

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

1907-1908.



RALEIGH:
E. M. UZZELL & Co., STATE PRINTERS AND BINDERS.
1908.

2

CALENDAR.

1908.

JANUARY.						
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1909.						
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COLLEGE CALENDAR.

1908.

Thursday,	July	9,	{ Entrance examination at each county courthouse, 10 A. M.
Wednesday,	September	2,	{ Entrance examination at the College, 9 A. M.
Thursday,	September	3,	First Term begins; Registration Day.
Thursday,	November	26,	Thanksgiving Day.
Tuesday,	December	22,	First Term ends.

1909.

Tuesday,	January	5,	Second Term begins; Registration Day.
Saturday,	March	13,	Second Term ends.
Monday,	March	15,	Third Term begins; Registration Day.
Sunday,	May	23,	Baccalaureate Sermon.
Monday,	May	24,	Alumni Day.
Tuesday,	May	25,	Annual Oration.
Wednesday,	May	26,	Commencement Day.

BOARD OF TRUSTEES.

<i>Name.</i>	<i>Post-office.</i>	<i>Term Expires.</i>
R. H. RICKS.....	Rocky Mount	May 1, 1909.
W. D. TURNER.....	Statesville	May 1, 1909.
O. MAX GARDNER.....	Shelby	May 1, 1909.
LOCKE CRAIG.....	Asheville	May 1, 1909.
C. W. GOLD.....	Raleigh.....	May 1, 1911.
E. M. KOONCE.....	Jacksonville	May 1, 1911.
T. W. BLOUNT.....	Roper	May 1, 1911.
D. A. TOMPKINS.....	Charlotte	May 1, 1911.
J. T. ELLINGTON.....	Smithfield	May 1, 1913.
W. E. DANIEL.....	Weldon	May 1, 1913.
W. H. RAGAN.....	High Point	May 1, 1913.
W. B. COOPER.....	Wilmington	May 1, 1913.
M. B. STICKLEY.....	Concord	May 1, 1915.
T. T. BALLENGER.....	Tryon	May 1, 1915.
N. B. BROUGHTON.....	Raleigh	May 1, 1915.
O. L. CLARK.....	Clarkton	May 1, 1915.

FACULTY.

- GEORGE TAYLOE WINSTON, A.M., LL.D., President, and Professor of Political Economy.
- DANIEL HARVEY HILL, A.M., Lit.D., Professor of English, and Vice-President.
- WILLIAM ALPHONSO WITHERS, A.M., Professor of Chemistry.
- WALLACE CARL RIDDICK, A.B., C.E., Professor of Civil Engineering.
- FRANK LINCOLN STEVENS, M.S., Ph.D., Professor of Botany and Vegetable Pathology.
- CHARLES WALTER THOMAS, M.E., Professor of Mechanical Engineering.
- ROBERT E. LEE YATES, A.M., Professor of Mathematics.
- THOMAS NELSON, Professor of Textile Industry.
- CHARLES M. CONNER, B.S.A., B.S., Professor of Agriculture.
- JOHN SOMERVILLE EATON YOUNG, First Lieutenant U. S. A., Professor of Military Science and Tactics.
- WILLIAM JAMES MOORE, M.E., Professor of Electrical Engineering and Physics.
- GUY ALEXANDER ROBERTS, B.S., D.V.S., Associate Professor of Veterinary Science and Physiology.
- JOHN MICHELS, B.S.A., M.S., Associate Professor of Dairying and Animal Husbandry.
- FRANK C. REIMER, M.S., Assistant Professor of Horticulture.
- BARTHOLOMEW MOORE PARKER, B.S., Assistant Professor of Textile Industry.
- ROBERT SETH CURTIS, B.S.A., Assistant Professor of Animal Husbandry.
- CHARLES BENJAMIN PARK, Instructor in Machine Shop and Assistant in Power Plant.
- WILLIAM ANDERSON SYME, B.S., M.S., Ph.D., Instructor in Chemistry.
- CARROLL LAMB MANN, B.S., C.E., Instructor in Civil Engineering.
- 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.
- JOHN HOUSTON SHUFORD, B.S., Instructor in Dyeing.
- CLARENCE ANDREW SPRAGUE, B.S., Instructor in Physics.
- ALFRED HENRY THIESSEN, B.S., Section Director United States Weather Bureau, Instructor in Meteorology.
- JOHN STRAUCHON JEFFREY, Instructor in Poultry Husbandry.
- ABRAHAM RUDY, A.M., Pd.D., Instructor in Modern Languages.
- RALPH INGRAM SMITH, B.S., Instructor in Zoology and Entomology.
- WILEY THEODORE CLAY, B.E., Instructor in Wood-working and Pattern-making.
- JOHN ALSEY PARK, B.E., Instructor in Mathematics.
- MICHAEL RALPH RICHARDSON, A.M., Instructor in Mathematics.
- LILLIAN LEE VAUGHAN, B.E., Instructor in Drawing and Mechanics.
- CARL PHILIP BONN, B.A., Instructor in English.
- CLARENCE WILSON HEWLETT, B.S., Instructor in Physics.
- VANCE SYKES, B.E., Instructor in Mathematics and Civil Engineering.
- WELDON THOMPSON ELLIS, B.E., Instructor in Machine Design and Steam Laboratory.
- LEON FRANKLIN WILLIAMS, A.B., A.M., Ph.D., Instructor in Chemistry.
- HERBERT NATHANIEL STEED, Instructor in Weaving and Designing.
- JAMES CLARENCE TEMPLE, B.Agr., Instructor in Bacteriology.
- ARTHUR JOHN WILSON, B.S., Instructor in Chemistry.
- FRED. BARNET WHEELER, Instructor in Forge.
- THOMAS DOTTERER EASON, B.S., Laboratory Assistant in Botany.

OTHER OFFICERS.

- EDWIN BENTLEY OWEN, B.S., Registrar.
- ARTHUR FINN BOWEN, Bursar.
- BENJAMIN SMITH SKINNER, Farm Superintendent.
- JAMES OLIVER LOFTIN, Steward.
- Miss ELSIE LANIER STOCKARD, Librarian.
- Mrs. DAISY LEWIS, Matron.
- Miss KATHARINE FORT, Stenographer.
- HENRY McKEE TUCKER, M.D., Physician.

NORTH CAROLINA AGRICULTURAL EXPERIMENT STATION.

GEORGE TAYLOR WINSTON, A.M., LL.D., President.
 CHARLES BURGESS WILLIAMS, M.S., Director and Agronomist.
 WILLIAM ALPHONSO WITHERS, A.M., Chemist.
 FRANK LINCOLN STEVENS, Ph.D., Vegetable Pathologist.
 CHARLES M. CONNER, B.S.A., B.S., Agronomist.
 JOHN STRAUCHON JEFFREY, Poultryman.
 FRANK CHARLES REIMER, M.S., Horticulturist.
 ROBERT SETH CURTIS, B.S.A., Animal Husbandman.
 JOHN MICHELS, M.S.A., Dairy Husbandman.
 RALPH INGRAM SMITH, B.S., Entomologist.
 WILLIAM KERR, B.Agr., Assistant in Field Experiments.
 WILLIAM ANDERSON SYME, B.S., M.S., Ph.D., Assistant Chemist.
 JOHN GALENTINE HALL, A.M., Assistant in Vegetable Pathology.
 WILLIAM CARLYLE ETHERIDGE, B.Agr., Assistant in Farm
 Crops.
 JAMES CLARENCE TEMPLE, B.Agr., Assistant Chemist and Assis-
 tant Bacteriologist.
 ARTHUR FINN BOWEN, Bursar.
 Mrs. MARY ELIZABETH DEW, Stenographer.

MILITARY ORGANIZATION.**Commandant of Cadets.**

FIRST LIEUTENANT JOHN S. E. YOUNG, U. S. Army.

Cadet Major.

R. R. EAGLE.

Battalion Staff.

J. L. VON GLAHN, Captain and Adjutant.

S. M. GIBBS, Captain and Quartermaster.

Non-Commissioned Staff.

H. N. SUMNER, Sergeant-Major.

W. F. MORRIS, Color Sergeant.

Band.

J. F. ZIGLAR, Captain.

R. R. FAISON, Drum-Major.

T. F. HAYWOOD, First Sergeant.

J. E. TOOMER, Sergeant.

I. N. TULL, Corporal.

J. S. BRAY, Corporal.

Company A.

D. LINDSAY, Captain.
T. M. POYNER, First Lieutenant.
W. B. BURGESS, Second Lieutenant.
G. HARRISON, First Sergeant.
W. M. MILNER, Sergeant.
J. B. CRAVEN, Sergeant.
A. H. GREEN, Sergeant.
J. S. WHITEHURST, Sergeant.
J. C. ALBRIGHT, Corporal.
C. G. ARMPFIELD, Corporal.
W. P. HARDEE, Corporal.
C. W. HINSHAW, Corporal.
W. L. MANNING, Corporal.
H. P. MOSELEY, Corporal.
M. S. MAYES, Corporal.

Company B.

A. G. BOYNTON, Captain.
H. A. POWELL, First Lieutenant.
L. L. PITTMAN, Second Lieutenant.
J. W. HARRELSON, First Sergeant.
T. M. CLARK, Sergeant.
J. M. PARKER, Sergeant.
H. S. STEELE, Sergeant.
G. G. SIMPSON, Sergeant.
D. C. YOUNG, Corporal.
J. F. ROBINSON, Corporal.
T. D. HARRIS, Corporal.
T. B. SUMMERLIN, Corporal.
E. E. BUCK, Corporal.

Company C.

D. Y. HAGAN, Captain.
F. H. BROWN, First Lieutenant.
J. C. WILLIAMS, Second Lieutenant.
C. P. GRAY, First Sergeant.
J. G. PASCHAL, Sergeant.
S. F. STEPHENS, Sergeant.
W. A. HORNADAY, Sergeant.
J. E. LATHAM, Sergeant.

W. N. SLOAN, Sergeant.
 R. L. HOLDER, Corporal.
 L. L. HOOD, Corporal.
 E. H. LEE, JR., Corporal.
 F. N. McDOWELL, Corporal.
 L. P. McLENDON, Corporal.
 J. L. SPRINGS, Corporal.
 R. T. BOYLAN, Corporal.

Company D.

E. E. SMITH, Captain.
 M. L. EARGLE, First Lieutenant.
 P. L. GAINNEY, Second Lieutenant.
 R. A. SHOPE, First Sergeant.
 B. F. MONTAGUE, Sergeant.
 F. A. DUKE, Sergeant.
 S. M. MALLISON, Sergeant.
 M. H. TERRELL, Sergeant.
 L. D. MOODY, Corporal.
 J. B. PARKS, Corporal.
 H. C. CLAY, Corporal.
 S. H. McNEELY, Corporal.
 V. P. BYRUM, Corporal.

Company E.

C. T. MARSH, Captain.
 B. T. FERGUSON, First Lieutenant.
 H. W. KUEFFNER, Second Lieutenant.
 J. M. PRICE, First Sergeant.
 W. S. DEAN, Sergeant.
 F. L. FOARD, Sergeant.
 F. J. JONES, Sergeant.
 J. R. SUGG, Corporal.
 W. R. PHILLIPS, Corporal.
 J. W. IVEY, Corporal.
 R. L. MORGAN, Corporal.
 C. R. JORDAN, Corporal.
 J. M. COUNCIL, Corporal.

