAND.

**Farm Crops.**—In this subject is included rotation of crops, green manuring, and a critical study of corn and cotton; judging of corn; condition of germination and growth, and improvement by selection and breeding. One period. Assistant Professor McCLELLAND.

**Soils and Fertilizers.**—Lectures on fertilizers and fertilizing materials and on the typical classes of North Carolina soils. Two periods, five weeks. Director KILGORE.

**Farm Chemistry.**—Lectures on air, water, the chemistry of plant and animal nutrition, and the composition of milk and its products. Two periods. Professor WITHERS.

**Plants.**—This course treats of plants in general, embracing such subjects as plant breeding, seed selection, seed testing, plant propagation and nutrition, classification, plant disease and its prevention, and bacteria and fungi in their relation to farm produce, treating of both the beneficial bacteria of farm operations and the injurious bacteria that produce disease, etc. Two periods. Professor STEVENS.

**Economic Entomology.**—This is a short course in which the more important noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Two periods. Mr. SHERMAN.

**Diseases of Live Stock.**—The lectures on this subject consist of Elementary Veterinary Anatomy and Physiology with special reference to the digestive and reproductive organs and the most common diseases and their treatment. Four periods. Professor BUTLER.

**Book-keeping.**—This subject consists of the practical study of farm accounts, supplemented by numerous original examples and sets for practice. One period. Professor HILL.

**Farm Economics.**—This is an elementary course, dealing with production, distribution, and exchange of wealth. The leading topics discussed are capital, wages, money, transportation and taxation. One period. President WINSTON.

## AGRICULTURE.

### Equipment.

The College possesses the following equipment for instruction in Agriculture:

The farm includes six hundred acres, with two hundred and fifty acres under cultivation; a large three-story basement barn, 50 by 72 feet. The first floor is occupied by farm implements and machinery; the second story is occupied by horses, grain bins, cutting implements, etc.; the third story, by hay, which is elevated by a Ricker and Montgomery hay carrier. Just outside the barn are two 70-ton silos and one 125-ton silo. These are connected with a No. 18 Ohio feed and ensilage cutter. Power for cutting is supplied by an eight-horse

power Skinner engine. The farm is supplied with all necessary machinery for the most successful and up-to-date farming.

The Dairy Building contains three rooms and cellar, and is supplied with DeLaval, Sharpless, United States, Empire, National, and Reid Separators, Babcock Testers, various kinds and makes of churns, butter-workers, and cheese apparatus, etc.

The live stock consists of necessary horses and mules, a herd of dairy cattle, and a herd of swine. The Poland China and Berkshire swine are pure bred, and from high-class specimens. Breeding-stock is sold as a part of the farm products.

The poultry-yard is divided into sixteen lots. The buildings consist of incubator cellar, brooder-house, and hen-houses. Several different incubators are used. The poultry-yards contain the following breeds. White Wyandotte, White and Barred Plymouth Rock, Black Minorca, Brown Leghorn, Light Brahmas and Pekin Ducks.

### Subjects of Instruction.

**1. Breeds of Live Stock.**—Lectures and recitations upon the history, characteristics, care and management, and adaptation of the different breeds of live stock. Practical exercises are given in scoring and judging the various kinds of live stock with the score card. Three periods, first term. For Sophomores and second-year students. Professor BURKETT.

**2. Thremmatology.**—Lectures and recitations upon the laws of inheritance, and the principles and phenomena of evolution as applicable to the improvement of animals or plants. The aim is to bring every known principle of reproduction to the assistance of the breeder's art. Practical exercise in scoring and judging live stock, and in writing and tracing pedigrees. Three periods, second term. For Sophomores and second-year students. Professor BURKETT.

**3. Stock-feeding and Hygiene.**—Lectures and exercises upon the laws of nutrition, and the character of food-stuffs, and the kind and quality of foods to produce certain results. Practical exercises in calculating digestibility, nutritive ratios and feeding standards. Three periods, third term. For Sophomores and second-year students. Professor BURKETT.

**4. Farm Equipment.**—Lectures and recitations upon selecting, planning and equipping farms; planning and erecting farm buildings; farm vehicles and machinery; power, water and drainage; practical exercise in drawing plans of farms and farm buildings; leveling and laying drains, dynamometer tests of wagons and farm



implements, etc. Four hours, first term. For Juniors and second year students. Assistant Professor McCLELLAND.

**5. Soils.**—Lectures and recitations upon composition, formation, kinds and physical properties of soils and their improvement by cultivation, natural and artificial fertilizers, drainage and irrigation. Practical exercises in testing physical properties of several soils, determining the relation of soils to heat, moisture, air and fertilizers, and mechanical analysis. Four hours, second term. For Juniors and second year students. Assistant Professor McCLELLAND.

**6. Farm Crops.**—Lectures and recitations upon the history, production, harvesting and marketing of farm crops. Practical exercise with growing and dried specimens of farm crops, including grasses, clovers and other forage crops. Four hours, third term. For Juniors and second year students. Assistant Professor McCLELLAND.

**7. Farm Machinery.**—Lectures and laboratory work on the tools and machinery of the farm, in reference to their design, construction, draft, durability and care. The student is required to set up and test the various machines used on the farm. Three hours, third term. For Juniors and second year students. Assistant Professor McCLELLAND.

**8. Animal Husbandry.**—A critical study of the horse; his breeding and management; gaits; practice in expert judging of horses. Two periods, first term. For Seniors. Professor BURKETT.

**9. Animal Husbandry.**—A critical study of beef and dairy cattle; the breeding, feeding and management, and practice in expert judging of cattle. Two periods, second term. For Seniors. Professor BURKETT.

**10. Animal Husbandry.**—A critical study of sheep and swine in reference to type, wool or mutton; pork or bacon. The breeding, feeding and management of sheep and swine, and practical exercise in expert judging sheep and swine. Two periods, third term. For Seniors. Professor BURKETT.

**11. Agronomy.**—A critical study of the farm crops, corn and cotton; judging corn; conditions of germination and growth, and improvement by selection and breeding. Three periods, first term. For Seniors. Assistant Professor McCLELLAND.

**12. Special Crops.**—Special crops will be studied by the student in the laboratory and field. Three periods, second term. For Seniors. Assistant Professor McCLELLAND.

**13. Soil Physics and Management.**—This course is designed for advanced work in the study of soils, both in the laboratory and the

field. Three periods, third term. For Seniors. Assistant Professor McCLELLAND.

**14. Dairying.**—Practice and occasional lectures. The course consists in general management of modern dairying, the methods of milk analysis, the bacteriology of milk, the use of separators, the testing of milk, ripening of cream, churning, working, packing, and scoring butter. Four periods, third term. For Freshmen. Four periods, first term. For first year students. Professor BURKETT and Mr. KENDALL.

**15. Dairy Bacteriology.**—A laboratory course in the study of bacteria in its relation to creamery, butter-making, and cheese production. Three periods, first term. For Seniors. Mr. KENDALL.

**16. Experimental Dairying.**—Laboratory practice in making butter and cheese. Three periods, second term. For Seniors. Mr. KENDALL.

**17. Dairy Seminary.**—Laboratory practice in making butter and cheese of special commercial importance. Three periods, third term. For Seniors. Mr. KENDALL.

**18. History of Agriculture and Rural Economics.**—Lectures upon the history of agriculture; present agricultural methods in various counties, cost and relation, profits of various farm operations and systems. Three periods, third term. For Seniors. Professor BURKETT.

## HORTICULTURE.

### Equipment.

Twenty-three acres of land comprise the Horticultural Experiment farm. There is ample equipment of barns, silos, stock, and machinery. There are five communicating greenhouses, 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. There 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 greenhouses 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.

### Subjects of Instruction.

**21. Elementary Horticulture.**—Four periods, first term. Required of Freshmen. Four periods, second term. Required of first year students. Assistant Professor McCLELLAND.

**22. Pomology.**—Four periods, second term. Required of Freshmen. Four periods, third term. Required of first-year students. Assistant Professor McCLELLAND.

**23. Market Gardening.**—Lectures on the theory and practice of growing vegetables in open ground and under glass commercially. Three periods, first term. Elective for Seniors.

**24. Forestry.**—Lectures on forest influences and methods of forest management, timbers and forest products. Three periods, second term. Elective for Seniors.

**25. Landscape Gardening.**—Lectures on the history of the garden art and styles of ornamental gardening, planning of country places and farm-houses, and improvement of grounds in general. Three periods, third term. For Seniors.

## BOTANY AND VEGETABLE PATHOLOGY.

### Equipment.

The biological laboratory is equipped with the books, specimens, sterilizers, incubators, microscopes, microtomes and small utensils needed in the prosecution of the work. The excellent herbarium has been mounted and is now accessible for class use. There is an extensive collection of seeds of both weeds and cultivated plants, and most of the important plant diseases are represented by herbarium and alcoholic specimens. The greenhouse is of great utility as a source of material, for seed-testing and for conducting physiological experiments.

### Subjects of Instruction.

**31. Elementary Botany.**—Weekly lectures, accompanied by laboratory work and reference reading regarding the algae, fungi, ferns, and seed plants. Morphology is emphasized, and the broad principles of nutrition, reproduction, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The student's knowledge is made his own through field-work and independent investigation. Three periods, first and second terms. Required of Freshmen and first year students. Professor STEVENS.

**32. Systematic Botany and Ecology.**—The student becomes acquainted with the principal orders and families of plants of North Carolina as well as with the general problems of plant classification. More attention is given to the grouping of plants into societies and to the study of plant variation and adaptation than to mere collecting and classifying. The principles of plant breeding, crossing, pollination, budding, and grafting are taught. Three periods, third term. Required of Freshmen and first year students. Professor STEVENS.

**33. Plant Diseases.**—Lectures and laboratory study of the principal types of plant diseases produced by bacteria, fungi or physiological derangement, with specific consideration of the methods of treatment. This course emphasizes the principles of plant disease and places the student in a position to employ prophylactic and remedial methods rationally. Three periods, first term. Required of Sophomores and second year students. Professor STEVENS.

**34. Physiological Botany.**—Lectures, demonstrations and laboratory work, treating of plant nutrition, reproduction, and growth. Especial attention is given to phases of the subject bearing most directly upon plant culture. Three periods, third term. Required of Sophomores. Professor STEVENS.

**35. Economic Botany.**—A study of the more important groups of economic plants, weeds and medicinal plants, seed-testing, nitrification, denitrification, and nitrogen fixation, origin of cultivated plants and of bacteria and fungi in their relation to Agriculture. Two periods, third term. Elective for Seniors. Professor STEVENS.

**36. General Bacteriology.**—Lectures and laboratory work on the nature, physiology, morphology, and economy of bacteria, with especial reference to home sanitation, disinfection, and to the relation of bacteria to disease in plants and animals. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Two periods. Required of Juniors. Professor STEVENS.

**37. Plant Disease (Advanced).**—Methods of culture and investigation of plant disease. This course is intended to prepare the student for original investigation in plant diseases. Two periods, first term. Elective for Seniors. Professor STEVENS.

## VETERINARY SCIENCE.

The object of the teaching in this department is not to turn out veterinarians, but to more thoroughly equip the agricultural student for the breeding and management of live stock. In addition to the work required of all students in the Agricultural courses, as outlined

below, the Senior students in the four year course in Agriculture may elect to do three periods a week during the entire year. When so elected, this work will be of a more advanced nature, but supplementary to that required of all students in the Agricultural courses.

**41. Veterinary Anatomy.**—Lectures, illustrated by charts, models and sketches, and, when practicable, by dissections.

Special attention will be given to the organs of digestion and locomotion and such other parts as are of particular interest to the stock farmer. Four periods, first term. Required of Juniors and second year students. DOCTOR ROBERTS.

**42. Veterinary Medicine.**—Lectures on the actions, uses, and doses of the most common veterinary medicines, and the nature and cause of disease, with special reference to its prevention. Four periods, second term. Required of Juniors and second year students. PROFESSOR BUTLER and DOCTOR ROBERTS.

**43. Veterinary Practice.**—Lectures on the most common diseases and injuries of domestic animals, with appropriate treatment for the same. When practicable, these lectures will be illustrated by clinics, which will enable the student to become more familiar with the different diseases and perform minor surgical operations under the direction of the Instructor. Four periods, third term. Required of Juniors and second year students. PROFESSOR BUTLER and DOCTOR ROBERTS.

**44. Veterinary Medicine.**—Advanced course in veterinary medicine and surgery, with clinical practice. Three periods. For Seniors. PROFESSOR BUTLER.

## ZOOLOGY.

**46. Elementary Zoology.**—The fundamental principles of animal life, together with a knowledge of the structure and classification of animals, are developed by lectures, laboratory work, and reading. One term is devoted to vertebrates and invertebrates exclusive of insects but including some of the common parasites infesting man and the domestic animals. This course is intended to present a general view of the animal kingdom and to lay a foundation for the more special subjects that are to follow. Three periods, first term. Required of Freshmen and first year students. DOCTOR ROBERTS.

**47. Animal Physiology.**—A comparative study of the bodily functions of man and of the domestic animals. The subject will be covered by lectures and recitations, with laboratory experiments to illustrate principles of physiology. Three periods, second and third terms. Required of Freshmen and first year students. DOCTOR ROBERTS.

**ENTOMOLOGY.**

**51. Elementary Entomology.**—Elements of insect structure and classification. Injurious insects and remedies; *a*, of orchards; *b*, of small fruits; *c*, of truck and garden crops; *d*, of cotton, corn, tobacco, grains, and grasses; *e*, of forest, shade, and ornamental plants; *f*, of barn, mill and household. Three periods, second term. Required of Sophomores. Mr. SHERMAN and Mr. BENTLEY.

**52. Entomology (Advanced).**—Systematic study of orders and families of insects, with special reference to structure, classification, life-history and habits. Lectures and laboratory practice. Two periods, second and third terms. For Seniors. Mr. SHERMAN and Mr. BENTLEY.

**GEOLOGY.**

**58. Geology.**—Scott's *Introduction to Geology*. In the first part of the course the principles of Dynamical Geology, the forces which have modified and are still modifying the earth, are considered. The results of those forces are seen and studied in the structure of the earth and in the phenomena of volcanoes, earthquakes, faults and folds, crust movements, etc. In the latter part of the course the life history of the earth as recorded in the rocks is studied. Special attention is given to the commonly occurring rocks and ores, and the main features of the geology of North Carolina form an integral part of the course. The text is supplemented by lectures. Two periods. Required of Seniors. Dr. WALKER.

**CHEMISTRY.\***

**61. Inorganic Chemistry.**—Remsen's *College Chemistry*. The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated with experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Dr. WALKER.

**62. Inorganic Chemistry.**—Laboratory work. Remsen and Randall's *Laboratory Guide*. 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. Two periods. Required of Sophomores. Mr. GARDNER.

\*For further information, see course in Chemistry.

**63. Organic Chemistry.**—Remsen's *Introduction to the Study of the Compounds of Carbon*. The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Elective for Seniors. MR. HASKELL.

**64. Analytical Chemistry.**—Treadwell's *Qualitative Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work in qualitative analysis. The student is taught to detect the presence of the common metallic elements, as well as of the acids in unknown substances. Five periods. Elective for Juniors. DR. SMITH.

**65. Analytical Chemistry.**—Clowes and Coleman's *Quantitative Analysis*. Introductory work in gravimetric and volumetric analysis during the first term. During the rest of the year the work of the student in quantitative analysis is continued, embracing analyses of the substances most closely related to his work, as fertilizers, feeding stuffs, milk, butter, etc. Four periods. Elective for Seniors who have taken course 64 in qualitative analysis. DR. SMITH.

**66. Agricultural Chemistry.**—Ingle's *Agricultural Chemistry*. A study of the facts obtained by the application of chemistry and chemical methods of investigation to agriculture. The laws of plant and animal nutrition, the economical feeding of plants and animals, and the maintenance of the fertility of the soil are considered from the chemical standpoint. Two periods. Required of Juniors. PROFESSOR WITHERS.

**68. Industrial Chemistry.**—Thorpe's *Outlines of Industrial Chemistry*. A discussion of the processes and principles involved in the more important chemical industries, particularly those whose raw materials are supplied by agriculture or whose products are utilized in agriculture. Two periods. Elective for Seniors. PROFESSOR WITHERS.

### PHYSICS.\*

**71. Elementary Physics.**—Properties of matter; fundamental units. British and metric standard measures; definitions of force, work, and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Two periods. Required of Sophomores. PROFESSOR PAINE.

\*For full information in regard to the Department of Physics, see course in Electric Engineering.

## DRAWING.\*

**76. Free-hand Drawing.**—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Two periods, first term. Required of Sophomores. Mr. ST. AMANT.

**77. Elementary Mechanical Drawing.**—Use of instruments; geometric drawing; elementary projection; isometric and cabinet drawing; drawings made to scale from working sketches of pieces of a machine. Two periods, second and third terms. Required of Sophomores. Mr. ST. AMANT.

## SHOP-WORK.†

**78. Wood-work.**—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in wood; elementary exercises in wood-turning. One period, first and second terms. Required of Juniors and second year students. Mr. BRAGG.

**79. Forge-work.**—Exercises in forging and welding; making exercises of iron; care of forge tools and fires. One period, first and second terms. For Juniors and second year students. Mr. DEAL.

**80. Mechanical Technology.**—Classification and uses of wood-working and forging tools and machines; methods of wood-working and forging; care of belting and shafting. One period, first and second terms. For Juniors and second year students. Mr. BRAGG.

## MATHEMATICS.‡

**86. Arithmetic.**—Begin with decimal fractions and complete the subject. Five periods, first term. Milne's *Standard Arithmetic*. Required of first year students. Mr. MANN and Mr. MACCALL.

**87. Algebra.**—Up to quadratic equations. Wells' *Higher Algebra*. Five periods, second and third terms. Required of first year students. Mr. MANN and Mr. MACCALL.

**88. Advanced Algebra.**—Wells' *Higher Algebra*. Begin at quadratic equations; general theory of equations, solution of higher equations, etc. Four periods, first term. Required of Freshmen. Mr. LANG.

**89. Geometry.**—Plane and solid. Wentworth's *Plane and Solid Geometry*. Four periods, second and third terms. Required of Freshmen. Mr. MACCALL.

\*For full information in regard to shop-work, drawing and other Mechanical Engineering subjects, see course in Mechanical Engineering.

†For full information in regard to shop-work, drawing and other Mechanical Engineering subjects, see course in Mechanical Engineering.

‡For full information in regard to Mathematics, see course in Civil Engineering.



**ENGLISH.**

**91. English Composition.**—A drill upon the forms of the language, the correct relation of words, the sentence, and the paragraph. Daily written exercises. Three periods. Required of first year students. Doctor SUMMEY and Mr. MASON.

**92. Introductory Composition and Rhetoric.**—This course in the fundamentals of rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill upon grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods. Required of Freshmen. Professor HILL, Doctor SUMMEY and Mr. MASON.

**93. Rhetoric, Criticism, Essays.**—The student is taught the essentials of a good style by constant practice. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Two periods, second term. Professor HILL, Doctor SUMMEY and Mr. MASON.

**94. Argumentation.**—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

**95. American Literature.**—By means of an introductory text and by much reading students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Two periods, third term. Required of Sophomores. Professor HILL, Doctor SUMMEY and Mr. MASON.

**96. English Literature.**—The development of English literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two hours, third term. Required of Juniors. Two periods, first and second terms. Required of Seniors. Professor HILL.

**HISTORY.**

**97. English History.**—The text is supplemented by lectures on important periods. Two periods, first term. Required of Juniors. Professor HILL.

**POLITICAL ECONOMY.**

**98. 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. Two periods. President WINSTON.

**MILITARY SCIENCE.**

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

**100. Tactics.**—Theoretical instruction in the Schools of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Outposts, Manual of Guard Duty, etc. One period. Required of Juniors. Captain PHELPS.

## ENGINEERING COURSES.

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### Four Year Courses in

- II. Civil Engineering,
- III. Mechanical Engineering,
- IV. Electrical Engineering,
- V. Mining Engineering,
- VI. Industrial Chemistry.

### Two Year Courses in

- IIIa. Mechanic Arts,
- IVa. Applied Electricity.