NOTE.—On October 16, 1907, the Battalion held a competitive drill on the Fair Grounds track, during Fair Week. Company A was selected as the best drilled organization and awarded the College pennant.

GENERAL INFORMATION.

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 by the "supplemental Morrill Act" of 1890, and the "Nelson Act" of 1907.

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 and eighty-five acres of land and sixteen buildings, and its teaching force consists of forty-two specialists. Its laboratories, drawing-rooms, and work-shops are well equipped. Its library contains five thousand and twenty-four 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, the Registrar, and the Bursar, several recitation-rooms and the chemical and physical laboratories. 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 used for drawing-rooms and laboratories by the Department of Civil Engineering.

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 two hundred and four by seventy-four 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 allied subjects, and is especially adapted to its needs.

Watauga Hall is a three-story brick building, trimmed with brown-stone 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.

Foundry.—The old boiler house has been fitted up for foundry purposes. It contains a Griffin Oil Furnace for melting iron; another for brass, and a small crucible furnace for brass melting; benches and hand tools for moulding in the course of exercises, as well as for any repair work for the College.

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.

The Fire Protection of the College consists of the following equipment: An Underwriter fire pump, stand-pipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with extinguishers.

The New Power Plant furnishes heat, light, and power for all the buildings. The boiler plant consists of two 75-horse-power Babcock and Wilcox Company and two 100-horse-power Atlas Water-Tube Boilers, with a working steam pressure of 150 pounds. The Engine Plant consists of a 100-horse-power Skinner Engine and Crocker-Wheeler Generator attached; a 100 K. W. De Laval Turbine Generator set with self-exciter; a 10 K. W. steam-driven Exciter; Set, Steam, and Vacuum Pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren Webster system.

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 funds of the Experiment Station were supplemented by the act of Congress of March 16, 1906, known as the "Adams Act."

The Director's office is in the new Agricultural Building 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 are made 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, West 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 requisite 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 fiber, nor for those who are unable or unwilling to observe regularity, system, and order in their daily work.

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

It is taken for granted that students in the College are here to get an education. They are expected, therefore, to attend classes, lectures, laboratories, shop-work, drills, inspections, etc., without being reminded of such duties each day, week or month.

Students cannot properly prepare for and perform these duties if they spend time in Raleigh or absent themselves from work and study. They are expected, therefore, to observe study hours in their rooms and refrain from visiting Raleigh, except when permitted by the rules of the College.

Students are also expected to keep their rooms neat and orderly; to refrain from noise during study hours, and from disorderly conduct at all times and places; in short, to live like gentlemen.

Hazing new students, cigarette-smoking, drinking, gambling, card-playing, visiting pool-rooms, loafing on the streets, and such like vicious, idle, unhealthy and unprofitable performances are prohibited by the College rules.

A record is kept of every student in College; his failures to perform duty and his infractions of the rules. When this record shows that the young man is not in College for the purpose of getting an education, and is not using his opportunities properly, he will be required to withdraw. For scandalous and vicious offenses students will be dismissed.

When absent from any duty a student should immediately file with the Commandant, Registrar, or Instructor concerned a statement of the reason for his absence. When no statement is filed it is presumed that every absence from duty is intentional and without excuse. The rules of the College are intended solely to promote manliness; to form habits of order, punctuality, promptness and fidelity to duty, as well as simplicity, economy and healthfulness of living; and to prevent habits of idleness, disorder, extravagance, and vice.

PRIZES.

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

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.

Mr. Frank E. Lowenstein, of Atlanta, Ga., a former student of the College, has donated a medal valued at \$25 to be awarded to the member of the Sophomore Class making the best grade in Chemistry.

To the Junior Mechanical Student who has made the most progress in Mechanical Drawing the Mechanical Department gives a set of high-grade drawing instruments.

DISCIPLINE.

The discipline is intended to secure studious habits, with punctuality, system, and order in the performance of all duties. 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 it will not retain young men who are vicious, idle, or incompetent.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Students who are persistently neglectful of duty, or manifestly unable to do the work required, will be discharged at any time. The Faculty will require any student to withdraw whenever it is plain that his stay in the institution is not profitable to himself or to the College.

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 expected to attend religious service in Raleigh on Sunday morning at the church of his choice.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization of the students, and is entirely under student management. A general secretary is employed by the association and devotes his entire time to the work. The members of the Faculty are interested in the work and give assistance, both financially and otherwise. Any student who is a member of an evangelical church may become an active member. Any student of good moral character or who desires to improve his moral life may become an associate member.

Two regular meetings of the association are held each week, on Sunday and Wednesday evenings, immediately after supper. These meetings are for the training of men to be leaders in religious work after leaving College.

The greatest work of the association is its Bible Study department. About one hundred men are enrolled in these classes. Six or ten men meet in each class and study together. The leaders of these classes are trained by members of the Faculty, and the entire work is under the supervision of the Bible Study Committee and the General Secretary. Every student, whether a member of the association or not, should take advantage of this opportunity and join one of these groups.

The following courses are offered:

Course I.—"Study in Old Testament Characters." A new course, dealing with the great men of the Old Testament, and serving as an introduction to the other courses.

Course II.—"Studies in the Life of Christ." A course intended to give the student an intelligent and sympathetic view of the life and character of Jesus Christ.

Course III.—"Studies in the Acts and Epistles." This course introduces men to the life and work of the early Christian Church, with especial emphasis on the life of Paul.

Course IV.—"The Teachings of Jesus and His Apostles." A scientific and systematic presentation of Christ's own view of His own life and its relation to men.

In addition to the above courses on Bible Study the following courses on missions are offered.

1. The New Era in the Philippines.
2. Effective Workers in Needy Fields.
3. The Call of the Home Land.
4. China and Her Problems.

ATHLETICS.

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

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

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 five 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.

The **Biag Society** is composed of those students who have made the best record in biological and agricultural subjects. The membership is limited to ten. The Society meets monthly for the discussion of biological and agricultural questions.

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 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.

The Tompkins Textile Society meets every two weeks for the purpose of discussing subjects relating to the textile industry.

The Mechanical Society meets every two weeks for the discussion of mechanical subjects.

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

The Merriman Society of Civil Engineering meets fortnightly for the purpose of reading and discussing papers of interest to civil engineers.

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

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 each year on Monday 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.

Each applicant for admission must be at least sixteen years of age and must bring a certificate 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 (to involution), 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 courses in Mechanic Arts and Textile Industry will be examined on Arithmetic (through common and decimal fractions), English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admission to the one-year course in agriculture will be required to pass the examination for entrance to the Freshman Class.

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 1908 is July 9th. 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 examinations begin with English at 9 A. M., in Room 21, Main Building, followed by Mathematics at 11, and History at 2, in the same room. The date for 1908 is September 2d.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, over eighteen years of age.
2. School teachers holding teachers' certificates.
3. Graduates of those high schools and academics whose certificates are accepted by the Faculty of this College.

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 two weeks at Christmas.

EXPENSE.

The total average college expense of a Freshman student is \$225.00.

The total average college expense of a Freshman student having a scholarship is \$180.00.

These amounts include cost of board, tuition, lodging, fuel and lights, fees and deposits, books, uniform and cap, drawing instruments, and laundry. They do not include allowance for clothing, other than for uniform and cap, nor for spending money and contingencies.

Allowance for clothing, spending money, and contingencies is a matter largely to be determined by the parent.

The amount of such allowance should be kept within reasonable bounds. From \$50.00 to \$100.00 per year are suggested as the minimum and maximum amounts.

This will make the total expense for all purposes of a Freshman student, without a scholarship, amount to from \$275.00 to \$325.00 for the entire session; or \$250.00 to \$280.00, if he has a scholarship.

The largest payment is made in September. A student on entering college should bring about \$80.00 to meet his various payments for the first month, or \$57.50, if he has a scholarship.

Students withdrawing from college within two weeks from date of entrance will be refunded all money paid by them to the College Bursar, except charges for board during the time here. Students withdrawing later than two weeks from date of entrance will be refunded no money except for board.

Board is \$10.00 per month and is payable 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 or \$3.00 per week.

The College Bursar is forbidden by the Trustees to give credit, and there is no deviation from this rule.

A more detailed statement of college fees is as follows:

Tuition	\$ 45.00
Room rent, fuel and lights.....	30.00
Library, lecture, and physical culture.....	4.00
Incidental	5.00
Medical attention and medicine.....	6.00
Registration	2.00
Board	90.00
Shop and Drawing (material and use of tools) or	
Botany	2.00
Uniform and cap.....	14.30
Books and drawing instruments (estimate).....	15.00
Laundry (estimated cost).....	10.00

Drawing instruments are not required in the Freshman Class nor in the first-year Mechanic 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, one pillow 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 (except bacteriological), physical, or electrical laboratory, for material furnished. The deposits for the Chemistry Department are as follows: Inorganic laboratory, \$3; analytical laboratory, \$6; organic laboratory, \$4; determinative mineralogy and assaying, \$3. A deposit of \$3 from Juniors and \$4 from Seniors taking dyeing or bacteriology, to cover cost of breakages. A deposit of \$5 from textile students, to cover cost of designing, supplies, tools, etc. Any unused portion of deposits to chemical, bacteriological or 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 while on military duty by all 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. Each student is required to wear an overcoat during cold weather. Overcoats may be brought from home, or purchased from the city.

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 loaned to needy students of talent and character. The loans are made at six per cent., and good security is required. Sufficient time for repayment is given 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 \$1,860.88.

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 a variety as possible, is furnished absolutely at cost. The charge at present is \$10 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, pillows, 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 are made monthly 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 1:30 o'clock P. M., 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.

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, greenhouses, 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 one year in Agriculture, and of two years in Textile Industry, in the Mechanic Arts (including Carpentry, Woodturning, 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, and do not lead to a degree.

III. Winter Courses in Agriculture and Dairying and in Textile Industry, beginning at the opening of College in January and lasting seven weeks. A one week's course in Agriculture, beginning with the opening of the Winter Term.

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

V. 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.

- I. The Four-year Course in Agriculture.
- 1a. The One-year Course in Agriculture.
- 1b. The Seven Weeks' Course in Agriculture and Dairying.
- 1c. The One Week's Course.

Aim and Scope.—The aim of the Agricultural Courses is to train young men in both the science and the practice of their vocation. 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 domain 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 one-year course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited, hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

Education and training pay on the farm as elsewhere. The young man who prepares himself for his life's work will make more rapid strides and will gain success much quicker than the one who does not.

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young men who have any talent along this line can fit themselves for this work by taking this course.

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

The one week's course is described on page 32.

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.

I. Four-year Course in Agriculture, leading to the Degree of Bachelor of Agriculture.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*		
	1st Term.	2d Term.	3d Term.
Breeds of Live Stock, 10†.....	2	..	..
Dairying, 22.....	..	..	5
Fruit Culture, 42.....	5	..	..
Vegetable Gardening, 43.....	..	5	..
Botany, Elementary, 55.....	3	3	3
Animal Physiology, 33.....	2	4	4
Algebra, 84.....	5	2	..
Geometry, 85.....	..	3	5
English, 87.....	3	3	3
Military Drill, 99.....	3	2	2

*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 A WEEK.		
	1st Term.	2d Term.	3d Term.
Farm Crops, 3 .....	..	2	2
Stock-judging, 11.....	2	..	..
Animal-breeding, 12.....	..	3	..
Herd Books, 13.....	..	1	..
Stock-feeding, 14.....	..	..	4
Poultry Husbandry, 29.....	..	3	3
Plant Diseases, 57.....	3	..	..
Systematic Botany, 56.....	..	..	3
Zoology, 64.....	4	..	..
Economic Entomology, 65.....	..	3	..
Inorganic Chemistry, 70.....	3	3	3
Inorganic Chemistry (laboratory), 71.....	2	2	2
Physics, 78.....	2	2	2
English, 88 and 90.....	3	3	3
Military Drill, 90.....	3	2	2

Junior Year.

Farm Equipment, 1.....	5	..	2
Soils, 2.....	..	3	..
Veterinary Anatomy, 34.....	4	..	..
Veterinary Medicine, 35.....	..	4	..
Veterinary Practice, 36.....	..	..	2
Landscape Gardening, 44.....	..	..	3
Bacteriology, 59.....	2	2	2
Agricultural Chemistry, 75.....	2	2	2
Drawing, 80.....	2	..	..
Wood-work, 82.....	..	2	2
Forge-work, 83.....	..	..	2
English and History, 91 and 95.....	2	2	2
Political Economy, 97.....	1	1	1
Military Tactics, 100.....	1	1	1
Military Drill, 99.....	3	2	2
Modern Languages (elective), 92, 93, or 94.....	3	3	3

Senior Year.

SUBJECTS	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Elect six periods of the following:			
English, 91 and 89.....	2	2	2
Business Law, 93.....	1	1	1
Modern Languages, 92, 93, or 94.....	3	3	3
Military Drill, 99.....	3	2	2
Elect thirteen periods of the following:			
Farm Management, 6.....	..	2	2
Special Crops, 4.....	5	3	..
Soil Physics, 5.....	..	..	3
Meteorology, 79.....	..	2	..
Advanced Live-stock Judging, 15.....	2	..	..
Live-stock Management (hog and dairy cattle), 16.....	..	2	..
Live-stock Management (horses, sheep and swine), 17.....	..	..	2
Dairy Bacteriology, 23.....	3	..	..
Cheese-making, 24.....	..	3	..
Experimental Dairying, 25.....	..	..	3
Poultry Husbandry, 30.....	..	..	3
Veterinary Medicine, 37.....	3	3	3
Advanced Pomology, 45.....	3	..	..
Forestry, 46.....	3	..	..
Floriculture, 47.....	..	3	..
Plant-breeding, 48.....	..	3	..
Horticultural Research, 49.....	..	..	6
Plant Diseases (advanced), 58.....	2	2	2
Bacteriology (advanced), 60.....	2	2	2
Systematic Entomology, 66.....	2	2	..
Geology, 69.....	2	2	2
Industrial Chemistry, 75.....	3	3	3
Organic Chemistry, 72.....	3	3	3
Analytical Chemistry (laboratory), 73 and 74.....	7	7	7
Advanced Political Economy, 98.....	2	2	2

One-year Course in Agriculture.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Agriculture (Elementary), 7.....	5	5	5
Animal Husbandry, 18.....	3	3	3
Dairying, 26.....	5	..	..
Diseases of Live-stock, 38.....	..	5	..
Poultry Husbandry, 20.....	..	3	3
Horticulture, 50.....	3	3	3
Diseases of Plants, 57.....	..	..	2
Botany, 55.....	3	..	..
Entomology, 68.....	..	..	3

SEVEN WEEKS' COURSE IN AGRICULTURE.

BEGINS JANUARY 11, 1909.

The Agricultural and Mechanical College offers, besides the four-year course and one-year course in Agriculture, a **seven weeks' course** and a **one week's course**, which are held during the winter months, when the farmers are not busy.

OBJECT.

These courses are designed to meet the needs of those who desire a knowledge of the **practical side of farming**, dairying, and poultry-raising, but who have not time to take the regular course in College. Our experience in the institute work of this State leads us to believe that the farmers are demanding more definite knowledge of their business. Since this can be acquired more easily and at less expense at an Agricultural College than by long experience on a farm, this course is offered.

Young men who have a desire to become farm managers can partially fit themselves for such work by taking this course. The College is called upon frequently to supply farm managers, which it is unable to do because the supply is not equal to the demand. There is a chance for any bright young man who has not money enough to equip a farm of his own to better his condition by fitting himself to accept a position as farm manager.

The demand for well-trained dairymen has also far exceeded the supply, and we have several vacancies now which we are unable to fill. The most imperative demand at present is not the filling of these places, but to find men who will receive proper training, return to the farm, and there engage in putting a stop to the importation of all kinds of dairy and farm products from other States.

Instruction in this course is given in such a manner that the students learn by actual contact and experience. Practical exercises in identifying varieties of farm crops, fruits, judging farm animals, butter-making, propagation of plants, and making and applying spraying mixtures are the means employed in illustrating and fixing in the minds of the students the instruction given in the class-room.

EQUIPMENT.

A new building devoted entirely to Agriculture has been completed. This building furnishes laboratories and class-rooms for all work in Agriculture. Equipment is being added constantly and the facilities for instruction will be much better this year than heretofore.

EXPENSES.

For the Seven Weeks' Course no tuition will be charged. There will be a small medical fee of \$1.50. Board may be had in the mess-hall at \$2.50 per week. Students who expect to room in dormitories should come provided with covers, sheets, pillow-cases, and towels.

Students will be required to wear white suits in the dairy laboratory. These suits can be had at \$1 each.

Books, papers, etc., need not cost over two or three dollars.

The total expense of the course need not exceed \$25 over and above railroad fare.

For the One Week's Course there will be no fees. The only expense will be that of board and lodging.

ADMISSION.

No examination is required for entrance to the Seven Weeks' Course. Any person over eighteen years of age may enter and enjoy the full privileges of the instruction. Since the greater part of the instruction is given in the form of lectures and laboratory work, the full time of the student is provided for. Some of the evenings will be taken up by lectures on important subjects. Meetings of the students will be held from time to time for their mutual improvement.

The lecture and laboratory work begins on Monday, January 11th, and those who expect to take the course should come on Saturday before, so that they can have their board and room arranged for and be ready for work Monday morning.

OUTLINE OF COURSES.

The one week's course will be given preceding the seven weeks' course. Those who wish to go into the subjects more fully may do so in the seven weeks following.

ONE WEEK'S COURSE.

This course will be given from January 4th to January 9th, inclusive.

During this course only three subjects will be treated, namely:

Corn, Cotton, and Stock-raising.

In studying corn and cotton much time will be given to *seed selection*. *Corn judging* will be a feature of the work with corn. Attention will be given to the best methods of preparing the seed-bed, use of fertilizers and cultivation of the crop.

Lectures on stock-raising and practical work in judging cattle, horses, sheep, and swine will be given.

In this course pupils get practical instruction which they put into use after going home, and thereby increase the profits of their farms.

During the evenings of this week special lectures will be given on other farm subjects.

SEVEN WEEKS' COURSE.

GENERAL AGRICULTURE.

21 periods.

Professor Conner.

Farm Crops.—Conditions of germination and growth of plants; seed selection; preparation and cultivation; studies of varieties of corn, cotton, and other crops; judging corn and cotton.

Soils.—Study of origin, formation, and distribution of soils, their physical properties as related to tillage and fertility; laboratory practice with different types of soils.

Farm Equipment.—Construction of farm buildings; the silo and its use; farm machinery; principles of draft, etc.

Fertilizers.—Kinds for different crops; home-mixing; time and method of application; value of stable manure and leguminous crops.

The department is well equipped with various makes of farm machinery for laboratory work. A large room in the Agricultural Building is used for this purpose.

AGRICULTURAL BOTANY.

21 periods.

Professor Stevens.

This course consists of lectures and laboratory work. Such subjects as the following will be considered: Cross-breeding of plants; The flower and its structure; Pollen and its use; Improvement of plants by seed selection; The diseases of plants, how to recognize them and how to prevent them; Bacteria in the home and on the farm, their role as disease-producers in man, domestic animals and plants, their function in the dairy, in the making of butter and cheese, in the soil, in rendering plant-food available, and in leguminous roots as nitrogen-gatherers.

HORTICULTURE.

21 periods.

Assistant Professor Reimer.

The course in Horticulture includes both lectures and laboratory work. It is made especially applicable to North Carolina conditions. The work includes the following subjects:

Fruit Culture.—This course includes a discussion of the fruit section of the State, and a discussion of the possibilities of fruit-

growing in each section. This is followed by lectures on the culture of the leading fruits. These deal with the kind of soil; preparation of soils for fruits; varieties; origination of new varieties; planting; cultivation; fertilizing; pruning; harvesting, and marketing. Emphasis is laid on the home fruit garden.

Vegetable Gardening.—This course discusses the great trucking industry in the State, and the possibilities of the industry. This is followed by lectures on the best methods of growing the leading vegetables.

A few lectures are also given on the improvement of home grounds.

Laboratory Work.—This includes practices in plant propagation, as budding, grafting, top-grafting, cutting; pruning of fruit and ornamental trees; fruit-bud studies; planting trees; transplanting, and construction of cold-frames and hot-beds.

FEEDS AND FEEDING AND STOCK-RAISING. 21 periods.

Assistant Professor Curtis.

Lectures on this study will consist of an elementary study of the digestive systems of the various classes of farm animals, indicative of the kinds of foods adapted to their particular digestive apparatus. This will be followed by the food constituents, the kind, amount and proportions best adapted to the various classes of live-stock. The student will be required to make tables of digestibility, calculate nutritive ratios, and arrange feeding rations for the several classes of stock relative to the work which they are to perform.

An outline will also be given on the feed, care, and management of the most prominent breeds of live-stock.

BREEDS OF LIVE-STOCK AND STOCK JUDGING. 21 periods.

Assistant Professor Curtis.

Lectures are given on this subject relating to the origin, history, and characteristics of the different breeds of live-stock.

The practical part of the work will be given in the judging-room, where the student is required to score the animals, after which a comparative study will be taken up relative to the merits of each animal in the class.

DAIRY FARMING.

Associate Professor Michels.

} Lectures, 12 periods.
} Laboratory, 21 periods.

Lectures are given on the nature, composition, and secretion of milk, its uses and values as a food, the production and care of sanitary milk, management of dairy herd, details in the production of high-grade cream and butter, the marketing of dairy products, and their value when sold as milk, cream, butter, and cheese.

The dairy laboratory course given in connection with the farm dairy lecture course consists of twenty-one periods of two hours each and comprises every detail of dairy work, butter-making, retailing milk, pasteurizing milk and cream, making and using starters, and making tests of all sorts of dairy products, and standardizing milk and cream.

DAIRY EQUIPMENT.