### COURSE IN CIVIL ENGINEERING.

The aim of the Course in Civil Engineering is to give such training as will enable our young men to take an active part in the work of advancing our State along material lines—developing its water-power, building railroads and public highways, constructing water supply and sewerage systems for our towns, etc. The student is given a large amount of practical work in the field and drafting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in drafting. At the same time it is recognized that a successful engineer requires a well-trained mind—one that reasons logically, accurately and quickly. Therefore a thorough course is given in Pure Mathematics and in all those branches of Applied Mathematics which are involved in the solution of engineering problems.

The aim has been to make this pre-eminently a technical course, yet subjects of general culture are included in order to give the student a broader mental training and better preparation for social and business life.

**II. The Four Year Course in Civil Engineering,** leading to the degree of Bachelor of Engineering.

## Freshman Year.

SUBJECTS.	PERIODS PER WEEK.*		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135 †	2	--	--
Mechanical Drawing, 136	--	2	2
Wood-work, 146	1	1	1
Forge-work, 147	1	1	1
Mechanical Technology, 152	1	1	1
Algebra, 123	5	--	--
Geometry, 124	--	5	5
Physics, 176	4	4	4
English, 272	3	3	3
Military Drill, 299	3	3	3

## Sophomore Year.

Architecture, 115	2	--	--
Architectural Drawing, 116	2	2	2
Geometry, 124	4	--	--
Trigonometry, 125	--	4	4
Descriptive Geometry, 165	--	2	2
Electricity and Magnetism, 177	2	2	2
Inorganic Chemistry, 216	3	3	3
Inorganic Chemistry (laboratory), 217	2	2	2
English, 273 and 275	2	2	2
Military Drill, 299	3	3	3

\*The lecture and recitation periods are one hour; the laboratory, shop and other practice periods, two hours.

†The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

## Junior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Surveying, 102 and 103.....	2	2	2
Surveying (field-work), 104.....	2	2	2
Construction, 111.....	2	--	--
Mechanics, 128.....	3	3	3
Drawing, 105.....	2	2	2
Graphic Statics, 101.....	--	2	2
Analytical Geometry, 126.....	4	4	--
Calculus, 127.....	--	--	4
English and History, 283 and 276.....	2	2	2
Military Tactics, 306.....	1	1	1
Military Drill, 299.....	3	3	3

## Senior Year.

Astronomy, 114.....	--	2	2
Mechanics of Materials, 112.....	3	--	--
Construction, 111.....	--	2	2
Road-building, 113.....	2	--	--
Roofs and Bridges, 109.....	3	--	--
Bridge Design, 106.....	--	3	3
Municipal Engineering, 107.....	--	2	2
Surveying (field-work), 108.....	2	2	2
Hydraulics, 110.....	--	2	2
Calculus, 127.....	3	--	--
English, 276 and 274.....	2	2	2
Political Economy, 296.....	2	2	2
Military Drill, 299.....	3	3	3

**CIVIL ENGINEERING.****Equipment.**

There is a complete equipment of all instruments necessary to civil engineering field-work.

**Subjects of Instruction.**

**101. Graphic Statics.**—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second and third terms. Required of Juniors in Civil and in Mining Engineering. Professor RIDDICK.

**102. Surveying.**—Land surveying, levelling, elements of triangulation, topographical surveying, road-making. Merriman's *Land Surveying*. Two periods, first term. Required of Juniors in Civil and in Mining Engineering and of Seniors in Mechanical Engineering. Mr. LANG.

**103. Railroad Engineering.**—Reconnoissance, preliminary and location surveys, cross-sections, etc. Searles' *Field Engineering*. Two periods, second and third terms. Required of Juniors in Civil and in Mining Engineering. Mr. LANG.

**104. Surveying.**—Field-work. Use of instruments, compass, level, transit and plane table. Practical work in land surveying, topography, levelling, railroad surveying, working up notes and platting. Two periods. Required of Juniors in Civil and in Mining Engineering. Two periods, second and third terms. Required of Seniors in Mechanical Engineering.

**105. Drawing.**—Descriptive Geometry, Stereotomy. Text-book, lectures, problems and completed drawings. Two periods, second and third terms. Required of Sophomores in Civil Engineering. Two periods. Required of Juniors in Civil Engineering. Mr. LANG.

**106. Bridge Design.**—Calculation of stresses, design, specifications and estimate of cost of a wooden roof truss and a steel highway bridge. Three periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

**107. Municipal Engineering.**—Text-books, lectures. Two periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

**108. Surveying.**—Field-work. Triangulation and topography, surveys for sewers, water-works, etc. Two periods. Required of Seniors in Civil Engineering. Mr. MANN.

**109. Roofs and Bridges.**—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and*

*Bridges.* Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

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

**111. Construction.**—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction*. Lectures. Two periods, first term. Required of Juniors in Civil and in Mining Engineering. Two periods, second and third terms. Required of Seniors in Civil and in Mining Engineering. Professor RIDDICK.

**112. Mechanics of Materials.**—Study of stresses in beams, columns, etc. Merriman's *Mechanics of Materials*. Three periods, first term. Required of Seniors in Civil and in Mechanical Engineering. Professor RIDDICK.

**113. Road-building.**—Text-book on construction of roads, streets and pavements. Lectures on practical road-making in North Carolina. Two periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

**114. Astronomy.**—Determination of Azimuth, Latitude and Longitude, Time. Comstock's *Astronomy for Civil Engineers*. Two periods, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

## ARCHITECTURE.

**115. Architecture.**—Building materials, methods of constructing buildings, plans, specifications, bill of materials, estimate of cost, design of buildings. Lectures. Two periods, first term. Required of Sophomores in Civil Engineering. Professor RIDDICK.

**116. Architectural Drawing.**—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Mr. MANN.

## MATHEMATICS.

**121. Arithmetic.**—Milne's *Standard Arithmetic*. Begin with decimal fractions and complete the subject. Five periods, first term. Required of first year students. Mr. MACCALL and Mr. MANN.

**122. Algebra.**—Wells' *Higher Algebra*. Up to quadratic equations. Five periods, second and third terms. Required of first year students. Mr. MANN, Mr. LANG and Mr. MACCALL.

**123. Advanced Algebra.**—Wells' *Higher Algebra*. Begin at quadratic equations; general theory of equations, solution of higher equations, etc. Five periods, first term. Required of all Freshmen and of second year students in Mechanic Arts. Mr. YATES and Mr. MACCALL.

**124. Geometry.**—Plane and Solid. Wentworth's *Plane and Solid Geometry*. Five periods, second and third terms. Required of all Freshmen and of second year students in Mechanic Arts. Four periods, first term. Required of Sophomores. Mr. YATES.

**125. Trigonometry.**—Four periods, second and third terms. Required of Sophomores. Mr. YATES.

**126. Analytical Geometry.**—Nichols' *Analytical Geometry*. Conic sections, higher plane curves, Geometry of three dimensions. Four periods, first and second terms. Required of Juniors in Engineering. Mr. YATES.

**127. Calculus.**—Osborne's *Elements of Calculus*. Differential and integral, elements of differential equations. Four periods, third term. Required of Juniors. Three periods, first term. Required of Seniors in Engineering. Professor RIDDICK.

**128. Mechanics.**—Nature and measurement 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. Three periods. Required of Juniors in Engineering. Professor DICK and Mr. LANG.

**129. Book-keeping.**—The work in the text-books supplemented by numerous original examples and sets for practice. One period. Required of Freshmen. Mr. MANN and Mr. MACCALL.

### COURSES IN MECHANICAL ENGINEERING AND MECHANIC ARTS.

The regular Four Year Course in Mechanical Engineering is intended to fit the student for positions of responsibility in engineering work, and also to furnish him with a basis to carry on more advanced engineering studies. It treats of the development and transmission of power, the design and construction of machines, and the calibration and efficiency tests of machinery, boilers and engines.

The Two Year Course is offered to students who wish to become machinists, draughtsmen, stationary engineers or dynamo tenders.

**III. The Four Year Course in Mechanical Engineering,** leading to the degree of Bachelor of Engineering.



## Freshman Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135 .....	2	--	--
Mechanical Drawing, 136 .....	--	2	2
Wood-work, 146 .....	1	1	1
Forge-work, 147 .....	1	1	1
Mechanical Technology, 152 .....	1	1	1
Algebra, 123 .....	5	--	--
Geometry, 124 .....	--	5	5
Physica, 176 .....	4	4	4
English, 272 .....	3	3	3
Military Drill, 299 .....	3	3	3

## Sophomore Year.

Descriptive Geometry Drawing, 137 .....	2	--	--
Mechanical Drawing, 139 .....	--	2	2
Forge-work, 148 .....	1	--	--
Pattern-making, 149 .....	--	1	1
Geometry, 124 .....	4	--	--
Trigonometry, 125 .....	--	4	4
Electricity and Magnetism, 177 .....	2	2	2
Physical (laboratory), 178 .....	1	1	1
Inorganic Chemistry, 216 .....	3	3	3
Inorganic Chemistry (laboratory), 217 .....	2	2	2
English, 273 and 275 .....	2	2	2
Military Drill, 299 .....	3	3	3

## Junior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Boilers, 157.....	2	--	--
Steam-engines, 158.....	--	2	--
Valve Gears, 159.....	--	--	2
Mechanics, 128.....	3	3	3
Machine Design, 140.....	2	2	2
Machine-shop Work, 150.....	2	2	2
Dynamo Machinery, 183.....	2	2	2
Analytical Geometry, 126.....	4	4	--
Calculus, 127.....	--	--	4
English and History, 283 and 276.....	2	2	2
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	3	3

## Senior Year.

Machine Design, 141.....	2	3	3
Machine-shop Work, 151.....	3	3	3
Power Plants, 161.....	2	--	--
Gas Engines, 162.....	--	2	--
Refrigeration, 163.....	--	--	2
Heating and Ventilation, 166.....	--	1	1
Pumping Machinery, 165.....	--	1	--
Materials of Engineering, 167.....	--	--	1
Mechanics of Materials, 112.....	3	--	--
Steam Engineering Laboratory, 168.....	--	1	1
Surveying, 102 and 104.....	2	2	2
Calculus, 127.....	3	--	--
Hydraulics, 110.....	--	2	2
English, 276 and 274, or Political Economy, 296.....	2	2	2

## IIIa. The Two Year Course in Mechanic Arts.

## First Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135 .....	2	--	--
Mechanical Drawing, 136 .....	--	2	2
Wood-work, 146 .....	2	2	2
Forge-work, 147 .....	1	1	1
Mechanical Technology, 152 .....	1	1	1
Arithmetic, 121 .....	5	--	--
Algebra, 122 .....	--	5	5
English, 271 .....	3	3	3
History, 281 .....	2	2	2
Military Drill, 299 .....	3	3	3

## Second Year.

Mechanical Drawing, 171 .....	2	2	2
Machine-shop Work, 151 .....	3	3	3
Drawing, 171, or Machine-shop Work, 157 .....	3	3	3
Mechanical Technology, 172 .....	2	2	2
Steam and Steam Machinery, 173 .....	2	2	2
Physics, 195 .....	5	--	--
Electricity, 196 .....	--	5	--
Electrical Laboratory, 197 .....	--	--	5
Algebra, 123 .....	5	--	--
Geometry, 124 .....	--	5	5
Military Drill, 299 .....	3	3	3

**MECHANICAL ENGINEERING.****Equipment.**

The drawing and recitation-rooms 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, machine shop, forge shop, wood-turning shop, carpenter shop, office and library. On the second floor are the office, three drawing-rooms and a wood-finishing room, in which are kept on file various scientific and technical journals, 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.

The department is provided with the necessary apparatus for making boiler and engine tests and for other work of an experimental character. The equipment consists of a two-horse-power engine, a ten-horse-power engine, a one-horse-power gasoline engine (all of which were built by students), a twenty-five-horse-power Woodbury engine, a Wheeler surface condenser, connected with a  $4\frac{1}{2} \times 6 \times 6$  Blake air-pump, an Ericsson hot-air pumping engine, apparatus for making analyses of flue gases, a fuel calorimeter, a water motor, a Worthington water-meter, a complete Westinghouse air-brake equipment, a New York air-brake equipment in section, friction brakes, weirs, indicators, planimeters, slide rules, thermometers, calorimeters, gauges, tanks, scales, a Crosby gauge tester, and other apparatus for making tests.

The boiler-house is equipped with one thirty-horse-power and two forty-horse-power horizontal return tubular boilers and two seventy-five-horse-power Babcock and Wilcox boilers and several pumps, all of which are available for experimental purposes.

The shops are equipped as follows:

The wood-working equipment consists of fifteen double carpenters' benches, which accommodate thirty students, and all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip and a cut-off saw bench, foot-feed, with dado attachment; a double revolving rip and cut-off saw bench, with dado attachment; a 20-inch surface planer; a 12-inch hand-jointer or buzz planer; a universal boring machine; a  $6\frac{1}{2}$ -inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 30-inch band saw; a jig saw; a shaper or edge moulding machine, with a very complete set of moulding cutters; a 38-inch grind-stone;

a wood trimmer; an adjustable mitre-box; a steam glue-heater and a large assortment of screw and of bar clamps, both iron and wooden.

The forge shop is a well lighted and ventilated, neatly paved room, 30 x 40 feet. It is equipped with twenty-eight forges, blast being furnished from a Sturtevant blower; two emery and two buffing wheels; an overhead exhaust system, operated by a 60-inch Sturtevant exhaust fan, for removing smoke from the fires; anvils and all necessary hand tools.

The machine shop contains a 16-inch Davis and Eagan lathe with 10-foot bed, a 14-inch Windsor lathe with 5-foot bed, a 13-inch Barnes lathe with 5-foot bed, a 14-inch Putnam lathe with a 4-foot bed, a 14-inch Flather lathe with 6-foot bed, three 14-inch lathes with 6-foot bed (built in the College shops by students), an 18-inch Prentiss shaper, a 24-inch upright Bickford drill press, a 32-inch American drill press, a Brown and Sharp universal milling machine with all attachments, a 20-inch by 5-foot Pease planer, one large and one small emery tool-grinding machine, a 6-inch Curtis & Curtis pipe threading and cutting machine, a Greenwich arbor press and an electric center grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

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

The power for the shops is furnished by a twenty-five horse-power Woodbury engine. When the shops are running one of the students has charge of the engine.

### Subjects of Instruction.

**135. Free-hand Drawing.**—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Two periods, first term. Required of all Freshmen and first year students. Mr. ST. AMANT.

**136. Elementary Mechanical Drawing.**—Use of instruments, geometric drawing, isometric and cabinet drawing, elementary projections, drawings made to scale from working sketches of pieces of a machine. Two periods, second and third terms. Required of all Freshmen and first year students. Mr. ST. AMANT.

**137. Descriptive Geometry Drawing.**—Elementary principles; cylinders, cones and prisms, intersections, development of surfaces. Miscellaneous problems. Two periods, first term. Required of Sophomores in mechanical, electrical and mining engineering. Mr. WALES.

**139. Mechanical Drawing.**—Working sketches and drawings of machine parts from the model. Tracing and blue-printing. Elementary machine design. Two periods, second and third terms. Required of Sophomores in Mechanical, Electrical and Mining Engineering. Mr. WALES.

**140. Machine Design.**—Study of the communication of motion by gear wheels, cams, belts and link-work; automatic feed, parallel and quick motions. Epicyclic trains. Calculations and working drawings of machine parts, such as fastenings, hangers, couplings and bearings. Two periods. Required of Juniors in Mechanical Engineering. Mr. WALES.

**141. Machine Design.**—Calculations and working drawings of types of engines, boilers, pumps, condensers and shafting. Two periods, first term. Three periods, second and third terms. Required of Seniors in Mechanical Engineering. Mr. WALES.

**146. Wood-work.**—Use of bench tools, working from drawings, lining, sawing, planing. Practice in making simple exercises in wood. Elementary exercises in wood-turning. One period. Required of Freshmen. Two periods. Required of first year students. Mr. BRAGG and Mr. DEAL.

**147. Forge-work.**—Exercises in working with iron. Welding. Uses and care of forge tools and fires. One period. Required of Freshmen and first year students. Mr. DEAL.

**148. Forge-work.**—Exercises in working with steel. Tempering. Case-hardening. One period, first term. Required of Sophomores in Mechanical, Electrical and Mining Engineering. Mr. DEAL.

**149. Pattern-making.**—Exercise in making patterns and moulds of machine parts. One period, second and third terms. Required of Sophomores in Mechanical, Electrical and Mining Engineering. Mr. BRAGG.

**150. Machine-shop Work.**—Bench and machine-work. Exercises in chipping and filing. Exercises in lathe-work, boring, reaming, drilling, planing, milling and shaper-work. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Six periods. Required of second year students in Mechanic Arts. Mr. PARK.

**151. Machine-shop Work.**—Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Laying out work. Three periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

**152. Mechanical Technology.**—Classification and uses of wood-working and forging tools and machines. Methods of wood-working

and forging. Care of belting and shafting. One period. Required of Freshmen and of first year students in Mechanic Arts. Mr. BRAGG.

**157. Boilers.**—Steam generation; types, care and management; fittings and appliances; corrosion and incrustation; combustion of fuel. Boiler power. Two periods, first term. Required of Juniors in Mechanical Engineering, and of Seniors in Electrical and in Mining Engineering. Professor DICK.

**158. Steam Engines.**—Types—simple and compound, and triple expansion, automatic, Corliss, rotary. Care and management. Indicators, indicated and brake horse-power. Condensers. Two periods, second term. Required of Juniors in Mechanical Engineering and of Seniors in Electrical and Mining Engineering. Professor DICK.

**159. Valve Gears.**—Plain slide valve, balance valve, Corliss and other form valve gears, link and radial reversing gears. Shaft governors. Bilgram and Zenner valve diagrams. Two periods, third term. Required of Juniors in Mechanical Engineering and of Seniors in Mining Engineering. Professor DICK.

**161. Power Plants.**—Mechanical Engineering of power plants. Selection and arrangement of machinery, appliances, piping. Two periods, first term. Required of Seniors in Mechanical Engineering. Professor DICK.

**162. Gas Engines.**—Theory of the gas engine. Various types of gas, gasoline and oil engines. Brake and indicated horse-power; efficiency. Gas producers. Two periods, second term. Required of Seniors in Mechanical Engineering. Professor DICK.

**163. Refrigeration.**—Various types of ice-making machinery. Compression and absorption systems. Compressed air machines. Two periods, third term. Required of Seniors in Mechanical Engineering. Professor DICK.

**165. Pumping Machinery.**—Direct acting, fly-wheel and duplex pumps. Pumping engines. Water-works machinery. Duty and efficiency. Hydraulic engines. One period, second term. Required of Seniors in Mechanical Engineering. Professor DICK.

**166. Heating and Ventilation.**—Steam, hot water, furnace and blower systems of heating. Heating boilers. Ventilation. Design of heating and ventilating system. One period, second and third terms. Required of Seniors in Mechanical Engineering. Professor DICK.

**167. Materials of Engineering.**—The manufacture and uses of different metals,—cast and wrought iron and steel, copper, brass and other alloys,—used in engineering. One period, third term. Required of Seniors in Mechanical Engineering. Mr. WALES.

**168. Steam Engineering Laboratory.**—Practice in engine running; valve-setting; calibration of instruments; testing gauges and lubricants. Use of indicators and calorimeters. Boiler tests; engine tests. One period, second and third terms. Required of Seniors in Mechanical Engineering. One period, first term. Required of Seniors in Electrical Engineering. One period, third term. Required of second year Mechanic Arts and applied electrical students. Professor DICK and Mr. WALES.

**171. Mechanical Drawing.**—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blue-printing. Two periods. Required of second year students. Mr. DEAL.

**172. Mechanical Technology.**—Classification and use of hand-tools and machines usually found in the pattern shop, foundry, and machine shop. Materials used and methods of carrying on work in these shops. Practical problems in estimating cost and material required to complete a piece of work; arrangements and sizes of belting, pulleys and shafting. Two periods. Required of second year Mechanic Arts students. Mr. WALES.

**173. Steam and Steam Machinery.**—Descriptive study of the machinery of steam power plants—engines, boilers, condensers, pumps, piping. Care and management. Combustion of fuels. Indicators; indicated, brake and boiler horse-power problems. Two periods. Required of second year students in Mechanic Arts and Applied Electricity. Professor DICK.