The dairy laboratories occupy about four thousand square feet of floor space on the ground floor of the new Agricultural Building, besides the locker-rooms, toilet and bath-rooms on same floor, and the dairy lecture-room on first floor, used by the dairy students.

The main dairy laboratory is thirty-six by fifty-seven feet and is fitted throughout with modern equipment, suited to giving up-to-date instruction in farm dairying, retailing milk, and creamery practice. The equipment for farm dairying consists in the main of De Laval, Sharples, Empire, National, and Simplex hand separators, swing and barrel hand churns of different sizes, cream vats, hand and power butter-workers, aerators and coolers, milk-testers, and other articles useful in doing farm dairy work.

DISEASES OF LIVE-STOCK.

21 periods.

Dr. Roberts.

The lectures on this subject will deal principally with the care and management of live-stock with a view to the prevention of diseases, but the nature, causes, and treatment of the more common diseases and injuries will also be given attention. One period each week will be devoted to a clinic, and a practical demonstration of the tuberculin test upon the dairy herd will be given during the course.

ENTOMOLOGY.

21 periods.

Mr. Smith.

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.

FARM CHEMISTRY.

21 periods.

Professor Withers.

Lectures on chemistry of fertilizers and animal feeding will be given.

POULTRY-RAISING.*21 periods.***Mr. Jeffrey.**

The subject of Poultry-raising will be considered from the farm standpoint and will include poultry-house construction, the breeds of fowls most suited to the farm, and their breeding, feeding, and management, egg-production, market poultry, including capons and caponizing, incubation and brooding, both natural and artificial.

Those wanting more poultry work than is provided in the regular course can in the last half of the course have additional work of this kind, taking care of a pen of fowls, running an incubator, raising chickens in a brooder, and keeping all the records necessary in our poultry work.

The poultry department is equipped with twenty-five houses, a good incubator cellar with several different makes of incubators, a brooder house and both indoor and outdoor brooders, a feed-room with steam engine and grist and bone mills. Good specimens of ten varieties of poultry best suited to farm requirements are kept, so that students can get familiar with the requirements of the different breeds.

AGRICULTURE.**Equipment.**

The College possesses the following equipment for instruction in Agriculture:

The farm includes six hundred and twenty-five acres, with two hundred and fifty acres under cultivation; a large three-story and basement barn fifty by seventy-two 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 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.

The class and laboratory work is done in Agricultural Hall.

AGRONOMY.

Subjects of Instruction.

1. **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 exercises in drawing plans of farms and farm buildings; leveling and laying drains, dynamometer tests of wagons and farm implements, etc. Five periods, first term; two periods, third term. For Juniors. Professor CONNER.

2. **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, fertilizers, and mechanical analysis. Three periods, second term. For Juniors. Professor CONNER.

3. **Farm Crops.**—Lectures and recitations upon the history, production, harvesting, and marketing of farm crops. Practical exercises with growing and dried specimens of farm crops. Two periods, second and third terms. For Sophomores. Professor CONNER.

4. **Special Crops.**—This course is designed for advanced work in farm crops. Corn and cotton are taken up in detail and studied in all their relation to farm economy. Other crops of importance are taken up as time permits. Five periods, first term; three periods, second term. For Seniors. Professor CONNER.

5. **Soil Physics.**—This course is for more advanced work in soils, and consists of laboratory practice and lectures on origin, formation, and classification of soils; soil moisture and methods of conserving it; soil temperature; soil texture; mechanical analysis of soils, etc. The soils of the State will be studied. Free use of soil maps will be made. Three periods, third term. For Seniors. Professor CONNER.

6. **Farm Management.**—Lectures upon history of agriculture; present agricultural methods in various countries, cost and relation; profits of various farm operations and systems. Two periods, second and third terms. For Seniors. Professor CONNER.

7. **Agriculture (Elementary).**—The course in Elementary Agriculture will consist of lectures and recitations from text-book on soils, crops, fertilizers, farm equipment, and farm machinery. One period

per week will be devoted to practical exercises, taking up the analysis and classification of soils; identification and habit of growth of farm crops; drawing plans of farms and farm buildings. The work will be made practical and will be suited to the needs of the student. Five periods. Required of one-year students. Professor CONNER.

ANIMAL HUSBANDRY.

10. **Breeds of Live-stock.**—The origin, history, and characteristics of the several breeds of live-stock are studied by the students. Where possible actual specimens are used to show the breed characteristics, and where representative animals can be found within a reasonable distance, the student is permitted to visit such places. This enables the student to determine the breeds best adapted to the different conditions and environments. Two periods, first term. Required of Freshmen. Assistant Professor CURTIS.

11. **Stock Judging.**—Practical exercises are given in live-stock judging. The student is required, after familiarizing himself with the points of the score-card, to study the various classes of farm animals in relation to the purposes for which they are designed. The animals are compared and placed according to their relative merits, after which the reasons for so doing are written on blank forms furnished the student. Two periods, first term. Required of Sophomores. Assistant Professor CURTIS.

12. **Animal Breeding.**—Upon the proper methods of breeding and management depends the success or failure in raising improved types of farm animals. To this end the student is taught the underlying principles or laws which govern the successful breeding and improvement of the various classes of live-stock. The experience and observation of our more successful husbandmen will constitute the foundation of this work. Lectures and recitations. Three periods, second term. Required of Sophomores. Assistant Professor CURTIS.

13. **Herd Books.**—In the study of herd books the student is taught the essential things which constitute a good pedigree. The breeding of pure-bred live-stock has advanced to such a degree that a record of the ancestry must be kept to preserve the purity and trace the performance of the breed. The foundation of the work will be based on the laws which govern breeding, together with the records issued by the various live-stock associations. The student is required to trace the ancestry of animals in their respective herd books. One period, second term. Required of Sophomores. Assistant Professor CURTIS.

14. **Stock Feeding.**—The course in stock feeding includes a study of the physiology of the digestive system, also the best methods involved in raising and maturing farm animals for their respect-

ive uses. The feeding of the various classes of animals will be studied, and most profitable methods of feeding and management during the different periods of growth. The chief object of the course is to acquaint the student with the fundamental principles of stock feeding, after which the practical side of the question will be considered, enabling him to compound rations and calculate the nutritive ratios of same. Lectures and recitations. Four periods, third term. Required of Sophomores. Assistant Professor CURTIS.

15. **Advanced Live-stock Judging.**—This course will include advanced work in judging of live-stock. Particular stress will be laid on breed types of the different classes of farm animals. Heretofore only the dairy and beef types of cattle, fat and bacon types of swine, mutton and wool types of sheep have been considered. This advanced work will include judging of the particular breed types, classing under these general types, and will be a valuable attribute in fixing breed characteristics. Two periods, first term. Elective for Seniors. Assistant Professor CURTIS.

16. **Live-stock Management, Beef and Dairy Cattle.**—In this course the student will be taught the proper care and management of beef and dairy cattle. Lectures on the results obtained from the most prominent breeders and fitters of beef and dairy cattle will be given. Two periods, second term. Elective for Seniors. Assistant Professor CURTIS.

17. **Live-stock Management, Horses, Sheep, and Swine.**—This course includes lectures and recitations on the feed, care, and management of horses, sheep, and swine in relation to the respective uses for which they are grown. Two periods, third term. Elective for Seniors. Assistant Professor CURTIS.

18. **Animal Husbandry.**—Study of breeds, live-stock judging and their management, animal breeding, herd books, and stock feeding. Lectures will begin on all the above subjects, which will be supplemented with practical work as far as possible. Three periods. Required of one-year students. Assistant Professor CURTIS.

DAIRYING.

Dairy Equipment.—The dairy laboratory occupies about four thousand square feet of floor space on the floor of the new Agricultural Building, besides the locker-rooms and the toilet and bath-rooms on the same floor and the dairy lecture-room on the second floor used by the dairy students.

The main dairy laboratory is thirty-six by fifty-seven feet and is fitted throughout with modern equipment suited to giving up-to-date instruction in farm dairying, retalling milk, and creamery practice. The equipment for the farm dairying consists, in the main, of

De Laval, Sharples, Empire, National, and Simplex hand separators, swing and barrel hand churns of different sizes; cream vats; hand and power butter-workers; aerators and coolers; milk-testers; and other articles useful in doing farm dairy work.

Milk testing, which plays such an important part in all phases of dairy work, receives a great deal of attention. Several sizes of hand machines and a twenty-four bottle power tester are used in this work, together with all equipment necessary for testing milk, cream, butter, cheese, skim-milk, whey, and also the lactometer.

The equipment for giving instruction in commercial dairying consists of milk pump, receiving vat, tempering vat, turbine separator, continuous pasteurizer, combined churn and butter-worker, bottling outfit, and bottle washing and sterilizing outfit.

Subjects of Instruction.

22. Dairying.—Text-book and lecture course covering the fundamental principles of modern dairying. Two periods, third term. For Freshmen. Laboratory course consists of practice in the use of modern dairy equipment. Each student is required to become familiar with the construction and operation of the leading makes of separators. Proficiency is required of the students in milk testing, standardizing milk and cream, cream ripening, churning, working, packing and scoring butter. Five periods, third term. For Freshmen. Associate Professor MICHELS.

23. Dairy Bacteriology.—Lecture and text-book course covering the more important facts in the relation of bacteria to dairying. Two periods, first term. For Seniors. Laboratory course consists in demonstrating and supplementing the lecture course. Practice is given in pasteurizing milk and cream for market; making and using starters in butter and cheese-making. Three periods, first term. For Seniors. Associate Professor MICHELS.

24. Cheese-making.—This is a lecture and laboratory course on the manufacture of the leading brands of cheese. Three periods, second term. For Seniors. Associate Professor MICHELS.

25. Experimental Dairying.—Lecture and laboratory practice in making butter and cheese of special commercial importance, and a critical study of dairy literature. Three periods, third term. For Seniors. Associate Professor MICHELS.

26. Dairying.—This course is designed to give a good working knowledge of farm dairy operations.

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he

is familiar with their construction and until he becomes proficient in operating them.

The laboratory course is supplemented with lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Five periods, first term. For one-year students. Associate Professor MICHELS.

POULTRY HUSBANDRY.

The poultry plant has nineteen breeding pens with necessary yards, the houses being of several different types best suited to poultry keeping in North Carolina, an incubator cellar with several different makes of incubators, and a brooder house, which is heated by hot water. Both indoor and outdoor brooders of several different makes are used.

There is also a feed-room equipped with steam engine, grist and bone mills.

The following varieties of poultry are kept: Barred, Buff and White Plymouth Rock; White and Buff Wyandotte; White and Brown Leghorn; Buff Dopley, Light Brahma, Black Minorca, and Pekin Ducks.

29. *Poultry Husbandry*.—Classification and study of the breeds of domestic poultry; breeding, feeding, and management; construction and location of poultry houses; production and marketing of eggs; production, killing, and marketing of poultry; capons and caponizing; incubation and brooding. Three periods, third term. For Sophomores. Three periods, second and third terms. For one-year students. Mr. JEFFREY.

30. *Poultry Husbandry*.—Theory and practice of judging fowls by comparison and score-card; special poultry keeping for special markets; comparison of different systems of poultry keeping; a discussion of articles by best writers in poultry press. Three periods, third term. For Seniors. Mr. JEFFREY.

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.

33. Animal Physiology.—The first term's work will deal largely with the structure of the body, whose uses are to be considered later. The second and third terms' work will deal with 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 exercises illustrating principles of physiology. Two periods, first term; four periods, second and third terms. Required of Freshmen. Doctor ROBERTS.

34. Veterinary Anatomy.—Lectures, illustrated by charts, models, skeletons, sketches, and 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. Doctor ROBERTS.

35. 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. Doctor ROBERTS.

36. 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. Two periods, third term. Required of Juniors. Doctor ROBERTS.

37. Veterinary Medicine.—Advanced course in veterinary medicine and surgery. A continuation of the subject as outlined for Juniors, special attention being given to infectious diseases communicable to man, and their significance in meat and milk inspection. Three periods. For Seniors. Doctor ROBERTS.

38. Diseases of Live-stock.—The lectures on this subject treat of elementary veterinary anatomy and physiology, the care of live-stock to prevent diseases, and the treatment of some of the most common diseases. Five periods, second term. Required of one-year students. Doctor ROBERTS.

HORTICULTURE.

The Horticultural Department occupies rooms in the Agricultural Building, including class-rooms, laboratory, vegetable and fruit cold-storage rooms. It also has a large laboratory connected with the greenhouses. The laboratories are used for such work as seed selection, bud studies, propagation work, budding, grafting, transplanting, study of varieties of fruits, nuts, and vegetable seeds.

The greenhouses consist of three glass structures heated by hot water. They are used for the growing of ornamentals, vegetables, and many exotic plants; a large amount of laboratory work is also carried on in these houses. The student learns the use, importance, and culture of these plants. Many of them are also used to illustrate interesting and instructive characteristics of plant life.

The department is well supplied with apparatus for laboratory work, such as apparatus for seed testing, budding knives, grafting tools, pruning shears and saws, spray pumps, seed drills, and wheel hoes.

The College campus is used in teaching ornamental gardening and a study of economic trees and shrubs. The experimental orchards are freely used for illustrative purposes.

Laboratory work accompanies every subject, always supplementing the class work given at the same time.

Subjects of Instruction.

42. Fruit Culture.—A course treating of the location of orchards, soil for fruits, varieties, planting, cultivation, fertilizing, pruning, harvesting, and marketing of North Carolina fruits. The laboratory work will include practices in budding, grafting, making cuttings, and a discussion of the principles underlying such practices. Also a study of varieties of fruits, fruit buds, and exercises in pruning. Five periods, first term. Required of Freshmen. Assistant Professor REIMER.

43. Vegetable Gardening.—This course deals with the selection and preparation of soil for vegetables, construction of hot-beds and cold-frames, fertilizing, handling of seeds, irrigation, transplanting, storing, and culture of all important vegetables. Special stress is laid on the trucking industry in North Carolina. Five periods, second term. Required of Freshmen. Assistant Professor REIMER.

44. Landscape Gardening.—This course deals with the planning, arrangement, and care of home grounds, parks, and cemeteries. Special stress is laid on home grounds. It treats especially of lawns, trees and shrubs, flowers and flower-beds, and the arrangement and grouping of these. The campus, city parks, and many beautiful home grounds give exceptional opportunities for this. Three periods, third term. Required of Juniors. Assistant Professor REIMER.

45. Advanced Pomology.—This is an advanced course in the study of fruits. It deals especially with the classification of fruits, as the botany, description, identification, and judging of fruits. It also treats the subject of harvesting and marketing of fruits, as picking,

grading, packing, and shipping. Also selling, fruit unions, and markets. Text-book and lectures. Three periods, first term. Elective for Seniors. Assistant Professor REIMER.

46. **Forestry.**—This course consists of a study of the fundamentals of forestry. It deals especially with the need, influence, formation, care, and improvement of forests. Also the cutting, use, and handling of forest products. A study is made of the forest trees of greatest importance in America. Three periods, first term. Elective for Seniors. Assistant Professor REIMER.

47. **Floriculture.**—In this course the important subject of forcing flowers and vegetables is taken up. It deals with the construction, heating, and ventilation of forcing-houses. Also the culture of the leading flowers and vegetables in such houses. Lectures and text-book. Three periods, second term. Elective for Seniors. Assistant Professor REIMER.

48. **Plant Breeding.**—This course includes a brief review of what has been accomplished in plant breeding and a discussion of the most important problems at the present time. It deals with the principles of plant breeding, as laws of breeding, variation and mutation, heredity, mendelian laws, crossing, selection, origination, and improvement of varieties. The subject is treated from the horticulturist's viewpoint, dealing with fruits, vegetables, and flowers. Lectures, text-book and laboratory work. Three periods, second term. More work can be taken by special arrangement if desired. Elective for Seniors. Assistant Professor REIMER.

49. **Horticultural Research.**—The last term of the Senior year the student makes a thorough study of modern experimental Horticulture. The leading horticultural investigations of the past and present are studied. A study is also made of all important literature of some horticultural subject. The latter will be chosen with reference to the student's future work. Six periods, third term. Elective for Seniors. Assistant Professor REIMER.

50. **General Horticulture.**—The course in Horticulture for the short-course students will be just as practical as it is possible to make it. The fall term will be devoted to fruit culture. Instruction will be given in budding, grafting, planting, varieties, preparation of soil, best methods of cultivation, cover crops, fertilizers, manures, pruning, and methods of harvesting and marketing. The instruction will apply especially to North Carolina.

During the winter term the subject of vegetable gardening will be taken up. This includes a discussion of the great trucking industry in North Carolina, possibilities in trucking in the State;

soil for vegetables and how to prepare different soils for vegetables; fertilizers and manures for vegetables; the home fruit and vegetable garden; how to get early and late crops; planting and transplanting; hot-beds and cold-frames; best methods of cultivating these crops; varieties, harvesting, and marketing.

The work during the spring term will be a continuation of the work given during the winter term. A few lectures will also be given on the improvement of home grounds and on forestry. Three periods. Required of one-year students. Assistant Professor REIMER.

BOTANY AND VEGETABLE PATHOLOGY.

Equipment.

Three commodious laboratories and a large recitation and lecture-room are devoted to Botany, Bacteriology, and Vegetable Pathology. A research-room is provided for the use of advanced students. There are also offices for the professor and instructors; a store-room, a dark-room, an incubator-room, and a cold-room. All rooms are supplied with electricity, gas, hot and cold water, and the bacteriological laboratory is, in addition, provided with steam under 80 pounds pressure for purposes of sterilizing. The laboratories are supplied with wall-cases, shelves, herbarium cases, specimen boxes, sterilizers, incubators, microscopes, microtomes, a liberal supply of glassware, and such small utensils as are needed in the prosecution of the work. The incubator-room is fire-proof and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted and is now accessible for class use. There is an extensive collection of seeds, both of weeds and cultivated plants, and the most 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 experiments in plant physiology and pathology.

Subjects of Instruction.

55. **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, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed plants. The principles of plant-breeding, crossing, pollination, budding, and grafting are taught. The student's knowledge is made his

own through field-work and simple independent investigations. Three periods. Required of Freshmen. Three periods, third term. Required of one-year students. Professor STEVENS and Mr. EASON.

56. Systematic Botany.—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. Attention is given to the grouping of plants into societies and to the study of plant variation and adaptation. Three periods, third term. Required of Sophomores. Professor STEVENS.

57. 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. Two periods, third term. Required of one-year students. Professor STEVENS.

58. Plant Diseases (Advanced).—Methods of culture and investigation of plant diseases. This course is intended to prepare the student for original investigation in plant diseases. Two periods. Elective for Seniors. Professor STEVENS.

59. General Bacteriology.—Lectures and laboratory work on the 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 and Mr. TEMPLE.

60. Bacteriology (Advanced).—A course designed to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made to fit the requirements of those students electing it. Two periods. For Seniors. Professor STEVENS and Mr. TEMPLE.

ZOOLOGY.

64. 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 text-book. One term is devoted to vertebrates and invertebrates, with only a very brief study

of insects, but including some of the common parasites infecting 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. Four periods, first term. Required of Sophomores. Mr. SMITH.

ENTOMOLOGY.

65. **Economic 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. Lectures and demonstrations. Three periods, second term. Required of Sophomores. Mr. SMITH.

66. **Systematic Entomology.**—Systematic study of orders and families of insects, with special reference to structure, classification, life history, and habits. Lecture and laboratory practice. Two periods, first and second terms. For Seniors. Mr. SMITH.

68. **Entomology.**—This is a short course in which the more 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. Three periods, third term. Required of one-year students. Mr. SMITH.

GEOLOGY.

69. **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.

CHEMISTRY.*

70. **Inorganic Chemistry.**—Reimsen's *Introduction to the Study of Chemistry*. The common elements and their principal compounds are studied, together with some of the fundamental principles of the

*For further information, see course in Chemistry.

science. The lectures are illustrated with experiments and the exhibition of specimens. Three periods. Required of Sophomores. Professor WITHERS and Doctor WILLIAMS.

71. Inorganic Chemistry.—Laboratory work. Remsen's *Chemical Experiments*. 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. WILSON.

72. 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. Three periods. Elective for Seniors. Professor WITHERS.

73. 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. A considerable portion of the time is given to lectures and recitations upon the principles involved in the different tests, writing reactions, etc. Seven periods, first term. Elective for Seniors. Doctor WILLIAMS.

74. Analytical Chemistry.—Treadwell's *Quantitative Analysis*. Introductory work in gravimetric and volumetric analysis, followed by analyses of the substances most closely related to agriculture, as fertilizers, feeding stuffs, milk, butter, etc. A considerable portion of the time is given to the discussion of the principles involved in the different analytical methods. Seven periods, second and third terms. Elective for Seniors who have taken Course 73. Doctor WILLIAMS.

75. Agricultural Chemistry.—Snyder's *Soils and Fertilizers*, and Jordan's *Feeding of Animals*. 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.

76. 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. Three periods. Elective for Seniors. Professor WITHERS.

PHYSICS.*

78. 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. Mr. HEWLETT.

METEOROLOGY.

79. Meteorology and Climatology.—This course consists of twenty-six or more lectures and deals with the fundamental principles of the sciences. Instruction is given in the practical as well as the theoretical branches of the subjects. There will be exercises in map-making and forecasting the weather. The class will visit the local office of the United States Weather Bureau at Raleigh, N. C., and considerable time will be devoted to the study of weather instruments, map-making and recording of data. Special emphasis is given the subjects in their relation to agriculture. Some lectures are illustrated with lantern slides. Two periods, second term. For Seniors. Mr. THIESSEN.

DRAWING.†

80. 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, first term. Required of Juniors. Mr. VAUGHAN.

SHOP-WORK.†

82. Wood-work.—Use of bench tools; working from drawings, lining, sawing, planing; practice in making simple exercises in wood; elementary exercises in wood-turning. Two periods, second and third terms. Required of Juniors. Mr. CLAY.

83. Forge-work.—Exercises in forging and welding; making exercises of iron; care of forge tools and fires. Two periods, third term. For Juniors. Mr. WHEELER.

MATHEMATICS.