### COURSE IN ELECTRICAL ENGINEERING.

**Object.**—The four year course is designed for those who wish a thorough and practical training in Electrical Engineering. Only a most thorough training in the fundamental facts and principles of the science of electricity and magnetism will be satisfactory for a branch of engineering which is advancing so rapidly. A great deal of attention is, therefore, paid to good text-book work, and as soon as the first principles of the science are mastered by the student, he is given a series of experiments in which careful measurements with exact instruments are made.

The department, as can be seen from the list of apparatus, is well equipped with dynamos, electric motors and testing instruments for experimental work and for investigation of problems in electrotechnics. During the Senior year a course in designing the various electrical machines is given.



A two year course in Applied Electricity is offered to those who wish to fit themselves for positions as dynamo-tender, motorman, or electrician.

IV. The Four Year Course in Electrical Engineering, leading to the degree of Bachelor of Engineering.

### Freshman Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Elementary Physics, 176.....	4	4	4
Free-hand Drawing, 135.....	2	--	--
Mechanical Drawing, 136.....	--	2	2
Wood-work, 146.....	1	1	1
Forge-work, 147.....	1	1	1
Mechanical Technology, 152.....	1	1	1
Algebra, 123.....	5	--	--
Geometry, 124.....	--	5	5
English, 272.....	3	3	3
Military Drill, 299.....	3	3	3

### Sophomore Year.

Electricity and Magnetism, 177.....	2	2	2
Physical Laboratory, 178.....	1	1	1
Mechanical Drawing, 139.....	2	2	2
Geometry, 124.....	4	--	--
Trigonometry, 125.....	--	4	4
Inorganic Chemistry, 216.....	3	3	3
Inorganic Chemistry (laboratory), 217.....	2	2	2
Forge-work, 148.....	1	--	--
Pattern-making, 149.....	--	1	1
English, 273 and 275.....	2	2	2
Military Drill, 299.....	3	3	3

## Junior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Dynamo Machinery, 183.....	2	2	2
Electrical Laboratory, 179.....	2	2	2
Machine-shop Work, 150.....	2	2	2
Machine Design, 140.....	2	2	2
Mechanics, 128.....	3	3	3
Analytical Geometry, 126.....	4	4	--
Calculus, 127.....	--	--	4
English and History, 283 and 276.....	2	2	2
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	3	3

## Senior Year.

Alternating Currents, 184.....	3	--	--
Electric Power Transmission, 185.....	--	3	--
Electric Light and Railway Systems, 186.....	--	--	3
Electrical Engineering (laboratory), 189.....	3	--	--
Electrical Engineering (laboratory), 190.....	--	4	4
Electrical Design, 191.....	1	2	2
Electrical Engineering, 192.....	--	--	2
Boilers, 157.....	2	--	--
Steam-engine, 158.....	--	2	--
Mechanical Engineering (laboratory), 143.....	1	--	--
Calculus, 127.....	3	--	--
Hydraulics, 110.....	--	2	2
Political Economy, 296.....	2	2	2
English Literature, 276 and 274.....	2	2	2
Military Drill, 299.....	3	3	3

## IVa. The Two Year Course in Applied Electricity.

## First Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135.....	2	--	--
Mechanical Drawing, 136.....	--	2	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	1	1	1
Mechanical Technology, 152.....	1	1	1
Arithmetic, 121.....	5	--	--
Algebra, 122.....	--	5	5
English, 271.....	3	3	3
History, 281.....	2	2	2
Military Drill, 299.....	3	3	3

## Second Year.

Physics, 195.....	5	--	--
Electricity, 196.....	--	5	--
Electrical Laboratory, 197.....	--	--	5
Electrical Construction, 198.....	--	2	2
Mechanical Drawing, 171.....	2	--	--
Machine-shop Work, 151.....	2	2	2
Mechanical Technology, 172.....	1	1	1
Steam Engineering Machinery, 173.....	2	2	2
Algebra, 123.....	5	--	--
Geometry, 124.....	--	5	5
Military Drill, 299.....	3	3	3

**PHYSICS.****Equipment.**

The recitation-rooms and laboratories of the Department of Physics are situated in the basement of the principal building. They are spacious and well lighted.

The equipment consists of apparatus for illustrating the principles of physical science and for instruction and practice in experiments, measurements and tests.

**Subjects of Instruction.**

**176. Elementary Physics.**—Properties of matter; fundamental units; British and metric standard measures; definitions of force, work and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Four periods. Required of Freshmen. Professor PAINE.

**177. Elementary Lessons in Electricity and Magnetism.**—Two periods. Required of Sophomores. Professor PAINE.

**178. Physical Laboratory.**—Measurements of length, area and volume; determinations of density, laws of forces and velocities; pendulum. One period. Required of Sophomores in Electrical Engineering. Mr. ADAMS.

**179. Electrical Laboratory.**—Use of laboratory instruments. Measurement of resistance, current and electro-motive force. Use of condensers. Electrical testing of lines for insulation and grounds. Magnetic properties of iron. Two periods. Required of Juniors in Electrical Engineering. Mr. ADAMS.

**ELECTRICAL ENGINEERING.****Equipment.**

The electrical engineering laboratory is a small brick building 30 by 50. It contains the electric light plant, consisting of a 35-horse-power automatic Skinner engine, a 11.5 K. W. 110-volt Westinghouse dynamo, a 30 K. W. 3-phase 550-volt Westinghouse alternator and a 20 K. W. 2-phase 110-volt Lincoln alternator. The laboratory contains in addition to this one 6-light T. H. arc machine, one 1-horse-power Sprague motor, one 8 K. W. 110-volt Siemens & Halske dynamo, connected in such a way as to give 3-phase currents, one 2-horse-power 3-phase 110-volt Gen. Elect. Co. motor, one 2 K. W. 110-volt LaRoche alternator. It also contains transformers, condensers, arc lamps, circuit breakers, etc.

The department possesses a small library of standard books on all branches of physics and electrical engineering.

**183. Dynamo Machinery.**—A study of direct current dynamos and motors. Efficiency. Characteristic curves. Required of Juniors in Mechanical and Electrical Engineering. Two periods. Professor PAINE.

**184. Alternating Currents of Electricity.**—Principles of alternating currents. Alternating current generators and motors. Static and rotary transformers. Three periods, first term. Required of Seniors in Electrical Engineering. Professor PAINE.

**185. Electric Power Transmission.**—Direct current systems. Power transmission by single and polyphase alternating currents. Long distance, high potential lines. Three periods, second term. Required of Seniors in Electrical Engineering. Professor PAINE.

**186. Electric Light and Railway Systems.**—The design and operation of lighting and railway plants. Estimates of costs. Three hours, third term. Required of Seniors in Electrical Engineering. Professor PAINE.

**189. Electrical Engineering Laboratory.**—Laboratory methods. Calibration of electrical measuring instruments. Study of direct current apparatus. Characteristic curves. Photometry. Efficiency of direct current generators and motors. Three periods per week, first term. Required of Seniors in Electrical Engineering. Mr. ADAMS.

**190. Electrical Engineering Laboratory.**—Characteristic curves of alternating current generators. Study of inductance and capacity. Efficiency of alternating current apparatus, including motors, generators and transformers. Four periods per week, second and third terms. Required of Seniors in Electrical Engineering. Mr. ADAMS.

**191. Electrical Design.**—The design of magnets, rheostats, dynamos and transformers. One period, first term. Two periods, second and third term. Required of Seniors in Electrical Engineering. Mr. ADAMS.

**192. Electrical Engineering Practice.**—The application of electricity for lighting and power. Electricity in cotton mills and machine shops. Two periods, third term. Required of Seniors in Electrical Engineering. Professor PAINE.

**195. Physics.**—The properties of matter. Mechanics. The principles of the simple machines. Five periods per week. Required of second year students in Applied Electricity and in Mechanic Arts. Professor PAINE.

**196. Electricity.**—Principles of the electric circuit. Batteries. Electro-magnets. Dynamos. Motors. Electric bell, telephone and telegraph systems. Five periods per week, second term. Required of second year students in Applied Electricity and in Mechanic Arts. Professor PAINE.

**197. Electrical Laboratory.**—Management of dynamos and motors. Care of station equipment. Study of arc lamps. Transformers. Five periods per week, third term. Required of second year students in Applied Electricity and in Mechanic Arts. Mr. ADAMS.

**198. Electrical Construction.**—Bell wiring. Electric light wiring. Coil winding for dynamo and motor fields. Armature winding. Repair of electrical apparatus. Two periods per week, second and third terms. Required of second year students in Applied Electricity. Mr. ADAMS.

#### COURSE IN MINING ENGINEERING.

The course in Mining Engineering is intended to give the student the preliminary training necessary to enable him to enter upon a career in mining. To this end he is given instructions in English, History, Political Economy, and Mathematics, which are fundamental to the more technical studies and to the greatest usefulness as a citizen. Instruction in Physics and Chemistry, Mineralogy and Geology, Surveying, Shop-work, Drawing, Machinery and Steam affords the scientific and engineering knowledge upon which the successful work of the miner must depend. The more technical portion of the instruction includes ore dressing, metal-working, ventilation, drainage, and illumination of mines.

**V. The Four Year Course in Mining Engineering, leading to the degree of Bachelor of Engineering.**

**Freshman Year.**

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135 .....	2	--	--
Mechanical Drawing, 136 .....	--	2	2
Wood-work, 146 .....	1	1	1
Forge-work, 147 .....	1	1	1
Mechanical Technology, 152 .....	1	1	1
Algebra, 123 .....	5	--	--
Geometry, 124 .....	--	5	5
Physics, 176 .....	4	4	4
English, 272 .....	3	3	3
Military Drill, 299 .....	3	3	3

**Sophomore Year.**

Descriptive Geometry Drawing, 137 .....	2	--	--
Mechanical Drawing, 139 .....	--	2	2
Forge-work, 148 .....	1	--	--
Pattern-making, 149 .....	--	1	1
Geometry, 124 .....	4	--	--
Trigonometry, 125 .....	--	4	4
Electricity and Magnetism, 177 .....	2	2	2
Physical Laboratory, 178 .....	1	1	1
Inorganic Chemistry, 216 .....	3	3	3
Inorganic Chemistry (laboratory), 217 .....	2	2	2
English, 273 and 275 .....	2	2	2
Military Drill, 299 .....	3	3	3

## Junior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Geology, 211.....	2	2	2
Construction, 111.....	2	--	--
Graphic Statics, 101.....	--	2	2
Surveying, 102 and 103.....	2	2	2
Surveying (field-work), 104.....	2	2	2
Mechanics, 128.....	3	3	3
Analytical Geometry, 126.....	4	4	--
Calculus, 127.....	--	--	4
English and History, 283 and 276.....	2	2	2
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	3	3

## Senior Year.

Mining, 296.....	--	4	4
Ore Dressing, 207.....	4	--	--
Metallurgy, 208.....	--	2	2
Mineralogy, 212.....	4	--	--
Assaying, 209.....	--	1	1
*Construction, 111.....	--	2	2
Boilers, 152.....	2	--	--
Steam Engine, 158.....	--	2	--
Valve Gears, 159.....	--	--	2
*Hydraulics, 110.....	--	2	2
*Calculus, 127.....	3	--	--
English, 276 and 274.....	2	2	2
Political Economy, 296.....	2	2	2
Military Drill, 299.....	3	3	3
*Or Analytical Chemistry, 225 and 227.....	5	4	4



**MINING AND METALLURGY.**

**206. Mining.**—Lectures on methods of mining, including prospecting, sinking, sloping, hoisting, pumping, and ventilating; the location of mining claims, mine fires, fire-damp and dust explosions; inundations; rescue and relief of men. Four periods, second and third terms. Required of Seniors in Mining. Dr. SMITH.

**207. Ore Dressing.**—Furnishing products for metallurgical treatment. Lectures on concentrating machinery and concentrating and enriching ores by mechanical means. Four periods, first term. Required of Seniors in Mining. Dr. SMITH.

**208. Metallurgy.**—Introductory; combustion, calorific calculations, fuels, refractory materials, furnaces, etc. Iron and steel: the various iron and steel processes, metallography, heat-treatment, mechanical treatment, chemistry. Copper: roasting, smelting, refining, wet and electrolytic processes. Gold: stamp milling, amalgamation, cyanide and chlorination processes. The metallurgy of lead and the lesser metals. Two periods, second and third terms. Required of Seniors in Mining and Chemistry. Dr. SMITH.

**209. Assaying.**—Ricketts & Miller's *Notes on Assaying*. Lectures and laboratory practice in the crushing and sampling of ores; the assaying of gold, silver, lead and other ores; corrected assays; bullion assays; extraction tests. One period, second and third terms. Required of Seniors in Mining. Dr. SMITH.

**GEOLOGY AND MINERALOGY.**

**211. Geology.**—Scott's *Introduction to Geology*. In the first part of the course the principles of Dynamical Geology, the forces which have modified and are still modifying the earth are considered. The results of these forces are seen and studied in the structure of the earth and in the phenomena of volcanoes, earthquakes, faults and folds, crust movements, etc. In the latter part of the course the life history of the earth as recorded in the rocks is studied. Special attention is given to the commonly occurring rocks and ores, and the main features of the geology of North Carolina form an integral part of the course. The text is supplemented by lectures. Two periods. Required of Juniors in Mining and in Chemistry. Dr. WALKER.

**212. Mineralogy.**—Moses & Parsons' *Mineralogy*. Descriptive and determinative mineralogy; blowpipe analysis and the study of the more important economic minerals, their properties, uses and

methods of determination. Recitations and laboratory practice. Four periods, first term. Required of Seniors in Mining and in Chemistry. Dr. SMITH.

### COURSES IN INDUSTRIAL CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in chemistry is arranged to prepare young men for careers in the analytical or the operating departments of the various chemical industries. To this end the training given in general, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in the applied chemical subjects bearing more directly on the course the student has selected. The fundamental principles of engineering, machinery, etc., which are almost indispensable to the successful management of chemical plants, are taught, together with the cultural studies included in the other courses.

#### Raleigh as a Chemical Center.

There are in the city of Raleigh and its vicinity several manufacturing plants to which, through the courtesy of the owners, the students in chemistry, in company with the teaching staff of the department, make visits each year. These include plants for the manufacture of illuminating gas, sulphuric acid, fertilizers, and artificial ice; for the extraction of cotton-seed oil; for the dyeing of cotton goods and for the tanning and dressing of leather.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station are located in Raleigh, and through the courtesy of the officials in charge of these departments our students are welcomed whenever they desire to visit them.

The State Museum is open to the public each day from 9 o'clock A. M. to 5 o'clock P. M., and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

#### Chemical Equipment.

The laboratories of general and of analytical chemistry are located in the main building of the College, and are well furnished. The tables are of yellow heart-pine, with oak tops. Each student is provided with water, gas, all necessary reagents, ample working space, together with lockers for the storage of apparatus, etc. The quantitative laboratory is located on the first floor and will accommodate

thirty-two students. The laboratory for introductory chemical work is in the basement and will accommodate seventy students.

The chemical library is well supplied with reference books. It receives the leading chemical journals and owns complete sets of many of the most important of them.

### Graduates in Chemistry.

The chemical graduates of the College are engaged in the following lines of chemical work: Manufacture of illuminating gas, manufacture of sulphuric acid, manufacture of fertilizers, manufacture of tobacco products, refining and testing oils, metallurgy of iron, metallurgy of copper, dyeing of cotton goods, in agricultural experiment stations, in State departments of agriculture, and in teaching chemistry. These are employed in North Carolina and nine other States.

**VI. The Four Year Course in Industrial Chemistry,** leading to the degree of Bachelor of Science.

### Freshman Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135	2	--	--
Mechanical Drawing, 136	--	2	2
Wood-work, 146	1	1	1
Forge-work, 147	1	1	1
Mechanical Technology, 152	1	1	1
Physics, 176	4	4	4
Algebra, 123	5	--	--
Geometry, 124	--	5	5
English, 272	3	3	3
Military Drill, 299	3	3	3

## Sophomore Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Inorganic Chemistry, 216 .....	3	3	3
Inorganic Chemistry (laboratory), 217 .....	2	2	2
Electricity and Magnetism, 177 .....	2	2	2
Physical Laboratory, 178 .....	1	1	1
Mechanical Drawing, 139 .....	2	2	2
Forge-work, 148 .....	1	--	--
Pattern-making, 149 .....	--	1	1
Geometry, 124 .....	4	--	--
Trigonometry, 125 .....	--	4	4
English, 273 and 275 .....	2	2	2
Military Drill, 299 .....	3	3	3

## Junior Year.

Agricultural Chemistry, 232 .....	2	2	2
Organic Chemistry, 218 .....	2	2	2
Analytical Chemistry, 225 .....	5	5	5
*Boilers, 157 .....	2	--	--
*Steam-engine, 158 .....	--	2	--
*Valve Gears, 159 .....	--	--	2
Geology, 211 .....	2	2	2
*Bacteriology, 251 .....	2	2	2
English and History, 283 and 276 .....	2	2	2
Military Tactics, 300 .....	1	1	1
Military Drill, 299 .....	3	3	3
*May substitute Analytical Geometry, 126 .....	4	4	--
and Calculus, 127 .....	--	--	4
or Dyeing, 236 .....	2	2	2
and Dyeing Laboratory, 237 .....	2	2	2

## Senior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Industrial Chemistry, 233.....	2	2	2
Analytical Chemistry, 226.....	4	4	4
Organic Chemical Laboratory, 219.....	3	5	5
Mineralogy, 212.....	3	--	--
Metallurgy, 208.....	--	2	2
English, 276 and 274.....	2	2	2
Political Economy, 236.....	2	2	2
Military Drill, 299.....	3	3	3

## CHEMISTRY.

**216. Inorganic Chemistry.**—Remsen's *College Chemistry*. The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHEBS, Mr. HASKELL and Dr. WALKER.

**217. Inorganic Chemistry.**—Laboratory work. Remsen and Randall's *Laboratory Guide*. 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. Two periods. Required of Sophomores. Mr. GARDNER.

**218. Organic Chemistry.**—Remsen's *Introduction to the Study of the Compounds of Carbon*. The fundamental principles of organic chemistry and the more important compounds are studied. Two periods. Required of Juniors in Chemistry. Mr. HASKELL.

**219. Organic Chemistry.**—Laboratory work. Gattermann's *Practical Methods of Organic Chemistry*, translated by Shober. The typical transformations and syntheses of the aliphatic and aromatic groups are taken up. The student thus becomes familiar with the reactions and properties of the more important organic compounds. Some of the more common dye-stuffs are prepared synthetically. Three periods, first term. Five periods, second and third terms. Required of Seniors in Chemistry. Mr. HASKELL.

**220. Analytical Chemistry.**—Treadwell's *Qualitative Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids, in unknown substances. Five periods, first and second terms. Required of Juniors in Chemistry. Five hours, first and second terms. Elective for Seniors in Mining. Dr. SMITH.

**226. Analytical Chemistry.**—Clowes and Coleman's *Quantitative Analysis*. Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Four periods. Required of Seniors in Chemistry. Dr. SMITH.

**227. Analytical Chemistry.**—A brief course in quantitative analysis, arranged with special reference to students in Mining. Five periods, third term. Elective for Seniors in Mining. Dr. SMITH.

**232. Agricultural Chemistry.**—Ingle's *Agricultural Chemistry*. A study of the facts obtained by the application of chemistry and chemical methods of investigation to agriculture. The laws of plant and animal nutrition, the economical feeding of plants and animals, and the maintenance of the fertility of the soil are considered from the chemical standpoint. Two periods. Required of Juniors in Chemistry. Professor WITHERS.

**233. Industrial Chemistry.**—Thorpe's *Outlines of Industrial Chemistry*. A discussion of the processes and principles involved in the more important chemical industries. A discussion of the materials of engineering. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

#### DYEING.\*

**236. Dyeing.**—Lectures. Fraps' *Principles of Dyeing*. The textile fibres are studied. Special attention is paid to the cotton fibre, although the other fibres are studied to an extent sufficient to familiarize the student with their uses and applications. The steps necessary in preparing the fibres for dyeing, bleaching and scouring, etc., are taken up and then the application of each class of dyes to the different fibres. Typical dyes of each class are taken and studied. The student then takes up color matching, color mixing and dye testing; special attention being paid to these last courses. Finally the different methods of printing, dyeing mixed goods and mercerization are studied. Two periods. Elective for Juniors in Chemistry. Mr. HASKELL.

\*For further information in regard to dyeing, see Course in Dyeing, under head of Textile Courses.