84. Algebra.—Wells' *New Higher Algebra*. Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial

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

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

fractions. Five periods, first term; two periods, second term. Required of Freshmen. Mr. RICHARDSON and Mr. J. A. PARK.

85. *Geometry*.—Wentworth's *Plane and Solid Geometry*. *Plane Geometry*. Three periods, second term; five periods, third term. Required of Freshmen. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

ENGLISH.

87. *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 on 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. BONN.

88. *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. Three periods, first term. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

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

90. *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. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

91. *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, second and third terms. Required of Juniors. Two periods, first and second terms. Required of Seniors. Professor HILL.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences, without idiomatic expressions or difficult constructions, and to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unlingual method is used, based on conversation, humorous anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions, without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, frequent repetitions, and a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lesson are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language, and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three or four hours per week, according to the size and convenience of the classes. When four hours are given, the class receives its instruction twice a week, and each time two hours in succession.

Students may take any one or all of the modern languages during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work. Work begun and continued a month may not be dropped without consent of the Faculty.

The languages taught are German, French, and Spanish.

92. **German.**—Worman's *Modern Languages*, first and second German books; *Studien und Plaudereien*, first and second books; Fischer's *Practical Lessons in German*; *Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; *Scientific Reader*. Doctor RUDY.

93. **French.**—Worman's *Modern Languages*, first and second French books; Worman's *Grammaire Française*; selected short stories of French literature, and scientific readers. Doctor RUDY.

94. **Spanish.**—Worman's *Modern Languages*, first and second Spanish books; a Spanish grammar to be selected; Fontaine's *Flores de España*, and other short stories of Spanish literature; *Modelos para Cartas*. Doctor RUDY.

HISTORY.

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

BUSINESS LAW AND CIVICS.

96. **Business Law.**—This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book, Parsons' *Laws of Business*. One period. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

97. **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. One period. Required of Juniors. President WINSTON.

98. **Advanced Political Economy and Government.**—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

99. **Drill.**—School of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three periods, first term. Two periods, second and third terms. Required of all classes except Seniors. Seniors are to either take drill or two extra hours in some other subject instead. Commandant and Officers of the Battalion.

100. **Tactics.**—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, Guard Duty, and Target Practice. One period. Required of Juniors. Lieutenant YOUNG.

ENGINEERING COURSES.

Four-year Courses in

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

Two-year Course in

- IIIa. Mechanic Arts.

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 draughting-room, and acquires a fair degree of efficiency in the use of the various surveying instruments, and in draughting. 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 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 A WEEK.*		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135†.....	2	..	..
Mechanical Drawing, 136.....	..	2	..
Descriptive Geometry, 137.....	..	..	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	2	2	2
Algebra, 263.....	5	2	..
Geometry, 264.....	..	3	5
Physics, 176.....	4	4	4
Physical Laboratory, 178.....	1	1	1
English, 272.....	3	3	3
Military Drill, 299.....	3	2	2

Sophomore Year.

Architecture, 125.....	2	..	..
Architectural Drawing, 126.....	2	2	2
Geometry, 265.....	5	..	..
Advanced Algebra, 266.....	..	3	..
Trigonometry, 267.....	..	2	5
Descriptive Geometry, 101.....	..	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.....	3	3	3
Military Drill, 299.....	3	2	2

*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 A WEEK.		
	1st Term.	2d Term.	3d Term.
Surveying, 103 and 106.....	2	2	2
Surveying (field-work), 107.....	2	2	2
Construction, 105.....	2	..	..
Descriptive Geometry, 101.....	2	2	2
Graphic Statics, 102.....	..	2	2
Mechanics, 104.....	3	3	3
Analytical Geometry, 268.....	4	4	..
Calculus, 269.....	..	..	4
English and History, 283 and 276.....	2	2	2
Political Economy, 297.....	1	1	1
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages (elective), 277, 278, or 279.....	3	3	3

Senior Year.

Mechanics of Materials, 115.....	3	..	..
Construction, 105.....	..	2	2
Road-building, 112.....	2	..	..
Roofs and Bridges, 109.....	3	..	..
Bridge Design, 110.....	..	4	4
Municipal Engineering, 111.....	..	2	2
Surveying (field-work), 108.....	2	..	..
Hydraulics, 116.....	..	3	3
Calculus, 269.....	3	..	..
Railroad Engineering, 106.....	2	..	..
Reinforced Concrete, 114.....	..	2	2
Astronomy, 113.....	..	2	2
Elect six periods from the following:			
English, 276 and 274.....	2	2	2
Business Law, 295.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages, 277, 278, or 279.....	3	3	3

CIVIL ENGINEERING.

Equipment.

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

Subjects of Instruction.

101. **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 and in Mining Engineering. Mr. LANG.

102. **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 and Mr. MANN.

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

104. **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 Civil and Mining Engineering. Mr. LANG and Mr. MANN.

105. **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 Engineering. Professor RIDDICK.

106. **Railroad Engineering.**—Reconnaissance, preliminary and location surveys, cross-sections, compound curves, spirals, etc. Searles' *Field Engineering*. Two periods, second and third terms. Required of Juniors in Civil and in Mining Engineering. Two periods, first term. Required of Seniors in Civil Engineering. Mr. LANG and Mr. MANN.

107. **Surveying.**—Field-work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil and in Mining Engineering. Mr. MANN and Mr. SYKES.

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

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

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

112. **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.

113. **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.

114. **Reinforced Concrete.**—Turneaure & Maurer's *General Theory of Concrete and Steel Construction*. Problems in beams, columns, retaining walls, etc. Two periods, second and third terms. Required of Seniors in Civil Engineering. Mr. MANN and Mr. LANG.

115. **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.

116. **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*. Three periods, second and third terms. Required of Seniors in Engineering. Professor RIDDICK.

ARCHITECTURE.

125. **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. Mr. MANN.

126. **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.

**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.

The courses follow closely the methods adopted by the large manufacturing companies, both in drawing-room system and shop methods.

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

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135.....	2	..	..
Mechanical Drawing, 136.....	..	2	..
Descriptive Geometry, 137.....	..	..	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	2	2	2
Algebra, 263.....	5	2	..
Geometry, 264.....	..	3	5
Physics, 176.....	4	4	4
Physical Laboratory, 178.....	1	1	1
English, 272.....	3	3	3
Military Drill, 299.....	3	2	2

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanical Drawing, 139.....	2	2	2
Forge-work, 148.....	2	..	..
Pattern-making, 149.....	..	2	2
Geometry, 265.....	5	..	..
Advanced Algebra, 266.....	..	3	..
Trigonometry, 267.....	..	2	5
Electricity and Magnetism, 177.....	2	2	2
Physical Laboratory, 179.....	1	1	1
Inorganic Chemistry, 216.....	3	3	3
Inorganic Chemistry (laboratory), 217.....	2	2	2
English, 273 and 275.....	3	3	3
Military Drill, 299.....	3	2	2

Junior Year.

Boilers, 157.....	2	..	..
Steam Engines, 158.....	..	2	..
Valve Gears, 159.....	..	..	2
Applied Mechanics, 169.....	3	3	3
Machine Design, 140.....	2	2	2
Machine-shop Work, 150.....	2	2	2
Electrical Engineering, 183.....	2	2	2
Analytical Geometry, 268.....	4	4	..
Calculus, 269.....	..	..	4
English and History, 283 and 276.....	2	2	2
Political Economy, 297.....	1	1	1
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages (elective), 277, 278, or 279.....	3	3	3

Senior Year.

SUBJECTS.	PERIODS A WEEK		
	1st Term.	2d Term.	3d Term.
Machine Design, 141.....	2	3	3
Machine-shop Work, 151.....	3	3	3
Power Plants, 161.....	..	..	4
Gas Engines, 162.....	5	..	..
Refrigeration, 163.....	..	3	..
Heating and Ventilation, 166.....	..	1	1
Pumping Machinery, 165.....	..	1	..
Structural Engineering, 167.....	..	2	2
Mechanics of Materials, 115.....	3	..	..
Steam Engineering Laboratory, 168.....	2	2	2
Calculus, 269.....	3	..	..
Hydraulics, 116.....	..	3	3
Elect six periods from the following:			
English, 276 and 274.....	2	2	2
Business Law, 295.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages, 277, 278, or 279.....	3	3	3

IIIa. The Two-year Course in Mechanic Arts.

First Year.

Free-hand Drawing, 135.....	4	..	..
Mechanical Drawing, 136.....	..	4	..
Descriptive Geometry, 137.....	..	..	4
Wood-work, 146.....	3	3	3
Forge-work, 147.....	3	3	3
Mechanical Technology, 152.....	1	1	1
Arithmetic, 251.....	5	..	..
Algebra, 262.....	..	5	5
English, 271.....	3	3	3
Military Drill, 299.....	3	2	2

Second Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanical Drawing, 171.....	2	2	2
Machine-shop Work, 150.....	3	3	3
Drawing, 171, or Machine-shop Work, 150.....	3	3	3
Mechanical Technology, 172.....	1	1	1
Steam and Steam Machinery, 173.....	2	2	2
Drawing, 171, or Shop-work, 150*.....	5	5	1
Algebra, 263, Drawing, 171, or Shop-work, 150*.....	5	2	..
Geometry, 264, Drawing, 171, or Shop-work, 150*.....	..	3	5
Military Drill, 299.....	3	2	2

*Shop-work to be either wood-working or machine-shop.

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 the steam laboratory, machine shop, forge shop, wood-turning and carpenter shop, office, and library. On the second floor are the recitation-room, two drawing-rooms, and a wood-finishing room. In the office 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 $4\frac{1}{2} \times 6 \times 8$ 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, two hydraulic rams, a 15,000-pound Olsen testing machine, and other apparatus for making tests.

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 6½-inch tenoning machine with cope heads; a 6-inch sash and blind sticker; a 34-inch hand-saw; a jig-saw; a shaper or edge-moulding machine, with a very complete set of moulding cutters; a chain-mortiser; a dovetailing machine; a 38-inch grindstone; a wood trimmer; an adjustable miter-box; a steam glue-heater, and a large assortment of screw and bar clamps, both iron and wooden.

The forge shop is a well-lighted and ventilated, neatly-paved room, thirty by forty feet. It is equipped with twenty-eight forges, blast being furnished from a Sturtevant blower; two emery and two buffing wheels; a Buffalo Forge Company's hand drill; 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, 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), a 26-inch by 44-inch by 12-foot bed McCabe double-spindle lathe, an 18-inch Prentiss shaper, a 24-inch upright Bickford drill press, 32-inch American drill press, a Brown & 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, a Whiton centering machine, and a Twist drill 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 electric motors.

Subjects of Instruction.

135. **Free-hand Drawing.**—Work in the use of the pencil; technical sketches of objects, usually parts of a machine; use of instruments, and tracing. Two periods, first term. Required of Freshmen. Four periods, first term. Required of first-year students in Mechanic Arts. Mr. VAUGHAN.

136. **Elementary Mechanical Drawing.**—Geometric drawing, isometric and cabinet drawing, elementary projections, drawings made to scale from working sketches of pieces of a machine. Two periods, second term. Required of Freshmen. Four periods, second term. Required of first-year students in Mechanic Arts. Mr. VAUGHAN.

137. **Descriptive Geometry Drawing.**—Elementary principles; cylinders, cones, and prisms, intersections, development of surfaces. Miscellaneous problems. Two periods, third term. Required of Freshmen. Four periods, third term. Required of first-year students in Mechanic Arts. Mr. VAUGHAN.

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

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

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

Students are required to stamp their drawings with the College stamp, similar to the practice in the drawing-rooms of the large manufacturing companies. Encouragement is given to original design, especially when carried through the shops to a complete working machine.

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. Two periods. Required of Freshmen. Three periods. Required of first-year students in Mechanic Arts. Mr. CLAY.

147. **Forge-work.**—Exercises in working with iron. Welding. Uses and care of forge tools and fires. Two periods. Required of Freshmen. Three periods. Required of first-year students in Mechanic Arts. Mr. WHEELER.

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

149. **Pattern-making.**—Exercises in making patterns and moulds of machine parts. Two periods, second and third terms. Required of Sophomores in Mechanical, Electrical, and Mining Engineering. Mr. CLAY.

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. Three 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. Working from drawings, duplicate and interchangeable parts. Working to standard gauges. Three periods. Required of Seniors in Mechanical Engineering. Mr. PARK.

In all practical courses the student's attention is directed to cost of production and its principal elements—time and method.

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 first-year students in Mechanic Arts. Mr. CLAY.

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 THOMAS.

158. **Steam Engines.**—Types—simple and compound, and triple expansion, automatic, Corliss, rotary, turbines. 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 THOMAS.

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

161. Power Plants.—Mechanical Engineering of power plants. Selection and arrangement of machinery, appliances, piping. Four periods, third term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

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

163. Refrigeration.—Various types of ice-making machinery. Compression and absorption systems. Carbon dioxide and compressed-air machines. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor THOMAS.

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

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 THOMAS.

167. Structural Engineering.—The manufacture and uses of different metals—rolled sections used in bridge, structural work, and general engineering. Two periods, second and third terms. Required of Seniors in Mechanical Engineering. Mr. ELLIS.

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. Two periods; required of Seniors in Mechanical Engineering. One period; required of Seniors in Electrical Engineering. A brief course in Surveying is given, so as to enable a student to locate buildings, foundations, line up shafting, engines, and machinery by the use of transit and level. Professor THOMAS and Mr. ELLIS and Mr. VAUGHAN.

169. Applied 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 Mechanical and Electrical Engineering. Mr. VAUGHAN.

171. Mechanical Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blue-

printing. Two periods. Required of second-year Mechanic Arts students. Mr. VAUGHAN.

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; arrangement and sizes of belting, pulleys, and shafting. One period. Required of second-year students in Mechanic Arts. Professor THOMAS.

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. Professor THOMAS.

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.

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

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Elementary Physics, 176.....	4	4	4
Physical Laboratory, 178.....	1	1	1
Free-hand Drawing, 135.....	2	..	..
Mechanical Drawing, 136.....	..	2	..
Descriptive Geometry, 137.....	..	..	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	2	2	2
Algebra, 263.....	5	2	..
Geometry, 264.....	..	3	5
English, 272.....	3	3	3
Military Drill, 299.....	3	2	2

Sophomore Year.

Electricity and Magnetism, 177.....	2	2	2
Physical Laboratory, 179.....	1	1	1
Mechanical Drawing, 139.....	2	2	2
Geometry, 265.....	5	..	..
Advanced Algebra, 266.....	..	3	..
Trigonometry, 267.....	..	2	5
Inorganic Chemistry, 216.....	3	3	3
Inorganic Chemistry (laboratory), 217.....	2	2	2
Forge-work, 148.....	2	..	..
Pattern-making, 149.....	..	2	2
English, 273 and 275.....	3	3	3
Military Drill, 299.....	3	2	2

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Electrical Engineering, 183.....	5	5	5
Electrical Engineering Laboratory, 186.....	2	2	2
Machine-shop Work, 150.....	2	2	2
Machine Design, 140.....	2	2	2
Applied Mechanics, 169.....	3	3	3
Analytical Geometry, 268.....	4	4	..
Calculus, 269.....	..	..	4
English and History, 263 and 276.....	2	2	2
Political Economy, 297.....	1	1	1
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages (elective), 277, 278, or 279.....	3	3	3

Senior Year.

Electrical Engineering, 184.....	5	5	5
Electrical Engineering Laboratory, 190.....	2	2	2
Electrical Design, 191.....	2	2	2
Boilers, 157.....	2	..	..
Steam Engines, 158.....	..	2	..
Steam Engineering (laboratory), 198.....	1	1	1
Calculus, 269.....	3	..	..
Hydraulics, 116.....	..	3	3
Elect six periods from the following:			
Business Law, 295.....	1	1	1
English Literature, 276 and 274.....	2	2	2
Military Drill, 299.....	3	2	2
Modern Languages, 277, 278, or 279.....	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, and light. Text-book used: Carhart & Chute's *High School Physics*. Four periods. Required of Freshmen in Engineering courses. Mr. HEWLETT.

177. **Elementary Lessons in Electricity and Magnetism.**—Text-book used: *Elementary Electricity and Magnetism*, by D. C. & J. P. Jackson. Two periods. Required of Sophomores. Professor MOORE.

178. **Physical Laboratory.**—Practice in handling units in British and metric systems. Experiments in mechanics, illustrating addition and composition of forces, the lever, the inclined plane, the pendulum, density, and specific gravity, and Boyle's law. Experiments in heat, sound, and light, covering the following subjects: Thermometer calibration, calorimetry, hygrometry, expansion, wave lengths of sounds, laws of strings, laws of lenses and mirrors, refraction, photometry, and spectroscope. Text-book used: Cheston-Dean-Timmerman's *Laboratory Course in Physics*. One period. Mr. SPRAGUE.

179. **Physical Laboratory.**—Continuation of Course 178. Elementary experiments in magnetism. The electric circuit. Primary batteries. Measurement of electro-motive force, current, and resistance. Telegraph and telephone circuits. Required of Sophomores in Electrical, Mining, and Mechanical Engineering, and in Chemistry. Mr. HEWLETT.

ELECTRICAL ENGINEERING.**Equipment.**

For this course two laboratories are equipped: one known as the instrument laboratory, in which measuring instruments and apparatus are kept, and the other as the dynamo laboratory, containing generators, motors, transformers, switchboards, etc. The instrument

laboratory is provided with direct and alternating current voltmeters, ammeters, and wattmeters, Wheatstone bridges, galvanometers, condensers, etc. It is supplied from the central power-house with direct and alternating currents of any voltage, phase, or frequency for use in checking instruments and making measurements. The dynamo laboratory is a small one-story brick building 30 x 50 feet, and is equipped with a 3-phase synchronous motor coupled directly to a line shaft arranged to drive small generators, an 11.5 K. W. 110-volt Westinghouse D. C. generator, 20 K. W. 2-phase 110-volt Lincoln alternator, one 6-light T. H. arc-lighting generator, one 1-horse-power Sprague motor, one 8 K. W. 110-volt Siemens & Halske generator, one 2-horse-power 3-phase 110-volt G. E. induction motor, one 2 K. W. 110-volt LaRoche single-phase alternator, two $2\frac{1}{2}$ K. W. 110-volt 3-phase generators, two $2\frac{1}{2}$ K. W. 125-volt compound wound D. C. generators with series coils for use as series motors or generators, one $2\frac{1}{2}$ K. W. 110-volt A. C. rotary converter, one 30-ampere Hewitt mercury rectifier. The laboratory also contains constant potential and constant current transformers, condensers, circuit-breakers, etc., and a switchboard well equipped with voltmeters, ammeters, frequency indicators, etc.

The central power station is also available for student use, the equipment consisting in a 75 K. W. 600-volt 3-phase Crocker-Wheeler generator coupled to a Skinner engine, two 50 K. W. 300-volt 3-phase Crocker-Wheeler generators coupled to a 150-horse-power De Laval steam turbine, one 9.5 K. W. 125-volt Westinghouse D. C. exciting generator, and switchboard provided with meters, instrument transformers, oil circuit-breakers, wattmeters, synchroscope, etc.

The department possesses a small library of standard books on all branches of Physics and Electrical Engineering.

183. Electrical Engineering.—The magnetic circuit. Electrical measurements. Electro-magnetic induction. Storage batteries. Arc-lighting. Incandescent lighting. Interior wiring. Dynamos and dynamo design. Direct current motors. Management and operation of dynamos and motors. Text-books used: *International Correspondence School Pamphlets* and Crocker-Wheeler's *Management of Electrical Machinery*. Five periods. Required of Juniors in Electrical Engineering. Two periods. Required of Juniors in Mechanical Engineering. Professor MOORE.

184. Electrical Engineering.—Practice in calculating circuits containing resistance, inductance, and capacity. Alternators. Design of alternating current apparatus. Power transformation and measurement. Line construction. Switchboards and appliances. Electric

power stations. Electric car equipment. Motors and controllers. Line and track. Line calculations. Multiple unit systems. Theory of operation and design of transformers, induction motors, A. C. series motors, and repulsion motors. Text-books used: Hay's *Alternating Currents* and *International Correspondence School Pamphlets*. Five periods. Required of Seniors in Electrical Engineering. Professor Moore.

186. Electrical Engineering Laboratory.—Practice in varying the ranges of ammeters and voltmeters. Various methods of measuring resistance. Permeability and hysteresis tests. Practice with direct current generators and motors. Characteristic curves. Efficiency tests. Two periods. Required of Juniors in Electrical Engineering. Mr. Adams.

190. Electrical Engineering Laboratory.—Senior year. Coupling D. C. generators for parallel, series and three-wire operation. Stray power tests. Kapp's pumping back method. Heat test of a D. C. dynamo. Series and parallel A. C. circuits. Plotting vector diagrams. Experiments with A. C. generators, induction and synchronous motors, transformers, etc. Text-book used: Sever & Townsend's *Laboratory and Factory Tests*. Two periods. Required of Seniors in Electrical Engineering. Mr. Adams.

191. Electrical Design.—Design of magnets, dynamos, alternators, induction motors, and transformers. Two periods. Required of Seniors in Electrical Engineering.

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 instruction 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 A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135.....	2	..	..
Mechanical Drawing, 136.....	..	2	..
Descriptive Geometry, 137.....	..	..	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	2	2	2
Algebra, 263.....	5	2	..
Geometry, 264.....	..	3	5
Physics, 176.....	4	4	4
Physical Laboratory, 178.....	1	1	1
English, 272.....	3	3	3
Military Drill, 299.....	3	2	2

Sophomore Year.