**237. Dyeing Laboratory.**—The experiments are intended to follow the lecture course, thus making the student familiar by actual trial tests with facts brought out in the lectures. These tests are made with small skeins of yarn. The student learns the different methods of dyeing which are applicable to cotton, those which are applicable to wool, etc. Comparative tests as to fastness, to washing, to light, to dilute acids, alkalis and to rubbing are made, and the samples showing each test are kept in a scrap-book. The different styles of printing are studied and special methods for dyeing. Two periods. Elective for Juniors in Chemistry. Mr. HASKELL.

### BACTERIOLOGY.

**251. General Bacteriology.**—Lectures and laboratory work on the nature, physiology, morphology, and economy of bacteria, with especial reference to home sanitation, disinfection, and to the relation of bacteria to disease in plants and animals. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Two periods. Elective for Juniors in Chemistry. Professor STEVENS.

### ENGLISH.

**271. English Composition.**—A drill upon the forms of the language, the correct relation of words, the sentence, the paragraph. Daily written exercises. Three periods. Required of first year students. Dr. SUMMEY and Mr. MASON.

**272. Introductory Composition and Rhetoric.**—This course in the fundamentals of Rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill upon grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods a week. Required of Freshmen. Professor HILL, Doctor SUMMEY and Mr. MASON.

**273. Rhetoric, Criticisms, Essays.**—The student is taught the essentials of a good style by constant practice. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Two periods, second term. Professor HILL, Doctor SUMMEY and Mr. MASON.

**274. Argumentation.**—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

**275. American Literature.**—By means of an introductory text and by much reading, students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Two periods, third term. Required of Sophomores. Professor HILL, Doctor SUMMEY and Mr. MASON.

**276. English Literature.**—The development of English Literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two periods, third term. Required of Juniors. Two periods, first and second terms. Required of all Seniors. Professor HILL.

### HISTORY.

**281. American History.**—By means of a text-book supplemented by lectures and frequent assignment of topics for special study, students are in this course familiarized with the leading facts in the history of the United States. Two periods. Required of first year students. Professor PHELPS.

**283. 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. Two periods, first and second terms. Required of Juniors. Professor HILL.

### POLITICAL ECONOMY.

**293. 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. Two periods. Required of Seniors. President WINSTON.

### MILITARY SCIENCE.

**299. 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 in the afternoon. Required of all classes. Commandant and officers of the Battalion.

**300. Tactics.**—Theoretical instruction in the Schools of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies, Manual of Guard Duty, Outposts, etc. One period. Required of Juniors. Captain PHELPS.



## **TEXTILE COURSES.**

- VII. The Four Year Course in Textile Industry.**
- VIIa. The Two Year Course in Textile Industry.**
- VIII. The Four Year Course in Dyeing.**

### **THE TEXTILE DEPARTMENT.**

The Textile Department is located in a new building recently erected for its use. The instruction given in this department is in the theory and practice of cotton manufacturing. The building, which is a typical cotton mill, is fully equipped with all the necessary machinery for manufacturing cotton yarns and fabrics from the bale to the finished product. The student is taught the theory of cotton spinning, weaving, designing, and dyeing. In connection with the theory, he learns the practical operation of the cotton machinery used in carrying on the different processes. Further, he learns such essential practical details as enable him to adjust and fix the machinery so as to produce the proper results. As a result of this training, each student produces for himself cotton yarns of different numbers, cotton fabrics of different kinds from his own designs and choice of colors.

### **TEXTILE INSTRUCTION.**

In this department two courses of instruction are offered, the Four Year Course, leading to the degree of Bachelor of Engineering, and the Two Year Course. The Four Year Course combines with the textile instruction certain practical and theoretical subjects which enable the student to understand better his special work. The textile instruction begins in the Sophomore year and is the principal work of the Junior and Senior years. The Two Year Course is offered to those mature students who cannot spend the time required for the Four Year Course. To be successful in the Two Year Course the student should have had a good preparation in his early studies, especially in mathematics, and some practical experience. To enter this course the student is required to pass the full entrance examinations for the Freshman Class in College, and must satisfy the professor in charge of his ability to go on with the work. Combined with the textile instruction are certain practical subjects which aim to increase the skill of the student.

The textile instruction given is of a practical nature, and covers the entire ground of cotton manufacturing. Its object is to prepare the student for a useful career in this industry. There is a demand from the mills in this and other States for young men technically trained in the manufacture of cotton goods, especially of the finer grades. That the graduates are meeting with success in this industry is shown by the positions held by them. Among these are president, secretary and treasurer, manager, superintendent, designer, overseer of weaving, mill architect, machinery salesman. In fact, the graduates have gone into almost every branch of cotton manufacturing, and have met with success. All have received the same training. The point to which each has advanced has depended upon the ability to deal with the general problems of manufacturing.

### TEXTILE BUILDING AND EQUIPMENT.

The Textile Building is located on the west campus, just beyond the Horticultural Building. It is a two-story brick building 125 x 75 feet, with a basement. Throughout, its construction is similar to a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation machinery. The carding and spinning machinery is located on the second floor. Electricity is used as motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton mill machinery manufactured by American builders. The following is a list of the machines and their makers:

#### Carding Department.

**Opening-room.**—One combination opener and breaker lapper, made by Kitson Machine Co., Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Co., Lowell, Mass.

**Carding-room.**—One 40-inch revolving flat card, 112 flats, with coiler, made by Mason Machine Works, Taunton, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with coiler, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One single railway head, with coiler, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, leather rolls, made by Whitin Machine Works, Whi-

tinsville, Mass. One railway head with collar, metallic rolls, and improved evener motion, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One drawing frame, four deliveries, metallic rolls, made by Saco and Pettee Machine Shops, Newton Upper Falls, Mass. One 36-spindle slubber for  $11 \times 5\frac{1}{2}$ -inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I. One 48-spindle intermediate roving frame for  $9 \times 4\frac{1}{2}$ -inch bobbin, made by Saco and Pettee Machine Shops, Biddeford, Me. One 64-spindle fine roving frame for  $7 \times 3\frac{1}{2}$ -inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I. One 80-spindle jack roving frame for  $6 \times 2\frac{1}{2}$ -inch bobbin, with ball-bearing top rolls, made by Woonsocket Machine and Press Co., Woonsocket, R. I.

### Spinning Department.

**Spinning-room.**—One 64-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 80-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Mason Machine Works, Taunton, Mass. One 80-spindle spinning frame for warp; one 80-spindle spinning frame for filling, made by Fales & Jenks Machine Co., Pawtucket, R. I. One 64-spindle spinning frame for warp; one 64-spindle spinning frame for filling, made by Saco and Pettee Machine Shops, Biddeford, Me.

**Spooling, Twisting, and Winding.**—One 40-spindle spooler, made by Draper Company, Hopedale, Mass. One 40-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 32-spindle spooler, made by Easton & Burnham, Pawtucket, R. I. One 48-spindle twister, made by Whitin Machine Works, Whitinsville, Mass. One 72-spindle twister, one-half for wet, one-half for dry twisting, made by Draper Company, Hopedale, Mass. One 48-spindle twister, one-half for wet, one-half for dry twisting, made by Fales & Jenks Machine Co., Pawtucket, R. I. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Co., Charlotte, N. C. One 40-spindle reel, made by Draper Company, Hopedale, Mass. One 6-spindle universal winding machine, made by Universal Winding Co., Boston, Mass. One section warper, 400 ends, made by Draper Company, Hopedale, Mass.

### Weaving Department.

**Warp Preparation.**—One 12-spindle bobbin winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One beaming machine,

made by Lewiston Machine Co., Lewiston, Me. One beaming machine complete, made by the T. C. Entwistle Co., Lowell, Mass.

**Looms.**—One Northrop-Draper print-cloth loom; one Northrop-Draper sateen loom; one Northrop-Draper loom with 20-harness dobby, made by Draper Company, Hopedale, Mass. Two high-speed sheeting looms, made by Kilburn & Lincoln, Fall River, Mass. One sheeting loom, one 12-harness dobby loom, made by Whitin Machine Works, Whitinsville, Mass. One print-cloth loom, one 2 x 1 box loom, one 24-harness dobby loom, made by Mason Machine Works, Taunton, Mass. One Crompton 4 x 1 box gingham loom, one Crompton 4 x 1 box loom with 20-harness dobby, one Crompton single-box loom with 400-hook Jacquard machine, one Knowles Gem loom with 4 x 4 box, one Stafford single-box loom with 20-harness dobby, made by Crompton & Knowles Loom Works, Worcester, Mass. One 2 x 1 box loom with 600-hook Jacquard machine, made by Joseph Battles Manufacturing Co., Lawrence, Mass.

### Dyeing Department.

The dyeing department is located in the basement of the Textile building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office and a room 70 x 50 feet which is being fitted up as a practical dye-house.

The experimental laboratory is fitted out with apparatus for carrying out various chemical operations necessary for dyeing work and also for dyeing of small test samples, color-matching, etc. The dye-house is fitted out with dyeing machinery, a steam kettle, a steaming box, a printing machine, a hydro extractor and a drying closet.

Through the kindness of the following dye-stuff dealers the College has a collection of dye-stuffs amounting to approximately nine hundred samples. As each new dye is put out the department is regularly supplied with it, and the student thus has an opportunity of becoming familiar with the latest products for commercial work. The firms to whom the department is indebted in the past are as follows:

Wm. J. Matheson & Co., Ltd., N. Y.

Farbenfabriken of Elberfeld Co., N. Y.

H. A. Metz & Co., N. Y. (successors to Victor Koechl & Co.).

Berlin Anallne Works, N. Y.

A. Klipstein & Co., N. Y.

C. Bischoff & Co., N. Y.

Kuttruff, Pickhardt & Co., N. Y.  
New York and Boston Dyewood Co., N. Y.  
Schoelkoff, Hartford & Hanna Co., Buffalo, N. Y.  
F. E. Atteaux & Co., Boston, Mass.  
Read, Holliday & Sons, Ltd., N. Y.  
Societe Anonyme des Matieres, Colorantes, Paris.  
O. S. Janney & Co., Philadelphia.  
Geisenheimer & Co., N. Y.

#### **Power and Power Transmission.**

One 30-horse-power 3-phase 550-volt motor, made by General Electric Co., for driving carding and spinning machinery.

One 15-horse-power 3-phase 550-volt motor, made by General Electric Co., for driving weaving machinery.

Pulleys, shaftings, hangers, and couplings, made by Jones & Laughlins, Ltd., Pittsburg, Pa.

Belting, made by Faerweather & Ladew, New York City, and Maloney-Bennett Belting Co., Chicago, Ill.

#### **Heating Plant.**

Steam Colls and Blowing Fan, made by B. F. Sturtevant Co., Boston, Mass.

**VII. The Four Year Course in Textile Industry,** leading to the degree of Bachelor of Engineering.

**Freshman Year.**

SUBJECTS.	PERIODS PER WEEK.*		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 316† -----	2	--	--
Mechanical Drawing, 317 -----	--	2	2
Wood-work, 320 -----	1	1	1
Forge-work, 321 -----	1	1	1
Mechanical Technology, 325 -----	1	1	1
Algebra, 336 -----	5	--	--
Geometry, 337 -----	--	5	5
Elementary Physics, 331 -----	4	4	4
English, 341 -----	3	3	3
Military Drill, 349 -----	3	3	3

**Sophomore Year.**

Carding and Spinning, 301 -----	2	2	2
Descriptive Geometry Drawing, 318 -----	1	--	--
Forge-work, 322 -----	1	--	--
Pattern-making, 323 -----	--	1	1
Mechanical Drawing, 319 -----	--	1	1
Electricity and Magnetism, 332 -----	2	2	2
Geometry, 337 -----	4	--	--
Trigonometry, 338 -----	--	4	4
Inorganic Chemistry, 311 -----	3	3	3
Inorganic Chemistry (laboratory) 312 -----	2	2	2
English, 342 and 344 -----	2	2	2
Military Drill, 349 -----	3	3	3

\* The lecture and recitation periods are one hour; the laboratory, shop, and other practice periods, two hours.

† The figures immediately following the name of the study are given to aid one in finding readily a description of the subject. Under each department a number precedes the description of the study.

## Junior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	3	3	3
Weaving, 302.....	3	3	3
Textile Designing, 303.....	3	3	3
Dyeing, 306.....	2	2	2
Dyeing (laboratory), 307.....	2	2	2
Machine-shop Work, 324.....	2	2	2
English and History, 347 and 345.....	2	2	2
Military Tactics, 350.....	1	1	1
Military Drill, 349.....	3	3	3

## Senior Year.

Carding and Spinning, 301.....	4	4	4
Weaving, 302.....	4	4	4
Textile Designing, 303.....	3	3	3
Boilers, 326.....	2	--	--
Engines, 227.....	--	2	--
Valve Gears, 328.....	--	--	2
English, 345 and 343.....	2	2	2
Political Economy, 348.....	2	2	2
Military Drill, 349.....	3	3	3

## VIIa. The Two Year Course in Textile Industry.

## First Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	3	3	3
Weaving, 302.....	3	3	3
Textile Designing, 303.....	3	3	3
Free-hand Drawing, 316.....	2	--	--
Mechanical Drawing, 317.....	--	2	2
Wood-work, 319.....	1	1	1
Forge-work, 320.....	1	1	1
Mechanical Technology, 323.....	1	1	1
English, 341.....	3	3	3
Military Drill, 349.....	3	3	3

## Second Year.

Carding and Spinning, 301.....	4	4	4
Weaving, 302.....	4	4	4
Textile Designing, 303.....	3	3	3
Mechanical Drawing, 318.....	2	2	2
Forge-work, 321.....	1	--	--
Pattern-making, 322.....	--	1	1
English, 342 and 344.....	2	2	2
Military Drill, 349.....	3	3	3



### Description of Subjects.

**301. Carding and Spinning.**—Lectures and recitations ; practice in operating card and spinning-room machinery. Cotton ; classifying the plant, its growth ; varieties ; ginning ; baling and marketing the raw staple. Cotton at the mill ; selecting and mixing. Openers and lappers ; card ; sliver lap machines ; ribbon lap machines ; combers ; railway-heads ; drawing-frames ; slubbers ; intermediates ; speeders ; jacks. Ring spinning-frames and mules. Spoolers and warpers. Twisters ; reels ; cone-winders. Construction and functions of each machine ; making the various calculations. Drafts ; speed of parts ; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Required of Sophomores, Juniors and Seniors in the four year course and of first and second year students in the two year course. **Professor WILSON.**

**302. Weaving.**—Lectures and practice in warp preparation, operating and fixing looms, cloth finishing machinery. Warp preparation ; pin frame warper ; section warper ; beam warper ; construction of beam warper, stop motion, measuring motion, creel ; pattern warp making ; long and short chain beamers. Slashing ; steam cylinder slasher ; hot air slasher ; construction of slasher ; creel ; cylinders ; immersion roll ; squeeze rolls ; drying fan ; separator rolls ; winding yarn on beam ; cone drive ; slow motion ; measuring and cut marking motion. Sizing ; construction of size kettle ; size mixing and boiling ; division of sizing ingredients ; values of ingredients ; sizing receipts harnesses ; drawing in, and putting warps in looms. Looms ; confor light, medium, and heavy sizing. Loom-mounting ; reeds and struction of plain loom ; principal movements in weaving ; let-off and take up motions ; filling stop motion ; warp stop motion. Cams and their construction. Magazine looms ; construction and advantages. Drop box looms ; chain building for box looms ; changing boxes to have easy running loom ; construction and value of multipliers ; timing and fixing box motions. Pick and pick-looms. Box-chain, and multiplier-chain building, arrangement of colors in boxes to give easy running loom. Ball and shoe pick motion. Construction and fixing of head motion. Dobby ; single and double action ; construction and fixing of doobby ; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers ; half-motion ; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard, single and double lift ; construction and tie up. Weave-room calculations : speed and production calculations ; relative speed of looms ; counts of cotton harness. Finishing ;

inspection of cloth; singeing and brushing; calendaring; tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Required of Juniors and Seniors in the Four Year Course and of first and second year students in the Short Course. Mr. NELSON.

**303. Textile Designing.**—Lectures and practice in designing, fabric structure and cloth analysis. Designing: method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combination of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honey-comb weaves. Bedford cords and combinations with other weaves. Wave designs; pointed twills; diamond effects. Plain and fancy piques. Double plain; figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet. Corduroy. Matelasse. Leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading of patterns. Card cutting and lacing. Fabric structure; textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Cloth analysis. Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen; worsted; silk; linen, and cotton yarns. Determination of one system of yarn to that of another. Required of Juniors and Seniors in the Four

Year Course, and of first and second year students in the Short Course. Mr. NELSON.

### COURSES IN DYEING.

As the textile industries of the State increase, the need of young men who have been trained in the principles as well as the practice of the different factory operations becomes apparent. In the course in dyeing the student is taught the different practical methods of the dye-house; the chemistry of the dye-stuffs, some of each class of which he actually makes; the chemical changes brought about by mordants, assistants, etc. He also learns color matching, dye testing and the methods for the analysis of the different chemicals used in the dye-house. He carries on the study of carding, spinning, weaving, designing, cloth analysis, etc., to the end of the junior year with the other textile students and with them devotes attention to shopwork, drawing, engines, boilers, etc., together with the general studies of English, history, mathematics, physics and general chemistry, which are required in all the Four Year Courses.

**VIII. The Four Year Course in Dyeing,** leading to the degree of Bachelor of Science.

#### Freshman Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 316 .....	2	--	--
Mechanical Engineering, 317 .....	--	2	2
Wood-work, 320 .....	1	1	1
Forge-work, 321 .....	1	1	1
Mechanical Technology .....	1	1	1
Algebra, 336 .....	5	--	--
Geometry, 337 .....	--	5	5
Elementary Physics, 331 .....	4	4	4
English, 341 .....	3	3	7
Military Drill, 349 .....	3	3	3

## Sophomore Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Inorganic Chemistry, 311 -----	3	3	3
Inorganic Chemistry (laboratory), 312 -----	2	2	2
Carding and Spinning -----	2	2	2
Forge-work, 322 -----	1	--	--
Pattern-making, 323 -----	--	1	1
Descriptive Geometry Drawing, 318 -----	1	--	--
Mechanical Drawing, 319 -----	--	1	1
Electricity and Magnetism, 332 -----	2	2	2
Geometry, 337 -----	4	--	--
Trigonometry, 338 -----	--	4	4
English, 342 and 344 -----	2	2	2
Military Drill, 349 -----	3	3	3

## Junior Year.

Dyeing, 306 -----	2	2	2
Dyeing (laboratory), 307 -----	2	2	2
Organic Chemistry, 313 -----	2	2	2
Carding and Spinning, 301 -----	3	3	3
Weaving, 302 -----	3	3	3
Textile Designing, 303 -----	3	3	3
English and History, 347 and 345 -----	2	2	2
Military Tactics, 350 -----	1	1	1
Military Drill, 349 -----	3	3	3

## Senior Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Chemistry of Dye-stuffs, 308.....	4	4	4
Analytical Chemistry, 314.....	5	5	5
Industrial Chemistry, 315.....	2	2	2
Boilers, 326.....	2	--	--
Steam-engines, 327.....	--	2	--
Valve Gears, 328.....	--	--	2
English, 345 and 343.....	2	2	2
Political Economy, 348.....	2	2	2
Military Drill, 349.....	3	3	3

## DYEING.

**306. Dyeing.**—Lectures—Fraps' *Principles of Dyeing*—the general appearance, structure and properties of the textile fibres are studied, special attention being paid to the cotton fibres, although the other fibres are studied to a sufficient extent to familiarize the student with their use and applications. The chemical and physical tests for the detection of fibres in mixed goods are studied.

The preliminary steps to dyeing, bleaching, scouring, adaptability of water for bleaching and dyeing are taken up and then the application of each class of dyes to the different fibres with a study of the necessary assistants and mordants. Typical dyes of each class are studied with different mordants to illustrate the value of each. Finally the different methods of printing, dyeing mixed goods, and mercerization are studied. Two periods. For Juniors. Mr. HASKELL.

**307. Dyeing Laboratory.**—The experiments are intended to follow the lecture course, thus making the student familiar by actual trial tests with facts brought out in the lecture. These tests are made with small skeins of yarn. The student learns the different methods of dyeing which are applicable to cotton, those which are applicable to wool, etc. Comparative tests as to fastness of washing, to light, to dilute acids, alkalies, and to rubbing are made, and the samples showing each test are kept in a scrap-book. The different

styles of printing are studied and special methods for dyeing. Two periods. For Juniors. Mr. HASKELL.

**308. Chemistry of Dye-stuffs.**—Lectures and laboratory work. Nietski's *Chemistry of Organic Dye-stuffs*, and Gattermann's *Practical Methods of Organic Chemistry*. Distillation of coal tar and its products valuable in the preparation of dye-stuffs will be studied. Other compounds that are starting products for the synthesis of dye-stuffs together with operations employed in these preparations—for example—sulphonation, nitration, chlorination, oxidation, reduction, condensation and diazotization will be taken up in the lectures. And finally the preparation of the more important dyes of the following groups: 1 Rosaniline Colors; 2 Azine Colors; 3 Oxyazine Colors; 4 Thiazine Colors; 5 Acridine Colors; 6 Quinoline Colors; 7 Nitro Colors; 8 Azo Colors; 9 Stilbene Colors; 10 Anthracene Colors; 11 Indigo; 12 Sulphide Colors. Four periods. Required of Seniors in Dyeing. Mr. HASKELL.

### CHEMISTRY.\*

**311. Inorganic Chemistry.**—Remsen's *College Chemistry*. The common elements and their principal compounds are studied, together with some of the fundamental principles of the science. The lectures are illustrated by experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Mr. HASKELL.

**312. Inorganic Chemistry.**—Laboratory work. Remsen and Randall's *Laboratory Guide*. 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. Two periods. Required of Sophomores. Mr. GARDNER.

**313. Organic Chemistry.**—Remsen's *Introduction to the Study of the Compounds of Carbon*. The fundamental principles of organic chemistry and their more important compounds are studied. Special attention is devoted to that part of the subject which bears more directly upon the dye-stuffs. Two periods. For Juniors in Dyeing. Mr. HASKELL.

**314. Analytical Chemistry.**—Treadwell's *Qualitative Analysis* and instructor's notes. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is taught to detect the presence of the common metallic elements, as well as that of the acids unknown substances. During the latter part of

\*For further information, see course in Chemistry.

the year work is taken up in quantitative analysis, special attention being given to the analysis of those chemicals most used in the dye-house. Five periods. Required of Seniors in Dyeing. Dr. SMITH.

**315. Industrial Chemistry.**—Thorpe's *Outlines of Industrial Chemistry*. A discussion of the processes and principles involved in the more important chemical industries. A discussion of the materials of engineering. Two periods. Required of Seniors in Dyeing. Professor WITHERS.

### MECHANICAL ENGINEERING.\*

**316. Free-hand Drawing.**—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Two periods, first term. Required of Freshmen and first year students. Mr. ST. AMANT.

**317. Elementary Mechanical Drawing.**—Use of instruments; geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Two periods, second and third terms. Required of Freshmen and first year students. Mr. ST. AMANT.

**318. Descriptive Geometry Drawing.**—Elementary principles; cylinders, cones and prisms; intersection development of surfaces, miscellaneous problems. One period, first term. Required of Sophomores. Mr. WALES.

**319. Mechanical Drawing.**—Working sketches and drawing machine parts from the models; tracing and blue-printing; elementary machine design. One period, second and third terms. Required of Sophomores. Mr. WALES.

**320. Wood-work.**—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in wood-turning. One period. Required of Freshmen. Mr. BRAGG.

**321. Forge-work.**—Exercises in working with iron, welding; uses and care of forge-tools and fires. One period. Required of Freshmen. Mr. DEAL.

**322. Forge-work.**—Exercises in working with steel; tempering; case-hardening. One period, first term. Required of Sophomores and second year students. Mr. DEAL.

**323. Pattern-making.**—Exercises in making patterns, generally of machine parts. One period, second and third terms. Required of Sophomores and second year students. Mr. BRAGG.

\*For full information, see course in Mechanical Engineering.

**324. Machine-shop Work.**—Bench and machine-work. Exercises in chipping and filing. Exercises in lathe-work, boring, reaming, drilling, planing, milling and shaper work. Two periods. Required of Textile Juniors. Mr. PARK.

**325. Mechanical Technology.**—Classification and uses of wood-working and forging tools and machines; principles of correct methods of wood-working and forging; care of belting and shafting. One period. Required of Freshmen. Mr. BRAGG.

**326. Boilers.**—Steam generation; types, care and management; fittings and appliances; corrosion and incrustation; combustion of fuel; boiler power. Two periods, first term. Required of Seniors. Professor DICK.

**327. Steam-engines.**—Types—simple and compound and triple expansion, automatic, Corliss, rotary. Care and management. Indicators, indicated and brake horse-power, condensers. Two periods, second term. Required of Seniors. Professor DICK.

**328. Valve Gears.**—Plain slide valve, balanced valves, Corliss and other form valve gears. Link and radial reversing gears. Shaft governors. Bilgram and Zeuner valve diagrams. Two periods, third term. Required of Seniors. Professor DICK.

### PHYSICS.\*

**331. Elementary Physics.**—Properties of matter; fundamental units; British and metric standard measures; definitions of force, work, and power; laws of motion; principles of machines; mechanics of fluids; heat; sound; introduction to the study of light. Two periods. Required of Freshmen. Professor PAINE.

**332. Elementary Lessons in Electricity and Magnetism.**—Two periods. Required of Sophomores. Professor PAINE.

### MATHEMATICS.†

**336. Advanced Algebra.**—Begins at quadratic equations; general theory of equations; solution of higher equations, etc. Wells's *Higher Algebra*. Five periods, first term. Required of Freshmen. Mr. YATES and Mr. MACCALL.

**337. Geometry.**—Plane and solid. Wentworth's *Plane and Solid Geometry*. Five periods, second and third terms. Required of Freshmen. Four periods, first term. Required of Sophomores. Mr. YATES.

\*For full information, see course in Electrical Engineering.

†For full information, see course in Civil Engineering.



**338. Trigonometry.**—Four hours, second and third terms. Required of Sophomores. Mr. YATES.

### ENGLISH.

**341. Introductory Composition and Rhetoric.**—This course in the fundamentals of Rhetoric is made thoroughly practical. Students write instead of studying about how to write. The written work is accompanied by a steady drill upon grammatical forms, accuracy, and ease of expression. The student is taught to plan all work, and then to develop his plan in simple, idiomatic English. Three periods a week. Required of Freshmen. Professor HILL, Doctor SUMMEY and Mr. MASON.

**342. Rhetoric, Criticisms, Essays.**—The student is taught the essentials of good style by constant practice. Themes in narration, description, and exposition receive in this course especial attention. Required of Sophomores. Two periods, second term. Professor HILL, Doctor SUMMEY and Mr. MASON.

**343. Argumentation.**—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of many exercises. Required of Seniors. Two periods, third term. Professor HILL.

**344. American Literature.**—By means of an introductory text and by much reading, students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Two periods, third term. Professor HILL, Doctor SUMMEY and Mr. MASON.

**345. English Literature.**—The development of English Literature through its great periods and through its representative men. Much parallel reading is required. In a general way Minto's plan of study is followed. Two periods, third term. Required of Juniors. Two periods, first and second terms. Required of Seniors. Professor HILL.

**347. 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. Two periods, first and second terms. Required of all Juniors. Professor HILL.

### POLITICAL ECONOMY.

**348. 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. Two periods. Required of Seniors. President WINSTON.

### MILITARY SCIENCE.

**349. 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 in the afternoon. Required of all classes. Commandant and officers of the Battalion.

**350. Tactics.**—Theoretical instruction in the Schools of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Manual of Guard Duty; Outposts, etc. One period. Required of Juniors. Captain PHELPS.

## NORMAL COURSES.

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### **I. For Rural Teachers:**

- (a) **Two Year Course.**
- (b) **One Year Course.**
- (c) **Summer Course.**

### **II. For City Teachers:**

- (a) **Two Year Course.**
- (b) **One Year Course.**
- (c) **Summer Course.**

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education is being introduced into our public schools, and the College has a constant demand for well-trained industrial teachers. It is hoped by means of the Normal Courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added.

The Courses for Rural Teachers are devoted largely to agriculture and nature study; the Courses for City Teachers, to drawing and manual training. Each of these courses also includes a review of other public school studies.

Persons already engaged in teaching may, at slight expense of time and money, by means of the short courses or the Summer Courses, make themselves proficient in one or more industrial lines. Persons preparing to teach may take the full courses, and thus become proficient not only along industrial lines, but also in the other public school branches and in one or more sciences, or in higher Mathematics and English. The industrial training given is both practical and theoretical, and is arranged with reference to the present needs of the public schools in North Carolina. The exercises in the Normal Courses are the same as in the other courses of the colleges, except in the Summer Courses.

The Normal Courses are as follows:

**I. Courses for Rural Teachers.**

**(a) TWO YEAR COURSE.**

**First Year.**

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture.....	3	3	3
Nature Study { Plants.....	3	3	3
{ Animals.....	3	3	3
English.....	3	3	3
Mathematics.....	5	5	5
Military Drill.....	3	3	3

**Second Year.**

Farm Equipment.....	4	--	--
Soils.....	--	4	--
Crops.....	--	--	4
Plant Diseases.....	3	--	--
Physics.....	--	3	--
Botany.....	--	--	3
Mathematics.....	4	4	4
English.....	3	3	3
Drawing.....	2	2	2
History.....	2	2	2
Military Drill.....	3	3	3

(b) ONE YEAR COURSE.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture.....	3	3	3
Farm Equipment, Soils and Crops.....	4	4	4
Nature Study.....	3	3	3
Mathematics.....	4	4	4
English.....	3	3	3
Military Drill.....	3	3	3

II. Courses for City Teachers.

(a) TWO YEAR COURSE.

First Year.

Drawing.....	2	2	2
Wood-work.....	1	1	1
Forge-work.....	1	1	1
Mechanical Technology.....	1	1	1
Algebra and Geometry.....	5	5	5
English.....	3	3	3
History.....	2	2	2
Drill.....	3	3	3

Elective, 3 periods required: Physics 2, Nature Study (Plants) 3, Nature Study (Animals) 3.

## Second Year.

SUBJECTS.	PERIODS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Drawing .....	2	2	2
Wood-work .....	4	4	4
Forge-work .....	1	1	1
English .....	2	2	2
Architecture and Descriptive Geometry .....	2	2	2
Architectural Drawing .....	2	2	2
Geometry and Trigonometry .....	4	4	4
Drill .....	3	3	3

Elective, at least 2 periods required: Chemistry 3, Chemical Laboratory 2, Electricity and Magnetism 2, Descriptive Geometry 2, Plant Diseases, Human Physiology, Physiological Botany 3.

## (b) ONE YEAR COURSE.

Drawing .....	3	4	4
Wood-work .....	4	5	5
Forge-work .....	2	2	2
Architecture .....	2	--	--
Architectural Drawing .....	2	2	2
Algebra and Geometry .....	5	5	5
Drill .....	3	3	3

Elective: Physics 2, English (132) 3, English (133 and 135) 2, History 2, Nature Study (Plants) 3, Nature Study (Animals) 3, Chemistry 3, Chemical Laboratory 2, Electricity and Magnetism 2, Plant Diseases 3, Human Physiology 3, Physiological Botany 3, Geometry and Trigonometry 4, Descriptive Geometry 2.

## DONATIONS.

The College makes thankful acknowledgment of the receipt of the following gifts during the year:

### To the Textile Department.

*Whitin Machine Works, Whitinsville, Mass.*—One set leno attachments for dobby loom; repairs for carding and spinning machinery.

*Saco & Pettee Machine Shops, Newton Upper Falls, Mass.*—Repairs for spinning and roving frames.

*John Royle & Son, Paterson, N. J.*—Part value on piano card cutting machine.

*Joseph Battles Manufacturing Co., Lawrence, Mass.*—One 600-hook single-lift Jacquard machine.

*National Ring Traveler Co., Providence, R. I.*—Supply of spinning and twisting travelers.

*Cassella Color Company, New York.*—Samples dye-stuffs, books and pattern cards.

*Farbenfabriken von Elberfeld Company, New York.*—Samples dye-stuffs, books and pattern cards.

### Courtesies Extended to Textile Department.

Textile Excelsior, Charlotte, N. C.

Textile Manufacturers' Journal, New York.

Fiber and Fabric, Boston, Mass.

Manufacturers' Record, Baltimore, Md.

Textile World, Boston, Mass.

Textile American, Boston, Mass.

The Manufacturer, Philadelphia, Pa.

The Tradesman, Chattanooga, Tenn.

American Industries, New York City.

Cotton, Atlanta, Ga.

Dixie, Atlanta, Ga.

American Cotton and Wool Reporter, Boston, Mass.

Mill News, Charlotte, N. C.

Dyers' Bulletin, Philadelphia, Pa.

The Dyer and Calico Printer, London, Eng.

The Chemical Trade Review and Dyers' Trade Journal, Phila., Pa.

Garment Dyers' Guide, Philadelphia, Pa.

Cassella Color Company, New York City.  
 Pilot Cotton Mills, Raleigh, N. C.  
 Caraleigh Cotton Mills, Raleigh, N. C.  
 Raleigh Cotton Mills, Raleigh, N. C.

#### To the Library.

*Mrs. Lottie Boner, Durham, N. C.*—"Poems," by John Henry Boner.  
*Prof. C. W. Burkett, West Raleigh, N. C.*—"Ascent of Man," by Henry Drummond.

*Macmillan Co., New York.*—"The Fat of the Land," by John William Streeter.

*Mr. John A. Park, Raleigh, N. C.*—"Man Without a Country," by Edward Everett Hale.

*Capt. F. E. Phelps, West Raleigh, N. C.*—"Cochrane the Dauntless," "Condemned as a Nihilist," "In the Irish Brigade," and "On the Irrawaddy," by G. A. Henty; "Warwick of the Knobs," by John Uri Lloyd.

*Mr. John S. Pierson, New York.*—"Tom Keenan, Locomotive Engineer."

*Prof. Benjamin Sledd, Wake Forest, N. C.*—"From Cliff and Scour," "Watchers of the Hearth," by Prof. Benjamin Sledd.

*Mr. and Mrs. E. H. Taylor, Peterboro, N. H.*—"In Memory of Denzel Hollis Taylor."

*Mrs. George T. Winston, Raleigh, N. C.*—"The Lightning Conductor," by C. N. and A. M. Williamson.

#### To the Registrar's Office.

*Imperial Brush Company, Newark, N. J.*—One office brush.



## CATALOGUE OF STUDENTS.

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### GRADUATES. 6

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
WALTER LEE DARDEN, B. E.,	Goldsboro,	C. E.
OLIVER MAX GARDNER, B. S.,	Shelby,	Chem.
JAEVIS BENJAMIN HARDING, B. E.,	Greenville,	C. E.
WILLIAM F. KIRKPATRICK, B. E.,	Charlotte,	Agr.
CARROLL LAMB MANN, B. S.,	Englehard,	C. E.
GASTON WILDER ROGERS, B. E.,	Raleigh,	C. E.

### SENIOR CLASS. 44.

LEBOY FRANKLIN ABERNETHY,	Hickory,	Agr.
ROBERT JAMES AVERY,	Morganton,	Agr.
OSCAR LUTHER BAGLEY,	Bagley,	Chem.
BENJAMIN ALEXANDER BROOM,	Olive Branch,	M. E.
JOEL WATKINS BULLOCK,	Williamsboro,	Agr.
HENRY BROZIER CARTWRIGHT,	Elizabeth City,	C. E.
WILLIAM MILLER CHAMBERS,	Wentworth,	E. E.
HILLIARD FRANCIS CREITZBERG, JR.,	Winston-Salem,	Chem.
WALTER GOSS FINCH,	Lexington,	M. E.
STERLING GRAYDON,	Greenwood, S. C.,	M. E.
FRED. WATSON HADLEY,	Siler City,	Chem.
RICHARD HUGH HARPER,	Patterson,	Chem.
JERE ISAAC HERITAGE,	Catherine Lake,	C. E.
LABAN MILES HOFFMAN, JR.,	Dallas,	Tex.
JULIAN MEREDITH HOWARD,	Tarboro,	C. E.
LLOYD RAINY HUNT,	Lexington,	E. E.
ARTHUR TEMPLETON KENYON,	Clinton,	C. E.
STARB NEELY KNOX,	Pineville,	C. E.
JAMES HERRITAGE KOONCE,	Richlands,	C. E.
ROBERT CHARLES LEHMAN,	Raleigh,	C. E.
HENRY MARVIN LILLY,	Rest,	C. E.
LIPSCOMBE GOODWIN LYKES,	Tampa, Fla.,	Mining.
GEORGE GRKEN LYNCH, JR.,	Wilmington,	E. E.
MALCOLM ROLAND MCGIRT,	Rowland,	Agr.
WALTER HOGE MCINTIRE,	Wilmington,	Chem.
CHARLES WIGG MARTIN,	Portsmouth, Va.,	Agr.

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<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
JAMES OSCAR MORGAN,	Etowah,	Agr.
LINDSAY ALEXANDER MURR,	Wadesboro,	C. E.
GARLAND PERRIN MYATT,	Raleigh,	Chem.
JOHN ALSEY PARK,	Raleigh,	M. E.
JAMES HICKS PEIRCE,	Warsaw,	Chem.
PLEASANT H. POINDEXTER, JR.,	Donoha,	Agr.
EDWARD GRIFFITH PORTER,	Goldsboro,	C. E.
ROBERT WALTER SCOTT, JR.,	Melville,	Agr.
JONATHAN RHODES SMITH,	Merry Hill,	C. E.
JOHN DAVIDSON SPINKS,	Albemarle,	C. E.
JOHN HOUSTON SQUIRES,	Lenoir,	Agr.
ERVIN BLAKENEY STACK,	Mourne,	E. E.
DALLIS MIFFIN STANTON, JR.,	LaGrange,	Agr.
SYLVESTER MURRAY VIELE,	Salisbury,	E. E.
WALTER JENNINGS WALKER,	Winston,	E. E.
STEVEN DOCKERY WALL,	Rockingham,	M. E.
WALTER WELLINGTON WATT,	Charlotte,	Tex.
ARCHIE CARRAWAY WILKINSON,	Charlotte,	C. E.

JUNIOR CLASS. 1<sup>v</sup>

DURANT STEWART ABERNETHY,	Hickory,	C. E.
GEORGE GILDERBOY ALLEN,	Hiddenite,	Tex.
GEORGE PAGE ASBURY,	Burkmont,	C. E.
JOHN GRANGE ASHE,	Raleigh,	Tex.
JAMES CLAUDIUS BEAVERS,	Morrisville,	Agr.
NEEDHAM ERIC BELL,	Kinston,	Chem.
KENNETH LEON BLACK,	Mount Mourne,	C. E.
WILLIAM FRANCIS BROCK,	Farmington,	C. E.
WILLIAM ANDREWS BUYS,	Havelock,	C. E.
MARK HOPKINS CHESBRO,	Claremont, Va.,	Agr.
CONNOR CALHOUN CLARDY,	Concord,	E. E.
DAVID MACKENZIE CLARK,	Weldon,	C. E.
JOHN WASHINGTON CLARK,	Raleigh,	M. E.
JAMES DUNCAN CLARKE, JR.,	Tampa, Fla.,	Chem.
SAMUEL HERBERT CLARKE,	Statesville,	C. E.
WILEY THEODORE CLAY,	Hickory,	M. E.
DUNCAN ARCHIBALD COX,	Rowland,	Chem.
ALEXANDER DOANE CROMARTIE,	Garland,	Agr.
WILLIAM OSBORNE CRUMP,	Polkton,	E. E.
BENJAMIN BALLARD EGBERTON,	Ingleside,	C. E.
WELDON THOMPSON ELLIS,	Spencer,	M. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ALBERT EDWARD ESCOTT.	Charlotte,	Tex.
WILLIAM CARLYLE ETHERIDGE,	Manteo,	Agr.
JAMES BECKETT EWART,	Hendersonville,	E. E.
SHIRLY WATSON FOSTER,	Nance,	Agr.
ARTHUR WYNN GREGORY,	Halifax,	Chem.
CHARLES WALTER HACKETT,	North Wilkesboro,	C. E.
HORACE LESTER HAMILTON,	Biltmore,	E. E.
JOHN FREDERICK HANSELMAN,	Manson,	M. E.
CLARENCE WILSON HEWLETT,	Wilson,	E. E.
JAMES ALLEN HIGGS, JR.,	Raleigh,	C. E.
CYRUS WALKER HODGES,	LaGrange,	M. E.
WILLIAM CLAUDE HUBAND,	Winston,	M. E.
CLAUDE BEVERLY HUGGINS,	Goldsboro,	M. E.
LESTER LAFAYETTE JORDAN,	Raleigh,	C. E.
WILLIAM GRAHAM KNOX,	Charlotte,	Chem.
MARTIN PEARL LIPE,	Mint Hill,	Agr.
JOE POINDEXTER LOVILL,	Pine Ridge,	C. E.
THOMPSON MAYO LYKES,	Tampa, Fla.,	C. E.
HORACE SMITH MCLENDON,	Ansonville,	Agr.
RAYMOND MAXWELL,	Ressaca,	C. E.
JAMES EDWIN MOORE,	Williamston,	C. E.
LACY MOORE,	Graham,	E. E.
WALTER BOOKER MOORMAN,	Asheville,	E. E.
JOSEPH GRAHAM MORRISON,	Mariposa,	Agr.
JESSE CLARENCE MYRICK,	Littleton,	E. E.
CHARLES FRANKLIN NIVEN,	Morven,	Agr.
LOLA ALEXANDER NIVEN,	Cairo,	Agr.
LEWIS MILTON ODEN,	Hunter's Bridge,	Agr.
THOMAS JEFFERSON OGBURN,	West Lafayette, O.,	M. E.
CLYDE ESTER PARKER,	Raleigh,	Chem.
ARTHUR LEE PASCHAL,	Vaughan,	Agr.
CARL RANDALL PEPPER,	Southport,	C. E.
SAMUEL OSCAR PERKINS,	Muttenz,	Chem.
ANGELO BETTLENA PIVER,	Wilson,	C. E.
WILLIAM CRAWFORD PIVER,	Wilson,	Chem.
DURANT WAITE ROBERTSON,	Washington, D. C.,	Tex.
COLMAN MORELL SMITH,	Crystal Hill, Va.	M. E.
FREDDIE JACKSON TALTON,	Pikeville,	Agr.
LUTHER RUSSELL TILLET,	Carolla,	C. E.
RICHARD HENRY TILLMAN,	Deep Creek,	E. E.
WILLIAM SIDNEY TOMLINSON,	Goldsboro,	C. E.
REID TULL,	Kinston,	C. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
JACKSON CORPENING TUTTLE,	Lenoir,	E. E.
ROBERT PEEL UZZELL,	Goldsboro,	Agr.
PETER VALAER, JR.,	Winston,	Chem.
LILLIAN LEE VAUGHAN,	Franklin, Va.,	M. E.
CHARLES MANLY WALTON,	Morganton,	C. E.
JOHN HARLEIGH WILLIAMS,	Rialto,	Tex.
ARTHUR J. WILSON,	Knoxville, Ill.,	Chem.
HARLAN RALPH WILSON,	Knoxville, Ill.,	Chem.
LEWIS TAYLOR WINSTON,	West Raleigh,	Agr.

**SOPHOMORE CLASS. 77**

HERBERT SCANDLIN BATTLE,	Greensboro,	C. E.
JOE PITTMAN BIVENS,	Goodman,	C. E.
ALLAN HARRALSON BORDEN,	New Orleans, La.,	M. E.
JAMES PITTMAN BROOKS,	Grifton,	Agr.
CARNEY JOHN BRYAN,	Washington,	E. E.
RICHARD BURACKER,	Shenandoah, Va.,	E. E.
LINDSAY FERGUSON CARLETON,	Boomer,	E. E.
OSCAR BENJAMIN CARPENTER,	Stanley,	C. E.
ROBERT HILL CARTER,	Blackstone,	E. E.
WELDON THOMAS DAVIS,	Arcola,	Agr.
CLAUD COUNCIL DAWSON,	Grifton,	Tex.
JACOB TATUM EATON,	Farmington,	Agr.
SEBA ELDRIDGE,	Dunn,	C. E.
BENJAMIN BRYAN EVERETT,	Palmyra,	Agr.
JOHN LINDSAY FERGUSON,	Kendal,	E. E.
ELLAS VANBUREN FOWLER,	Glenville,	E. E.
CLEMENT LEINSTER GARNER,	Beaufort,	C. E.
ROY JOSEPH GILL,	Raleigh,	C. E.
ROBERT STRICKLER GRAVES,	Syria, Va.,	E. E.
JOHN CLARENCE GRIMES,	Lexington,	M. E.
GROVER CLEVELAND HARDESTY,	Morehead City,	Agr.
GEORGE ROM HARDESTY,	Wakefield,	E. E.
PHILIP WILLIAM HARDIE,	Brown Summit,	C. E.
JOHN GABRIEL HARDISON,	Thurman,	Agr.
GORDON HARRIS,	Raleigh,	E. E.
JOKTON LAFAYETTE HEMPHILL,	Morganton,	E. E.
JAMES HOOVER HENLEY,	Sanford,	Agr.
LAWRENCE JAMES HERRING,	Clinton,	Agr.
GUY FRANCIS HINSHAW,	Winston-Salem,	C. E.
WILLIAM NORMAN HOLT,	Smithfield,	Tex.

CATALOGUE OF STUDENTS.

105

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ALBERT CARL JONES,	Trinity,	Agr.
LAWRENCE O'TOOLE JONES,	Raleigh,	Agr.
RUFUS HENRY JONES, JR.,	Asheville,	Chem.
WILLIAM WHITMORE JONES,	Franklin,	E. E.
LAFAYETTE FRANK KOONCE,	Richlands,	Agr.
CHARLES EDWARD LATTA,	Raleigh,	Tex.
LOUIS EDGAR LOUGEE,	Raleigh,	Chem.
JAMES BURTON LYLE,	Franklin,	E. E.
JAMES BORDEN LYNCH,	Wilmington,	C. E.
HENRY KREIGER MCCONNELL,	Rabbit Hash, Ky.,	Chem.
OSCAR FRANKLIN MCNAIRY,	Greensboro,	C. E.
EUGENE FRANKLIN MEADOR,	Reidsville,	M. E.
BENNETT TAYLOR MIAL,	Raleigh,	M. E.
FRANK CURTIS MICHAEL,	Gibsonville,	M. E.
OSCAR DURHAM MIDDLETON,	Warsaw,	Chem.
FRANK THOMAS MILLER,	Rural Hall,	E. E.
JOHN MAPLE MILLS	Raleigh,	M. E.
ROY HERBERT MITCHELL,	Rolesville,	C. E.
HENRY STARBUCK MONTAGUE,	Winston-Salem,	Chem.
JOHN LIGHTFOOT MORSON,	Raleigh,	C. E.
CHARLES CULLEN OSBORNE,	Lawndale,	M. E.
JAMES ELWOOD OVERTON,	Aboskie,	Agr.
THOMAS FRANK PARKER,	Hillsboro,	Agr.
FRED. MAYNARD PARKS,	Morganton,	M. E.
EDWARD NEWTON PEGRAM,	Gastonia,	C. E.
GUY PINNER,	Elizabeth City,	C. E.
WINSLOW GERALD PITMAN,	Lumberton,	M. E.
JAMES KEMP PLUMMER,	Middleburg,	M. E.
THOMAS WILSON SADDLER,	Sandifer,	C. E.
LEON JACOB SCHWAB,	Goldsboro,	C. E.
JOHN OSCAR SHUFORD,	Gastonia,	E. E.
JAMES LAWRENCE SMITH, JR.,	Linden,	C. E.
LEON MARTIN SMITH,	Goldsboro,	C. E.
RALPH HUNTER SMITH,	New Bern,	M. E.
JESSE PAGE SPOON,	Oakdale,	Agr.
CLIFTON EARLE STANCILL,	Hill,	E. E.
WILLIAM CRAWFORD STAPLES,	Reidsville,	E. E.
VANCE SYKES,	Rock Spring,	C. E.
CLAUDE STRATTON TATE,	Littleton,	M. E.
WILLIAM BROOKS TRUITT,	Greensboro,	M. E.
JOHN ED. TURLINGTON,	Clinton,	Agr.
ERNEST MONROE WATKINS,	Anderson, S. C.,	M. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
LINDSAY MARADE WEAVER,	Lexington,	M. E.
JOHN JACKSON WELLS,	Elm City,	C. E.
DAVID LYNDON WHITE,	Trinity,	Agr.
CECIL BERNARD WHITEHURST,	Beaufort,	E. E.
EDGAR ADOLPH WOHLFORD,	Winston-Salem,	Chem.

### FRESHMAN CLASS.

ALBERT EDWIN ABERNETHY,	Hickory,	Agr.
DAVID NEILL ALLSBROOK,	Scotland Neck,	C. E.
WILLIAM PARTEE ASHCRAFT,	Charlotte,	Agr.
FRANK OSCAR BALDWIN,	Raleigh,	Chem.
GEORGE FRANCIS BASON, JR.,	Charlotte,	E. E.
HUBERT BEDDOES,	Charlotte,	E. E.
WILLIAM LAMAR BLACK,	Mt. Mourde,	M. E.
LEONARD ANDERSON BLACKBURN,	Winston,	E. E.
JOSEPH AGIN BOONE, JR.,	Lumberton,	Agr.
ASA GRAY BOYNTON,	Biltmore,	C. E.
HOWARD MILLER BROOKS,	Laurinburg,	C. E.
NATHAN COHN BROOKS,	New Bern,	M. E.
NEVILLE TURNER BROWN,	Raleigh,	M. E.
WILLIAM BRYANT BURGESS,	Rocky Mount,	E. E.
GREGG HOLT CALDWELL,	Davidson,	Agr.
ROBERT CALDER CANTWELL,	Wilmington,	C. E.
JAKE QUICKEL CARPENTER,	Thermal City,	M. E.
HERBERT FULLER CARROLL,	Raleigh,	Tex.
RALPH ROLEN CLINARD,	Winston-Salem,	M. E.
LOUIS HILL COUCH,	Southern Pines,	E. E.
ALFRED SCALES DALTON,	Winston,	C. E.
CLYDE WATSON DEAL,	Raleigh,	Agr.
BLAINE CLINGMAN DELLINGER,	Shelby,	C. E.
EDWIN SEXTON DEWAR,	Raleigh,	M. E.
EDWIN MIAL DEWEY,	Goldsboro,	M. E.
LOUIS C. DRAKE,	McAdenville,	Chem.
GEORGE THOMAS DUNLAP, JR.,	Norwood,	E. E.
TYLER BENNETT DUNLAP,	Cedar Hill,	E. E.
ALVIN DEANS DUPREE,	Greenville,	C. E.
RAYMOND ROWE EAGLE,	Statesville,	M. E.
MINNIE LUTHER EARGLE,	Leesville,	Agr.
WILLIE MARION EDWARDS,	Mars Hill,	Agr.
WILLIAM HENRY ESKRIDGE,	Shelby,	C. E.
ISAAC HERBERT FARMER,	Wilson,	E. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
BENJAMIN TROY FERGUSON,	Kimbolton,	Agr.
WARREN GOSS FERGUSON,	Southern Pines,	M. E.
JUNIUS TALMAGE GARDNER,	Shelby,	C. E.
WILLIAM FENNER GAYLORD,	Gaylord,	Agr.
SETH MANN GIBBS,	Middleton,	C. E.
FRANK DUNCAN GIBSON,	Gibson,	Agr.
LOVIC RODGERS GILBERT,	Potecasi,	Tex.
MOSES HENRY GOLD,	Beaufort,	C. E.
JOHN MILLER GOODMAN,	Winston-Salem,	C. E.
JOHN DAVID GRADY,	Albertson,	Agr.
ANDREW HEARTSFIELD GREEN.	Raleigh,	M. E.
EDWARD WILLIAM GREGORY,	Elizabeth City,	M. E.
CECIL LINWOOD GRIFFIN,	Manteo,	M. E.
WILLIAM THOMAS GRIMES,	Lexington,	Agr.
THOMAS DELAWARE GRIMSHAWL.	Montvale,	C. E.
DORSEY YATES HAGAN,	Greensboro,	M. E.
HENRY HANKINS HALL,	Wilmington,	M. E.
FRANK HARPER,	Baltimore, Md.,	Min.
HENRY WILLIAM HARRINGTON.	Diggs,	E. E.
THOMAS HARRIS,	Raleigh,	M. E.
ALLEN ARMFIELD HEATH,	Monroe,	M. E.
FRANK LEE HEATH,	Waxhaw,	M. E.
WILLIAM SILLERS HUBBARD,	Charleston, W. Va.,	C. E.
MILTON WALKER HUNTER,	Oxford,	E. E.
THOMAS CLINTON INGRAM,	Mt. Gilead,	E. E.
CORYDON SPENCER JONES,	Raleigh,	M. E.
JOHN McLAURIN JONES,	Durham,	E. E.
HERBERT WILLIAM KUEFFNER.	Durham,	E. E.
CLAUDE MILTON LAMBE,	Durham,	C. E.
HUGH BURTON LANCE,	Hot Springs,	M. E.
BENJAMIN BUSSEY LATTIMORE,	Shelby,	C. E.
DAVID LINDSAY,	Stoneville,	M. E.
WILL THOMAS LIPSCOMBE,	Greenville,	C. E.
GEORGE LAFAYETTE LYERLY,	Hickory,	M. E.
WILLIAM GARLAND McBRAYER.	Shelby,	C. E.
EDWARD OSCAR MCGOWAN,	Elm City,	Agr.
JOSEPH EDMUND MAJOR,	Anderson, S. C.,	M. E.
CLARENCE TALMAGE MARSH,	Aulander,	C. E.
JOHN SANFORD MASON,	Raleigh,	Chem.
LEWIS LARKINS MERRITT,	Williamston,	M. E.
DAVID JOHN MIDDLETON,	Warsaw,	Agr.
RALPH H. MORRISON,	Pioneer Mills,	M. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ROBERT LIVINGSTONE MURPHY,	Morganton,	E. E.
GUY POWERS MURRAY,	Wallace,	Agr.
DAVID WHAREY NEWELL,	Newell,	E. E.
JAMES CALEB PARKER,	Elizabeth City,	E. E.
JOHN SHAW PESCOD,	Raleigh,	Chem.
PAUL NATHANIEL PITTENGER,	Raleigh,	M. E.
BENJAMIN FRANKLIN PITTMAN,	Tarboro,	E. E.
LAWRENCE LYON PITTMAN,	Whitakers,	E. E.
LOUIS JULIEN POISSON,	Wilmington,	Min.
ROBERT EDWARD STUART POPE,	Durham,	E. E.
HARRY ALEXANDER POWELL,	Fairbluff,	Tex.
JAMES ALEXANDER POWELL,	Raleigh,	E. E.
THOMAS MILTON POYNER,	Poplar Branch,	M. E.
WILLIAM THOMAS PRICE,	New Bern,	Tex.
PHILIP VALENTINE RAND,	Raleigh,	M. E.
GEORGE BARBER RIDDLE,	Raleigh,	M. E.
HENRY SPRAGUE SILVER,	Morganton,	E. E.
WILLIAM DUDLEY SIMPSON,	Raleigh,	C. E.
FRANK EVINS SKINNER,	Greenville,	C. E.
EDGAR ENGLISH SMITH,	Greensboro,	C. E.
HENRY LEWIS SMITH,	Dunn,	M. E.
HARRIS INGRAM STANBACK,	Mt. Gilead,	E. E.
CHARLES EDWARD STEWART,	Claremont, Va.,	E. E.
ALBERT BENJAMIN SUTTLE, JR.,	Shelby,	C. E.
WILLIAM THADDEUS TEMPLE,	Sanford,	M. E.
JAMES BRUCE THOMPSON,	Goldsboro,	M. E.
WILLIAM NOLLIE TILLET,	Carola,	C. E.
WILLIS MOORE TROTTER,	Charlotte,	Agr.
PAUL VALAER,	Winston,	M. E.
CHARLES ALBERT WALKER,	Greensboro,	M. E.
JOHN PIPER WATTERS,	Charlotte,	E. E.
GUY WELLS,	Shelby,	C. E.
ROYALL EDWARD WHITE,	Aulander,	C. E.
SYDNEY RUSSELL WHITE,	Scotland Neck,	C. E.
ORLAND WAITT WHITLEY,	Wakefield,	M. E.
SAMUEL HAMILTON WILEY,	Salisbury,	Min.
FRANK GRAHAM WILLIAMS,	Inez,	Agr.
JOHN C. WILLIAMS,	Linden,	C. E.
OSCAR DEY WILLIAMS,	Edenton,	E. E.
THOMAS DICKSON WILLIAMS,	Matthews,	E. E.
FRANK WILSON,	Greenville,	C. E.
JOHN KELSO WILSON, JR.,	Baltimore, Md.,	C. E.



<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ROBERT JOB WYATT,	Raleigh,	M. E.
WOODFIN BRADSHER YARBOROUGH,	Locust Hill,	E. E.
JOHN FRANKLIN ZIGLER,	Winston-Salem,	M. E.

**SHORT COURSE STUDENTS.****Second Year.**

KERR MILLER CLEMENT,	Farmington,	Agr.
PAUL HERSCHEL FERGUSON,	Whittier,	Agr.
URBAN BANIOUS FISHER,	Lake Comfort,	Agr.
MACON WAYNE FOSCUE,	Trenton,	M. A.
JEPHA NELSON GIBSON,	Gilson,	Agr.
MALGRIN FLAY HAMEICK,	Caroleen,	M. A.
WILLIAM PRESTON HARRELL,	Sunbury,	Agr.
THEODORE THOMPSON HESTER,	Roxboro,	Agr.
JOHNSON OLIVE KELLY,	Apex,	Agr.
VERNON LILES KNOTTS,	Wadesboro,	M. A.
WALTER LAFAYETTE MASON,	Stanley,	M. A.
MAESHALL PAULUS MASSIE,	Bryant, Va.,	M. A.
DAVID ROBERT NELMS,	Washington,	Agr.
WAVERLY BOYD NEWSOME,	Aulander,	M. A.
CLEM NUMA SOMERS,	Elon College,	Agr.
JESSE COLETRAINED STANSEL,	Allenton,	Agr.
HERSCHELL LINDSAY SWANN,	Cool Spring,	Agr.
ROSCOE ROBINSON WEAVER,	Nouah,	M. A.

**SHORT COURSE.****First Year.**

WEBSTER SPRUILL ALEXANDER,	Columbia,	M. A.
WILLIAM ANDERSON ALLEN,	Kinston,	M. A.
LOYD LACY ALLISON,	Concord,	Agr.
WILLIAM RATLIFF ANDERSON,	Reidsville,	M. A.
MOSES HOLMES ARENDELL,	Raleigh,	M. A.
WESLEY MARVIN BAGBY, JR.,	High Point,	M. A.
WM. HERBERT DOUGHTY BANCK,	Wilmington,	M. A.
JOHN CARTWRIGHT BELL,	Windsor,	Agr.
DAVID NEVAL BENNETT,	Norwood,	Agr.
JOHN LEE MILLER BEST,	Goldsboro,	Agr.
CHARLIE GAY CARTER,	Dillingham,	Agr.
JAMES WASHINGTON CARTER,	Morganton,	M. A.
KENNETH WILLIAM CARTER,	Barnardsville,	Agr.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ROGER FESTUS COLLINS,	Holly Springs,	M. A.
JOSEPH FLETCHER COLSON,	Norwood,	Agr.
DANIEL WILLIAM COX,	Rowland,	Agr.
EUGENE COMER DEAN,	Raleigh,	M. A.
JOHN JACKSON EDMUNDSON, JR.,	Raleigh,	M. A.
COLUMBUS POLYCARP EFIRD,	Albemarle,	Tex.
MORTON SHEETS ERWIN,	Morganton,	M. A.
BERRY FLOWE,	Hickory,	M. A.
PERCY LEIGH GAINNEY,	Sherwood,	Agr.
ZED GRIFFITH,	Thomasville,	M. A.
WILLIAM ROY HAMPTON,	Plymouth,	M. A.
GEORGE WASHINGTON HARRINGTON,	High Point,	M. A.
WILLIAM TURNER HEDGECOCK,	Kernersville,	M. A.
WILLIAM BOOKER HUMPHRIES,	Bethel Hill,	Agr.
CHARLES FREDERICK HUTAFF,	Wilmington,	M. A.
EDGAR WINFIELD ISELEY,	McLeansville,	Agr.
FRANCIS POTTS JETTON,	Davidson,	M. A.
MARCUS LEE KILLERREW,	Rocky Mount,	M. A.
WILLIAM ROBERT KIMBALL,	Hargrove,	M. A.
WARREN WHEELER LINDSAY,	Beaufort,	M. A.
ZED VANCE LINKER,	Concord,	Tex.
LEON LESLIE MCCLEES,	Oriental,	M. A.
ALBERT JOHNSON McCRACKEN,	Clyde,	Agr.
WALDO F. McCRACKEN,	Clyde,	M. A.
SION HARRINGTON McLEOD,	Broadway,	M. A.
ALSTON NORWOOD McMILLAN,	Lumberton,	Agr.
JOHN BYRON MARTIN,	Mooresboro,	Agr.
CLYDE LITTELE MAY,	Burlington,	M. A.
GROVER THOMAS MAYO,	Washington,	M. A.
ARTHUR LOUIS MIDGETT,	Skyco,	M. A.
JOHN HARRY KING MORGAN,	Salisbury,	M. A.
VAN BALLARD NICHOLSON,	Greensboro,	M. A.
JOSEPH STARK NORMAN,	Plymouth,	M. A.
THOMAS HORNER OLIVE,	Apex,	M. A.
WILL HOWARD OLIVER,	Page's Mills,	Agr.
MAXEY DENTON PASS,	Mocksville,	Agr.
PAUL MICHAUX PEARSON,	Morganton,	M. A.
ISHAM ROLAND PEIRCE,	Warsaw,	M. A.
JOHN ALEXANDER PORTER, JR.,	Biltmore,	M. A.
HILLARY DOUDY POTTER,	Vandemere,	Agr.
JOHN MOIR PRICE,	Leaksville,	M. A.
JAMES STERLING PRICE,	Raleigh,	M. A.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
JESSE LINDSAY PRIMROSE,	Raleigh,	M. A.
LEBOY ELI ROBBINS,	Wilbanks,	Agr.
HARRY ROLAND,	Burnsville,	M. A.
MALCOLM LEMAY SANDERS,	Smithfield,	Agr.
RUSSELL LEE SATTERTHWAITE,	Plymouth,	Agr.
JOHN WILLIAM SHELBURN,	Greenville,	M. A.
TURNER RANKIN SILER,	Franklin,	M. A.
ROBERT LUCIUS SMITH,	Asheville,	M. A.
SAMUEL HAMPTON SMITH,	High Shoals,	Tex.
BASIL SKINNER SNOWDEN,	Snowden,	Agr.
CECIL ERNEST SPRUILL,	Creswell,	M. A.
ALFRED MILTON STALEY,	Staley,	Tex.
JAMES THOMAS STALLINGS,	Tarboro,	Agr.
HUGH STUART STEELE,	Yadkin Valley,	Agr.
DUNCAN STEWART,	Maxton,	Agr.
CLAUD LUTHER THIGPEN,	Greenville,	Agr.
ROLAND DAVID THIGPEN,	Speed,	Agr.
JERRY PELLETIER THOMAS,	Beaufort,	Agr.
JOHN DICK THOMASON,	Hickory,	M. A.
JAMES FENTON TOWE,	Chapanoke,	M. A.
WILLIE JAMES WARD,	Plymouth,	M. A.
CAREY MOYE WARREN,	Greenville,	M. A.
WALTER CALVIN WARREN,	Gordonton,	Agr.
JOHN ALLISON WATSON,	Wilson,	M. A.
ROBERT MARSHALL WHITLEY,	Charlotte,	M. A.
CLARENCE ANDREWS WHITLOCK,	Rockingham,	Agr.
LOUIS GLENN WINSTEAD,	Elm City,	Agr.
JAMES DODDS WOMACK,	Reidsville,	M. A.
JOHN HARRELL WOODY,	Asheville,	M. A.

### Irregular Students.

WILLIAM WALTERS BAKER,	Wakefield,	C. E.
ANDREW NELSON BOWEN,	Newberry, S. C.,	Tex.
ELIJAH DARLING,	New Bern,	M. E.
JAMES STONEY DRAKE,	McAdenville,	Tex.
WILBUR BLONDELLE FOSCEE,	Pollocksville,	M. E.
GEORGE PARISH HAMILTON,	Charlotte,	M. E.
TROY ISALAH HERRING,	Herring,	M. E.
RICHARD ROWAN HOLT,	Smithfield,	Agr.
SAMUEL NELSON LATTIMORE,	Shelby,	Tex.
WILLIAM LAURENCE LAVAL,	Greenville, S. C.,	Tex.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ALBERT POWERS McMILLAN,	Fayetteville,	C. E.
HERBERT WRIGHT MORRISSETTE,	Shiloh,	M. E.
HERBERT HENRY MOSES,	Raleigh,	M. E.
IRA BROADUS MULLIS,	Wingate,	C. E.
WILL LACY PRICE,	Ashpole,	Agr.
EUGENE THOMAS ROBESON.	Greensboro,	C. E.
JAMES CLIFTON SAWYER,	Elizabeth City,	C. E.
HENRY SPONG,	Concord,	Tex.
HERBERT NATHANIEL STEED,	Steeds,	Tex.
RONALD BONAR WILSON,	Greensboro,	Tex.

### WINTER COURSE STUDENTS.

JAMES ALEXANDER BAIN,	Fayetteville,	Dairying.
DANIEL L. BERRY,	Swan Quarter,	Dairying.
BROOKS BUTLER BLAKENEY,	Monroe,	Dairying.
CHARLES MARVIN BOYD,	Gastonia,	Dairying.
GRAHAM GREEN BRANTLY,	Spring Hope,	Dairying.
CARLETON HENRY HOLLINGSWORTH,	Warsaw,	Dairying.
MATTHEW CADMUS COUNCIL,	Apex,	Dairying.
JAMES ALFORD DAUGHTREDGE,	Nashville,	Dairying.
HUGH GLENN FERGUSON,	Whittier,	Dairying.
VERNON GALLAMORE,	Brevard,	Dairying.
FRANK GRIFFITH,	Monroe,	Dairying.
JOSEPH INGRAM,	Malee,	Dairying.
AURELIUS GASTON JONES,	Smithfield,	Dairying.
JOHN MARCUS KESTER,	Crocker,	Dairying.
JOHN FRANKLIN KLEIN,	Wilmington,	Dairying.
ROBERT CARLISLE MILLER,	Laurel Springs,	Dairying.
RICHARD HENRY MOORE, JR.,	Battleboro,	Dairying.
JOHN FRED. OGBURN,	Joilet,	Dairying.
CHARLES SPURGEON OSBORNE,	Brevard,	Dairying.
ELPENA COUNCIL PARKER,	Menola,	Dairying.
RICHARD H. PRINDLE,	Bob Air, Va.,	Dairying.
TAYLOR WILSON RIDOUT,	Axtell,	Dairying.
ROBERT ALONZO ROWE,	Conover,	Dairying.
JAMES CALVIN SPENCER,	Boonville,	Dairying.
ODIE CLINTON STUART,	Snow Camp,	Dairying.
WILLIAM RESDON TINGLE,	Arapahoe,	Dairying.
JESSE HOLLOWELL WHITLEY,	Smithfield,	Dairying.
JOHN SMITH WOOD,	Liberty,	Dairying.
ROBERT CLELEAN YOUNG,	Greensboro,	Dairying.

# FIFTEENTH ANNUAL COMMENCEMENT.

May 25, 1904.

## BACHELORS OF AGRICULTURE.

WILLIAM WALTER FINLEY,                      JAMES CLARENCE TEMPLE,  
WILLIAM KERR,                                      ALBERT CLINTON WHARTON, JR.

## BACHELORS OF ENGINEERING.

### In Civil Engineering.

EUGENE CLEVELAND BAGWELL,              WILLIAM FIELD MORSON,  
ERNEST ERWIN LINCOLN,                      LEON ANDREWS NEAL,  
    JOSEPH KENDALL WAITT.

### In Electrical Engineering.

HAYWOOD LEWIS ALDERMAN,              JOSEPH PERRIN GULLEY, JR.,  
WILLIAM ALEXANDER BARRETT,              WILLIAM FRANKLIN KIRKPATRICK,  
TIMOTHY ELDRIDGE,                              JOSEPH ALFRED MILLER,  
JAMES WILLIAM FARRIOR,                      WILLIAM JOEL PATTON,  
    FREDERICK COLWELL PHELPS.

### In Mechanical Engineering.

NELSON ADAMS,                                      GEORGE HERBERT HODGES,  
SYDNEY WOODWARD ASBURY,                      BRANTON FAISON HUGGINS,  
EDWARD PAR BAILEY,                              JOHN FAIRLY MCINTYRE,  
JAMES CLAUDIUS BARBER,                      WILLIAM WALTER RANKIN, JR.,  
WILLIAM WALTON BARBER,                      RISDEN PATTERSON REECE,  
PAUL STIREWALT GRIERSON,                      WILLIAM RICHARDSON, JR.,  
    MARION EMERSON WEEKS.

### In Textile Industry.

GEORGE WASHINGTON FOUSHEE,              JESSE McRAE HOWARD,  
JARVIS BENJAMIN HARDING,                      HILL McIVER HUNTER,  
    JAMES McKIMMON.

## BACHELOR OF SCIENCE.

### In Industrial Chemistry.

EDGAR WILLIAM GAITHER.

**MASTER OF AGRICULTURE.**

JUNIUS SIDNEY CATES.

**HONORS IN SCHOLARSHIP FOR FOUR YEARS.**

J. B. HARDING,	R. P. REECE,
E. E. LINCOLN,	J. C. TEMPLE.

**HONORS IN SCHOLARSHIP FOR 1903-4.****Senior Class.**

J. W. FARRIOR,	WILLIAM KERR,
J. B. HARDING,	E. E. LINCOLN,
G. H. HODGES,	R. P. REECE,
	J. C. TEMPLE.

**Junior Class.**

O. L. BAGLEY,	L. A. MURR,
L. V. EDWARDS,	C. A. SEIFERT,
C. W. MARTIN,	J. RHODES SMITH.

**Sophomore Class.**

H. L. HAMILTON.	J. P. LOVILL,
	L. L. VAUGHAN.

**Freshman Class.**

W. B. TRUITT.

**Short Course Class.**

V. L. KNOTTS,	W. L. MASON,
	W. O. MCKEOWN.

**Irregular Class.**

L. F. KOONCE.

**HONORS FOR PUNCTUALITY.**

P. S. GRIERSON, '04.	E. F. MEADOR, '07.
S. N. KNOX, '05.	C. B. WHITEHURST, '07.
S. W. FOSTER, '06.	V. L. KNOTTS, '08.
C. M. SMITH, '06.	C. N. SOMERS, '08.
L. F. CARLETON, '07.	G. C. TAYLOR, '08.

## REGISTER OF ALUMNI.

### CLASS OF 1893.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT WILSON ALLEN,	B. E.,	Sanford, N. C. Superintendent of Graded School.
SAMUEL ERSON ASBURY,	B. S.,	College Station, Texas. M. S. 1896. 1st Assistant State Chemist.
HENEY EMIL BONITZ,	B. E.,	Wilmington, N. C. Architect.
FRANK FULLER FLOYD,	B. E.,	Knoxville, Tenn. Salesman Jellico Coal Mining Co.
CHARLES DUFFY FRANCKS,	B. E.,	Richlands, N. C. Farmer and Merchant.
EDWARD MOORE GIBBON,	B. E.,	Charlotte, N. C. Civil Engineer, The Engineering Company of America.
GEORGE PENDER GRAY,	B. S.,	Memphis, Tenn. Farm Manager.
CHARLES BOLLING HOLLADAY,	B. E.,	Wilmington, Del. Treasury Department The Dupont Co.
WILLIAM McNEILL LYTCH,	B. E.,	Laurinburg, N. C. Superintendent Cotton Seed Oil Mill.
JAMES WILLIAM MCKOY,	B. E.,	Black Mountain, N. C. Civil Engineer and Merchant.
WALTER JEROME MATHEWS,	B. E.,	Goldsboro, N. C. Electrician and Chief Engineer for the Eastern N. C. Asylum for the Insane.
FRANK THEOPHILUS MEACHAM,	B. S.,	Statesville, N. C. M. S. 1894. Superintendent State Test Farm.
CARL DeWITT SELLARS,	B. E.,	Greensboro, N. C. Book-keeper for Cone Export and Commission Co.
CHARLES EDGAR SEYMOUR,*	B. S.,	Raleigh, N. C. Farmer.
BUXTON WILLIAMS THORNE,	B. E.,	Holly Springs, Miss. Cashier Peoples Bank.
WILLIAM HARRISON TURNER,	B. E.,	Winston-Salem, N. C. Manager and Treasurer Twin-City Wood Co.

\* Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CHARLES BURGESS WILLIAMS,	B. S.,	Raleigh, N. C.
M. S. 1896. Assistant Chemist State Agricultural Department.		
LOUIS THOMAS YARBROUGH,	B. E.,	Raleigh, N. C.
Night Clerk Raleigh Post-office.		
SAMUEL MARVIN YOUNG,	B. E.,	Raleigh, N. C.
Of S. M. & W. J. Young.		

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### CLASS OF 1894.

CHARLES EDWARD CORPENING,	B. E.,	Lenoir, N. C.
Farmer and Dealer in Lumber and Real Estate.		
DAVID COX, JR.,	B. E.,	Hertford, N. C.
Civil Engineer, Cox & Land.		
ROBERT DONNELL PATTERSON, JR.,	B. S.,	Chase City, Va.
M. S. 1898. Cashier The First State Bank.		
CHARLES PEARSON,	B. E.,	New Bern, N. C.
Chief Assistant Engineer, Howland Improvement Co.		
ZEBBIE GEORGE ROGERS,	B. E.,	Washington, D. C.
Civil Engineer Baltimore and Ohio Railroad.		
JOHN HYER SAUNDERS,	B. E.,	Pinner's Point, Va.
Locomotive Engineer A. C. L. Ry.		
BENJAMIN FRANKLIN WALTON,	B. S.,	West Raleigh, N. C.
Farm Superintendent, N. C. Experiment Station.		
JOHN MCCAMY WILSON,	B. E.,	Inman, S. C.
Chief Engineer and Master Mechanic Inman Cotton Mill.		

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### CLASS OF 1895.

THOMAS MARTIN ASHE,*	B. E.,	Raleigh, N. C.
Architect—Pearson & Ashe.		
JAMES ADRIAN BIZZELL,	B. S.,	Ithaca, N. Y.
M. S. 1900. Ph. D. Cornell University. Chemist Cornell University Expt. Station.		
JOHN ISHAM BLOUNT,	B. E.,	Birmingham, Ala.
C. E. 1897. M. E. Cornell University. Manager Birmingham Equipment Co.		
JAMES WASHINGTON BRAWLEY,	B. S.,	Mooreville, N. C.
Merchant and Farmer.		
WALTER AUSTIN BULLOCK,	B. S.,	Amsterdam, Ga.
Superintendent Tobacco Farm.		

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\* Deceased.



## REGISTER OF ALUMNI.

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<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DAVID CLARK,	B. E.,	Charlotte, N. C.
M. E. Cor. Univ. M. E. 1896. C. E. 1897. President Clark Manufacturing Co. and President Eugenia Manufacturing Co., Jonesboro, N. C.		
GEORGE WASHINGTON CORBETT, JR.,	B. E.,	Currie, N. C.
Of Firm of G. W. Corbett & Bro., Lumbermen.		
EDWIN SPEIGHT DARDEN,	B. S.,	Wilson, N. C.
Book-keeper, Clark Bros. & Bass, Tobacconists.		
WILLIAM KEARNEY DAVIS, JR.,	B. E.,	Marion, S. C.
Superintendent Cotton Mills.		
JOSEPH CHARLES DEY,	B. S.,	Norfolk, Va.
Produce Broker.		
LEE BORDEN ENNETT,	B. S.,	Cedar Point, N. C.
County Superintendent of Schools.		
ISAAC HENRY FOUST,	B. E.,	Littleton, N. C.
Mechanical Engineer.		
CHARLES WILLIS GOLD,	B. S.,	Wilson, N. C.
Vice-President Peacock & Gold Co., Insurance.		
WILLIAM HENRY HARRISS,	B. E.,	Atlanta, Ga.
M. E. 1896. Representing Richard A. Blythe, Philadelphia, Pa.		
CHRISTOPHER MILLER HUGHES,	B. E.,	Fayetteville, N. C.
B. S. 1899. Cashier Bank of Fayetteville.		
MALCOLM BEALL HUNTER,	B. E.,	Cambridge, Penn.
Philadelphia Bell Telephone Co.		
SAMUEL CHRISTOPHER MCKEOWN,	B. E.,	Sumter, S. C.
Draftsman, The Sumter Telephone Manufacturing Co.		
MANN CARE PATTERSON,	B. E.,	Durham, N. C.
Farmer.		
ABRAM HINMAN PRINCE,	B. S.,	Washington, D. C.
U. S. Soil Survey.		
CHARLES MARCELLUS PRITCHETT,	M. E.,	Honea Path, S. C.
C. E. 1896. Engineer Belton Power Co.		
VICTOR VASHTI PRIVOTT,	B. E.,	Lexington, N. C.
Chief Engineer and Machinist Nokomis Cotton Mill.		
HOWARD WISWALL, JR.,	B. E.,	Wilmington, N. C.
Engineer United States Engineer Department.		
CHARLES GARRETT YARBROUGH,	B. E.,	Chicago, Ill.
Foreman Testing Department Western Electric Co.		

## CLASS OF 1896.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DANIEL ALLEN,	B. S.,	Raleigh, N. C. Traveling Salesman.
GEORGE STRONACH FRAPS,	B. S.,	College Station, Texas. Ph. D. Johns Hopkins University. Associate Chemist Texas Experiment Station.
MARION JACKSON GREEN,	B. S.,	Morganton, N. C. Mechanical Instructor North Carolina School for Deaf and Dumb.
JOHN HOWARD,	B. S.,	Middlesboro, Ky. Civil and Mining Engineer.
WILLIAM COLBERT JACKSON,	B. S.,	Ayden, N. C. General Merchant.
ROBERT GRAHAM MEWBORNE,	B. S.,	Louisville, Ky. Chemist Kentucky Tobacco Product Co.
LEVI ROMULUS WHITTED,	B. S.,	Anniston, Ala. C. E. 1897. Supt. Constr. U. S. Treasury Department.
HENRY LLOYD WILLIAMS,	B. S.,	Cofield, N. C. Mill Superintendent Cofield Manufacturing Co.

## CLASS OF 1897.

JOSEPH SAMUEL BUFFALOE,	B. S.,	Garner, N. C. M. D. Physician.
JOHN WILLIAM CARROLL,	B. S.,	Wallace, N. C. M. D. University of Maryland 1903. Physician.
CHARLES EDWARD CLARK,	B. S.,	Charlotte, N. C. Truck Farmer.
WM. ALEXANDER GRAHAM CLARK,	B. S.,	Jonesboro, N. C. M. E. Cornell Univ. Treasurer Eugenia Mfg. Co. and Clark Mfg. Co.
NICHOLAS LOUIS GIBBON,	B. S.,	Biddeford, Me. Mill Engineer Saco & Pettoe Machine Works.
CEBURN DODD HARRIS,	B. S.,	Raleigh, N. C. A. M. Cornell Univ. Asst. Chemist and Microscopist N. C. Dept. of Agriculture.
JERE EUSTIS HIGHSMITH,	B. S.,	Parkersburg, N. C. Farmer.
CLYDE BENNETT KENDALL,	B. S.,	Washington, D. C. Field Assistant U. S. Geological Survey.
SYDNEY GUSTAVUS KENNEDY,	B. S.,	Newark, N. J. With J. S. Muddy Engine Works.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOSEPH LAWRENCE KNIGHT,	B. S.,	Dewey, Fla.
		Firm of Pitt & Knight, Naval Stores and Cattle.
WALTER JONES MCLENDON, JR.,	B. S.,	Marshall, N. C.
		President and General Manager Capitola Mfg. Co.
REPTON HALL MERRITT,	B. S.,	McAdenville, N. C.
		Book-keeper Cotton Mill.
ALBERT HICKS OLIVER,	B. S.,	New Orleans, La.
		Dairyman and Farm Superintendent.
HUGH WILLIAM PRIMBOSE,*	B. S.,	Raleigh, N. C.
		M. S. 1900.
WILLIS HUNTER SANDERS,	B. S.,	Roanoke Rapids, N. C.
		Superintendent Roanoke Navigation and Water-power Co.
THOMAS JEHU SMITHWICK,	B. S.,	Port Royal, S. C.
		Electrical Engineer Navy Yard.
JORDAN LEA WATSON,	B. S.,	Atlanta, Ga.
		Mechanical Engineer, Allis Chalmers Co.
BRADLEY JEWETT WOOTEN,*	B. S.,	Wilmington, N. C.
		Lieutenant U. S. Army.

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**CLASS OF 1898.**

DORSEY FROST ASBURY,	B. S.,	Washington, D. C.
		U. S. Gun Works.
SIDNEY HAMILTON BECK,	B. S.,	Washington, D. C.
		Marine Engineer Navy Department.
ANSON ELIKEM COHOON,	B. S.,	Washington, D. C.
		With Forestry Bureau Department of Agriculture.
HUGH McCULLOM CURRAN,	B. S.,	Washington, D. C.
		With Forestry Bureau Department of Agriculture.
BENJAMIN CAREY FENNELL,	B. S.,	Atlanta, Ga.
		M. E. 1900. Engineer and Machinery Contractor.
ALPHEUS ROUNTREE KENNEDY,	B. S.,	Mystic, Conn.
		Draughtsman Eastern Ship Building Co.
FREDERICK CREECY LAMB,	B. S.,	Raleigh, N. C.
		Assistant Chemist N. C. Department of Agriculture.
EDWIN BENTLEY OWEN,	B. S.,	Chicago, Ill.
		Graduate Student Chicago University.

\* Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
B. MOORE PARKER,	B. S.,	Clemson, S. C.
Assistant in Carding and Spinning, Clemson Agricultural College.		
NUMA REID STANSEL,	B. S.,	Portsmouth, Va.
Chief Electrical Engineer U. S. Navy Yard.		
TEISAKU SUGISHITA,	B. S.,	Kokufu, Hida, Japan.
Civil Engineer.		
GEORGE FREDERICK SYME,	B. S.,	Copen, W. Va.
Resident Civil Engineer Coal and Coke Railway.		

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**CLASS OF 1899.**

WM. DAVIDSON ALEXANDER, JR.,	B. S.,	Charlotte, N. C.
Constructing Engineer, Charlotte Water-works.		
IEA WILSON BARBER,	B. S.,	Mt. Airy, N. C.
Superintendent Electric Light Plant and Water-works.		
JOHN HENDERSON BIRDSONG,	B. S.,	Duquesne, Pa.
Chemist Carnegie Steel Company.		
FRANCIS MARION FOY,	B. S.,	Scott's Hill, N. C.
Truck Farmer.		
ALBERT SIDNEY LYON,	B. S.,	Rocky Mount, N. C.
Superintendent Public Works.		
CARROLL LAMB MANN,	B. S.,	West Raleigh, N. C.
Instructor in Civil Engineering.		
O'KELLY WILLIAM MYERS,	B. S.,	Fortress Monroe, Va.
Engineer of Construction, U. S. Engineering Department.		
EUGENE LEROY PARKER,	B. S.,	Mt. Pleasant, Tenn.
Chemist Tennessee Phosphate Co.		
EUGENE GRAY PERSON,	B. S.,	Macon, Ga.
Book-keeper Bibb Mfg. Co.		
FREDERICK ERASTUS SLOAN,	B. S.,	West Raleigh, N. C.
Registrar N. C. College of Agriculture and Mechanic Arts.		
ANDREW THOMAS SMITH,	B. S.,	Newport News, Va.
Draftsman, Newport News S. S. and D. D. Co.		
ALEXIS PRESTON STEELE,	B. S.,	Statesville, N. C.
Mechanical Engineer J. C. Steele & Son's Brick Machinery Co.		
WILLIAM ANDERSON SYME,	B. S.,	Baltimore, Md.
M. S. 1903. Graduate Student Johns Hopkins University.		
HUGH WARE,	B. S.,	Ensley, Ala.
Assistant Chemist Tennessee Coal, Iron and Railroad Co.		
CLAUD BURGESS WILLIAMS,	B. S.,	New York City.
M. D., Resident Physician Bellevue Hospital.		

## CLASS OF 1900.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
KEMP ALEXANDER,	B. E.,	Kernersville, N. C. Superintendent Davis-Crews Co. Hosiery Mill.
LESLIE LYLE ALLEN,	B. E.,	Washington, D. C. Ordnance Draughtsman U. S. Government.
ROBERT LINN BERNHARDT,	B. S.,	Salisbury, N. C. With Salisbury Hardware and Furniture Co.
LESLIE GRAHAM BERRY,	B. E.,	Des Moines, Iowa. Structural Engineer with Des Moines Bridge and Iron Works.
JAMES HARRY BUNN,	B. E.,	Henderson, N. C. Assistant Secretary Henderson Cotton Mill.
SAMUEL MERRILL HANFF,	B. S.,	Sewanee, Tenn. Theological Student University of the South.
GEORGE ROLAND HARRELL,	B. S.,	Elizabeth, N. J. Superintendent Anation Chemical Co.
HENRY ALLEN HUGGINS,	B. S.,	Wilmington, N. C. Book-keeper, Geo. W. Huggins.
GARLAND JONES, JR.,	B. S.,	Fort Worth, Tex. Chemist Armour & Co.
LOUIS HENRY MANN,	B. E.,	Middleton, N. C. Dentist.
ROBERT HALL MORRISON,	B. E.,	Mariposa, N. C. Assistant Manager Cotton Mill.
WILLIAM MONTGOMERY PERSON,	B. E.,	Bethlehem, Pa.
JUNIUS EDWARD PORTER,	B. E.,	Portsmouth, Va. Assistant Engineer, A. C. L. Railway Co.
ROGER FRANCIS RICHARDSON,	B. E.,	Washington, D. C. Secretary and Treasurer Southern Disney Shade Fixture Co.
WILLIAM EDWIN ROSE,	B. E.,	Newport News, Va. Draughtsman Newport News S. S. and D. D. Co.
FLOYD DE ROSS,	B. E.,	Charlotte, N. C. Manager Southern Office, Fostoria Electric Co.
IRA OBED SCHAUB,	B. S.,	Ames, Iowa. Assistant Professor of Soils, Iowa State College.
JOHN WADE SHORE,	B. S.,	Boonville, N. C. Teacher and Farmer.
WILLIAM TURNER SMITH,	B. E.,	Duplin, Ga. Secretary and Treasurer Georgia Hydraulic Stone Co.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
SOLOMON ALEXANDER VEST,	B. S.,	Rocksdale, Tenn. Chemist Rocksdale Iron Co.
ROSCOE MARVIN WAGSTAFF,	B. E.,	Newport News, Va. Engineering Draftsman with Newport News Ship Building Co.
GAITHER HALL WHITING,*	B. S.,	Richmond, Va. Assistant Chemist Virginia-Carolina Chemical Co.

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**CLASS OF 1901.**

FLETCHER HESS BARNHARDT,	B. E.,	Phoenixville, Pa. Civil Engineer with Phoenix Bridge Co.
WILLIAM OSBORNE BENNETT,	B. E.,	Wadesboro, N. C. Superintendent Independent Cotton Oil Co.
FRED. WILLIAM BONITZ,	B. E.,	Wilmington, N. C. Contractor and Builder.
ZOLLY MOSBY BOWDEN,	B. E.,	Mulberry, Fla. Electrical Superintendent with James Hull & Co.
BEDFORD JETHRO BROWN,	B. E.,	Chicago, Ill. With the Westinghouse Electric Co.
PAUL COLLINS,	B. S.,	Richmond, Va. Assistant Chemist Virginia-Carolina Chemical Co.
WILLIAM PESCUD CRAIGE,	B. S.,	New Orleans, La. With Peter F. Pescud, Insurance.
WILLIAM LOIS CRAVEN,	B. E.,	Roanoke, Va. Virginia Bridge and Iron Co.
FELIX GRAY CRUTCHFIELD,	B. E.,	Philadelphia, Penn. Machinist Baldwin Locomotive Works.
GEORGE MASLIN DAVIS,	B. E.,	Winston-Salem, N. C. Secretary and General Manager Winston Tar Machine Co.
WILLIAM DOLLISON FAUCETTE,	B. E.,	Savannah, Ga. Assistant Civil Engineer S. A. L. Railway.
BENJAMIN OLIVER HOOD,	B. E.,	Brooklyn, N. Y. Railroad Bridge Draftsman, Mace Moulton, Consulting Engineer.
MARTIN KELLOGG,	B. Agr.,	Georgetown, S. C. Mechanic, Atlantic Coast Lumber Co.
JESSE JULIAN LILES,	B. E.,	Schenectady, N. Y. Switch-Board Inspector General Electric Co.

\* Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LEWIS OMER LOUGEE,	B. E.,	Scottdale, Penn. Engineer Frick Coke Co.
CHARLES HARDEN MCQUEEN,	B. E.,	Winston, N. C. Civil Engineer with J. L. Ludlow, C. E.
WILLIAM FRANKLIN PATE,	B. S.,	Urbana, Ill. Assistant Chemist Agricultural Experiment Station.
EDWARD OSCAR SMITH,	B. E.,	Newport News, Va. Draftsman Newport News Ship Building and Dry Dock Co.
WALTER STEPHEN STURGILL,	B. E.,	West Point, N. Y. Cadet U. S. Military Academy.
BEVERLY NATHAN SULLIVAN,	B. S.,	Winston-Salem, N. C. Superintendent Winston-Salem Gas and Lighting Establishment.
CHARLES AUGUSTUS WATSON,	B. S.,	Winston-Salem, N. C. Dyeing Department Fries Manufacturing Co.
BENJAMIN VADEN WRIGHT,	B. E.,	Crocaley, La. Civil Engineering, Southern Pacific Railway.

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**CLASS OF 1902.**

WILLIAM DAVID BOSEMAN,	B. E.,	Rocky Mount, N. C. Farmer.
JUNIUS SIDNEY CATES,	B. S.,	Ithaca, N. Y. M. Agr., 1904. Graduate Student of Agriculture, Cornell University.
ROBERT BAXTER COCHRAN,	B. E.,	Lynn, Mass. General Electric Co.
JAMES LUMSDEN FEREBEE,	B. E.,	Gregory, N. C. Farmer.
ROBERT IRVING HOWARD,	B. E.,	Tarboro, N. C. Book-keeper Roberson, Newton & Co.
JOHN LUTHER MCKIMMON,	B. Agr.,	Laurinburg, N. C. Farmer.
LAURIE MOSELEY,	B. E.,	Greensboro, N. C. Southern Representative Owego Bridge Co.
VASSAR YOUNG MOSS,	B. E.,	Joplin, Mo. Structural Draftsman Bartlett Steel Co.
CHARLES ARTHUR NICHOLS,	B. E.,	Muscogee, Ind. Ter. Merchant.
JAMES LAFAYETTE PARKER,	B. E.,	Indianapolis, Ind. Structural Draftsman Noelke-Richards Iron Works.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WILLIAM BENEDICT REINHARDT,	B. E.,	Dawson, Y. T. Inspector Dawson Electric Light and Power Co.
RUSSELL ELSTNER SNOWDEN,	B. E.,	Jacksonville, West Va. Civil Engineer Coal and Coke Railway, Weston, W. Va.
JOSEPH PLATT TURNER,	B. E.,	Spray, N. C. Superintendent of Weaving, Cotton Mill.
CLEVELAND DOUGLAS WELCH,	B. E.,	Waynesville, N. C.

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### CLASS OF 1903.

WILLIAM MORTON BOGART,	B. E.,	Charlotte, N. C. Draftsman General Fire Extinguisher Co.
LESLIE NORWOOD BONEY,	B. E.,	Wilmington, N. C. Draftsman Charles McMillan, Architect.
JOHN SAMUEL P. CARPENTER,	B. E.,	Cherryville, N. C. Superintendent Cotton Mill.
WALTER CLARK, JR.,	B. E.,	Chapel Hill, N. C. Law Student University N. C.
JOHN ELIOT COIT,	B. Agr.,	Ithaca, N. Y. Graduate Student and Fellow in Horticulture Cornell University.
SUMMEY CROUSE CORNWELL,	B. E.,	Charlotte, N. C. Civil Engineer, Henry E. Knox, Jr.
CHARLES LESTER CREECH,	B. S.,	Winston-Salem, N. C. Salesman Fries Dyeing Machines.
EUGENE ENGLISH CULBRETH,	B. E.,	Raleigh, N. C. E. M. Uzzell & Co., Printers.
WALTER LEE DARDEN,	B. E.,	Portsmouth, Va. With S. A. L. Ry.
JUNIOUS FRANKLIN DIGGS,	B. S.,	Diggs, N. C. Farmer.
TREOPHILUS THOMAS ELLIS,	B. E.,	Henderson, N. C. Farmer.
JOHN DANIEL FERGUSON,	B. E.,	Rowland, N. C. Rowland Oil and Fertilizer Co.
HUGH PIERCE FOSTER,	B. E.,	Wilmington, N. C. Assistant Chief Engineer, Weed Distilling and Manufacturing Co.
OLIVER MAX GARDNER,	B. S.,	West Raleigh, N. C. Instructor in Chemistry N. C. College of A. and M. Arts.
LAMAR CARSON GIDNEY,	B. E.,	Shelby, N. C.



<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
✓ JOHN HOWARD GLENN,	B. E.,	
↓ EMIL GUNTER,	B. E.,	Pierson, Fla.
EUGENE COLISTUS JOHNSON,	B. E.,	Garland, N. C.
		General Manager, J. D. and G. C. Johnson & Co.
JAMES MATTHEW KENNEDY,	B. E.,	Wilmington, N. C.
		Assistant Foreman of Carpenters, A. C. L. Ry. Co.
BENNETT LAND, JR.,	B. E.,	Truth, N. C.
		Assistant Engineer Cape Fear Power Co.
JOHN THOMAS LAND,	B. E.,	Elizabeth City, N. C.
		Architect and Civil Engineer.
EDMOND SHAW LYTCH,	B. E.,	Wilkinsburg, Pa.
		Westinghouse Electric Co.
JESSE JOHN MORRIS,	B. E.,	Norfolk, Va.
		Civil Engineer Raleigh and Pamlico Sound Railroad.
DAVID STARR OWEN,	B. E.,	Fayetteville, N. C.
		Electrician, Weed Distilling and Manufacturing Co.
JOHN HARVEY PARKER,	B. E.,	Raleigh, N. C.
		Assistant to T. B. Parker.
JOEL POWERS,	B. E.,	Goldsboro, N. C.
		Draftsman and Machinist, Dewey Bros.
EDWARD HAYS RICKS,	B. E.,	Philadelphia, Pa.
		With Baldwin Locomotive Works.
GASTON WILDER ROGERS,	B. E.,	Raleigh, N. C.
		Graduate Student N. C. College of A. and M. Arts.
CHARLES BURDETTE ROSS,	B. E.,	Charlotte, N. C.
		Assistant Manager Charlotte House Moving Co.
JOHN HOUSTON SHUFORD,	B. S.,	Winston-Salem, N. C.
		Chief Dyer P. H. Hanes Knitting Co.
EDWARD ROE STAMPS,	B. E.,	South Norfolk, Va.
		With F. S. Royster Guano Co.
GEORGE YATES STADLEY,	B. E.,	Asheville, N. C.
		Civil Engineer Mountain Retreat Association.
CHARLES EDWARD TROTTER,	B. S.,	Baltimore, Md.
		Graduate Student Johns Hopkins University.
JONATHAN WINBORNE WHITE,	B. S.,	Sulphur Mines, Va.
		Chemist, Sulphur Mines and R. R. Co.
✓ EDWIN SEYMOUR WHITING,*	B. E.,	Hamlet, N. C.
		Employee S. A. L. Railway.

\* Deceased.

## CLASS OF 1904.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
NELSON ADAMS,	B. E.,	Laurel Hill, N. C. Salesman, with Z. V. Pate.
HAYWOOD LEWIS ALDERMAN,	B. E.,	Schenectady, N. Y. Testing Department, General Electric Co.
EUGENE CLEVELAND BAGWELL,	B. E.,	Tampa, Fla. Civil Engineer, S. A. L. Railway.
EDWARD PAR BAILEY,	B. E.,	Wilmington, N. C. Iron Manufacturer.
JAMES CLAUDIUS BARBER,	B. E.,	Meadville, Pa. Phoenix Iron Works.
WILLIAM WALTER BARBER,	B. E.,	Barber, N. C. Farmer.
WILLIAM ALEXANDER BARRETT,	B. E.,	Missoula, Montana. Electrician, Missoula Electric Light and Water Co.
TIMOTHY ELDRIDGE,	B. E.,	Missoula, Montana. Electrician, Missoula Electric Light and Water Co.
JAMES WILLIAM FARRIOR,	B. E.,	Schenectady, N. Y. General Electric Company.
WILLIAM WALTER FINLEY,	B. S.,	North Wilkesboro, N. C. Farmer.
GEORGE WASHINGTON FOUSHEE,	B. E.,	Greensboro, N. C. With Coulter & Lowry Co.
EDGAR WILLIAM GAITHER,	B. S.,	Raleigh, N. C. Chemist Caraleigh Phosphate Works.
PAUL STIREWALT GRIERSON,	B. E.,	North Wilkesboro, N. C. Foreman Furniture Factory.
JOSEPH PERRIN GULLY, JR.,	B. E.,	Philadelphia, Pa. Meter Tester, Philadelphia Electric Company.
JARVIS BENJAMIN HARDING,	B. E.,	West Raleigh, N. C. Graduate Student A. and M. College.
GEORGE HERBERT HODGES,	B. E.,	Newport News, Va. Draftsman Engine Department, Newport News Dry Dock and Shipbuilding Co.
JESSE McRAE HOWARD,	B. E.,	Concord, N. C. Gibson Manufacturing Company.
BRANTON FAISON HUGGINS,	B. E.,	Goldsboro, N. C.
HILL McIVER HUNTER,	B. E.,	Greensboro, N. C. Cone Export and Manufacturing Company.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WILLIAM KERR,	B. S.,	South McAlester, Ind. Ter.
		Teacher in Indian Schools, U. S. Government.
ERNEST EDWIN LINCOLN.	B. E.,	Phoenixville, Pa.
		Structural Draftsman, Phoenixville Bridge Co.
JOHN FAIRLY MCINTYRE,	B. E.,	Laurinburg, N. C.
JAMES MCKIMMON,	B. E.,	Raleigh, N. C.
		Bank Clerk.
JOSEPH ALFRED MILLER, JR.,	B. E.,	Brevard, N. C.
		Book-keeper, J. A. Miller.
WILLIAM FIELD MORSON,	B. E.,	Delta, W. Va.
		Civil Engineer, Coal and Coke Railway Co.
LEON ANDREW NEAL,	B. E.,	Bristol, Tenn.
		Civil Engineer, Virginia and Southern Railway Co.
WILLIAM JOEL PATTON,	B. E.,	Brevard, N. C.
FREDERICK COLWELL PHELPS,	B. E.,	Fortress Monroe, Va.
		Soldier U. S. Army.
WILLIAM WALTER RANKIN,	B. E.,	Newport News, Va.
		Electrician, Newport News Shipbuilding and Dry Dock Co.
RISDEN PATTERSON REECE,	B. E.,	Winston-Salem, N. C.
		Draftsman Salem Iron Works.
WILLIAM RICHARDSON, JR.,	B. E.,	Newport News, Va.
		Newport News Shipbuilding and Dry Dock Co.
JAMES CLARENCE TEMPLE,	B. S.,	High Point, N. C.
		Manager Blaer's Dairy.
JOSEPH KENDALL WAITT,	B. E.,	Savannah, Ga.
		Civil Engineer, S. A. L. Railway Co.
MARION EMERSON WEEKS,	B. E.,	Newport News, Va.
		Draftsman, Newport News Shipbuilding and Dry Dock Co.
ALBERT CLINTON WHARTON, JR.,	B. S.,	Clemmons ville, N. C.
		Farmer.