Mechanical Drawing, 139.....	2	2	2
Forge-work, 148.....	2	..	..
Pattern-making, 149.....	..	2	2
Geometry, 265.....	5	..	..
Advanced Algebra, 266.....	..	3	..
Trigonometry, 267.....	..	2	5
Electricity and Magnetism, 177.....	2	2	2
Physical Laboratory, 179.....	1	1	1
Inorganic Chemistry, 216.....	3	3	3
Inorganic Chemistry (laboratory), 217.....	2	2	2
English, 273 and 275.....	3	3	3
Military Drill, 299.....	3	2	2

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Construction, 105.....	2	..	..
Graphic Statics, 102.....	..	2	2
Surveying, 103 and 106.....	2	2	2
Surveying (field-work), 107.....	2	2	2
Descriptive Geometry, 101.....	2	2	2
Mechanics, 104.....	3	3	3
Analytical Geometry, 268.....	4	4	..
Calculus, 269.....	..	..	4
English and History, 283 and 278.....	2	2	2
Political Economy, 297.....	1	1	1
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages (elective), 277, 278, or 279.....	3	3	3

Senior Year.

Mining, 206.....	..	4	4
Ore Dressing, 207.....	4	..	..
Geology, 211.....	2	2	2
Metallurgy, 208.....	..	2	2
Mineralogy, 212.....	4	..	..
Assaying, 209.....	..	2	2
Boilers, 157.....	2	..	..
Steam Engines, 158.....	..	2	..
Valve Gears, 159.....	..	..	2
Hydraulics, 116.....	..	3	3
Calculus, 269.....	3	..	..
Elect six periods from the following:			
English, 276 and 274.....	2	2	2
Business Law, 295.....	1	1	1
Military Drill, 299.....	3	2	2
Modern Languages, 277, 278, or 279.....	3	3	3

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.

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.

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.

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. Two periods, second and third terms. Required of Seniors in Mining.

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 Seniors in Mining.

212. **Mineralogy.**—Moses & Parsons' *Mineralogy*. Descriptive and determinative mineralogy; blowpipe analysis and the study of the more important minerals, their properties, uses, and methods of determination. Recitations and laboratory practice. Four periods, first term. Required of Seniors in Mining.

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 ice; for the extraction of cotton-seed oil; and for the dyeing of cotton goods.

The chemical laboratories of the North Carolina Department of Agriculture and of the North Carolina Agricultural Experiment Station afford the student an opportunity to keep in touch with the methods of research in this department of agricultural science.

The State Museum is open to the public each day, 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 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 one hundred and eighteen 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 of oils, metallurgy of iron, metallurgy of copper, dyeing of cotton goods, in seven agricultural experiment stations, in State departments of agriculture, and in teaching chemistry. These are employed in North Carolina and eleven other States.

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

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing, 135.....	2	..	..
Mechanical Drawing, 136.....	..	2	..
Descriptive Geometry, 137.....	..	..	2
Wood-work, 146.....	2	2	2
Forge-work, 147.....	2	2	2
Physics, 176.....	4	4	4
Physical Laboratory, 178.....	1	1	1
Algebra, 263.....	5	2	..
Geometry, 264.....	..	3	5
English, 272.....	3	3	3
Military Drill, 299.....	3	2	2

Sophomore Year.

SUBJECTS.	PERIODS A 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, 179.....	1	1	1
Elementary Botany, 241.....	3	3	3
Geometry, 265.....	5	..	..
Advanced Algebra, 266.....	..	3	..
Trigonometry, 267.....	..	2	5
English, 273 and 275.....	3	3	3
Military Drill, 299.....	3	2	2

Junior Year.

Organic Chemistry, 218.....	3	3	3
Analytical Chemistry, 220 and 228.....	7	7	7
Bacteriology, 251.....	2	2	2
German, 277.....	3	3	3
English and History, 283 and 276.....	2	2	2
Political Economy, 297.....	1	1	1
Military Tactics, 300.....	1	1	1
Military Drill, 299.....	3	2	2

Senior Year.

Industrial Chemistry, 233.....	3	3	3
Analytical Chemistry, 226.....	7	7	7
Organic Chemistry (laboratory), 228.....	4	4	4
Bacteriology, 252.....	2	2	2
Elect six periods from the following:			
English, 276 and 274.....	2	2	2
Business Law, 295.....	1	1	1
Military Drill, 299.....	3	2	2
German, 277.....	3	3	3

CHEMISTRY.

216. Inorganic Chemistry.—Remsen's *Introduction to the Study of 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 Doctor WILLIAMS.

217. Inorganic Chemistry.—Laboratory work. Remsen's *Chemical Experiments*. 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. WILSON.

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. Three periods. Required of Juniors in Chemistry. Professor WITHERS.

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. Seven periods, first term. Required of Juniors in Chemistry. Doctor WILLIAMS.

226. Analytical Chemistry.—Treadwell's *Quantitative Analysis*. Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Seven periods, second and third terms. Required of Juniors in Chemistry. Seven periods. Required of Seniors in Chemistry. Doctor WILLIAMS.

228. 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. One of each of the more important classes of dye-stuffs is prepared and the properties studied. Four periods. Required of Seniors in Chemistry. Doctor SYME.

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. Three periods. Required of Seniors in Chemistry. Professor WITHERS.

BOTANY.

241. 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, growth, sex, adaptation, and evolution are illustrated. Particular consideration is given to the fungi and seed-plants. The principles of plant-breeding, crossing, pollination, budding, and grafting are taught. The student's knowledge is made his own through field work and simple independent investigations. Three periods. Required of Sophomores in Chemistry. Professor STEVENS and Mr. EASON.

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. Required of Juniors in Chemistry. Professor STEVENS and Mr. TEMPLE.

252. Bacteriology, Advanced.—A course designed to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made flexible to fit the requirements of those students taking it. Two periods. Required of Seniors in Chemistry. Professor STEVENS and Mr. TEMPLE.

MATHEMATICS.

While the subject of Mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Courses, yet, at the same time, it is not the purpose to subordinate the general theory of Mathematics to the practical side. The work consists of recitations, written exercises and lectures, the scope being quite sufficient for the needs of the institution.

261. Arithmetic.—Milne's *Standard Arithmetic*. Begin with decimal fractions and complete the subject. Five periods, first term. Required of first-year students in Mechanic Arts. Mr. RICHARDSON and Mr. SYKES.

262. Algebra.—Wells's *New Higher Algebra* up to quadratic equations. Five periods, second and third terms. Required of first-year students in Mechanic Arts. Mr. RICHARDSON and Mr. SYKES.

263. **Algebra.**—Wells's *New Higher Algebra*. Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial fractions. Five periods, first term; two periods, second term. Required of Freshmen and second-year students in Mechanic Arts. Mr. RICHARDSON and Mr. J. A. PARK.

264. **Geometry.**—Wentworth's *Plane and Solid Geometry*. Plane Geometry. Three periods, second term; five periods, third term. Required of all Freshmen and second-year students in Mechanic Arts. Professor YATES, Mr. RICHARDSON, and Mr. J. A. PARK.

265. **Solid Geometry.**—Required of Sophomores. Five periods, first term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

266. **Advanced Algebra.**—Wells's *New Higher Algebra*. Compound interest and annuities, permutations, combinations, continued fractions, general theory of equations, and the solution of higher equations, etc. Required of Sophomores. Three periods, second term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

267. **Trigonometry.**—Wells's *Plane and Spherical Trigonometry*. Plane Trigonometry. Solution of plane triangles, triangulation, etc. Spherical Trigonometry. Solution of spherical triangles. Required of Sophomores. Two periods, second term; five periods, third term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

268. **Analytical Geometry.**—Nichols's *Analytical Geometry*. Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves and geometry of three dimensions. Four periods, first and second terms. Required of Juniors in Engineering. Professor YATES.

269. **Differential and Integral Calculus.**—Osborne's *Elements of Calculus*. A thorough treatment of the fundamental principles and derivation of formulae; applications to various problems, such as expansion into series, evaluation of undetermined forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Four periods, third term. Required of Juniors. Three periods, first term. Required of Seniors. Professor YATES.

ENGLISH.

271. **English Composition.**—A drill on the forms of the language, the correct relation of words, the sentence, the paragraph. Daily written exercises. Three periods. Required of first-year students in Mechanic Arts. Doctor SUMMEY and Mr. BONN.

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 on 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. BONN.

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. Three periods, first term. Professor HILL, Doctor SUMMEY, and Mr. BONN.

274. Argumentation.—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of 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. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

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.

MODERN LANGUAGES.

The aim of the department is to enable one (*a*) to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, and (*b*) to read scientific works and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humorous anecdotes, interesting short stories, and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates, context, comparisous, contrasts, and associations, beginning with leading simple questions and gradually progressing to more ad-

vanced ones, frequent repetitions, and a strict adherence to the rule that answers be always given in complete short sentences of the foreign language and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lesson are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three or four hours per week, according to the size and convenience of the classes. When four hours are given, the class receives its instruction twice a week and each time two hours in succession.

Students may take any one or all of the modern languages during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work. Work begun and continued a month may not be dropped without consent of the Faculty.

The languages taught are German, French and Spanish.

277. **German.**—Worman's *Modern Languages*, first and second German books; *Studien und Plaudereien*, first and second books; Fischer's *Practical Lessons in German*; *Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; *Scientific Reader*. Doctor RUDY.

278. **French.**—Worman's *Modern Languages*, first and second French books; Worman's *Grammaire Française*; selected short stories of French literature, and scientific readers. Doctor RUDY.

279. **Spanish.**—Worman's *Modern Languages*, first and second Spanish books; a *Spanish Grammar* to be selected; *Fontaine's Flores de Espana*, and other short stories of Spanish literature; *Modelos para Cartas*. Doctor RUDY.

HISTORY.

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.

BUSINESS LAW AND CIVICS.

295. **Business Law.**—This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book: Parsons' *Laws of Business*. One period. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

297. **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 Juniors. One period. President WINSTON.

298. **Advanced Political Economy and Government.**—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

299. **Drill.**—School of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three hours. Required of all classes except Seniors. Elective for Seniors. Commandant and Officers of the Battalion.

300. **Tactics.**—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, and Guard Duty. One period. Required of Juniors. Lieutenant Young.

TEXTILE COURSES.

- VIII. The Four-year Course in Textile Industry.
- VIIIa. The Two-year Course in Textile Industry.
- VIIIb. Special Ten Weeks' Course in Carding and Spinning.
- VIIIc. Special Ten Weeks' Course in Weaving and Designing.

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 three courses of instruction are offered, the four-year course leading to the degree of Bachelor of Engineering, the two-year course and the ten-weeks' winter course in carding and spinning, weaving, and designing.

Four-year Course.

The four-year course offers complete facilities for full instruction in all branches of cotton-mill work. Practical training in textile work begins in the Freshman year and forms a part of the work in each of the following years. The combination of practical with theoretical training is begun in the Sophomore year and continues in the Junior and Senior years. The theoretical work is directly related to the practical work going on, and this combination offers the best means for studying cotton-mill work and its operations.

Two-year Course.

The two-year course is offered to mature students who cannot spend the time required for the four-year course, or who have had considerable practical experience in the mill and wish to avail themselves of our facilities for giving special instruction in textile work.

Special Ten Weeks' Courses.

Special ten weeks' courses are offered to practical mill men in carding and spinning, weaving and designing. These courses are given during the winter of each year, beginning with the opening of College in January and lasting until the middle of March. They aim to meet a demand from cotton-mill superintendents, overseers, and practical men for special instruction in the subjects named.

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. It is a two-story brick building one hundred and twenty-five by seventy-five 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 collar, made by Mason Machine Works, Taunton, Mass. One 40-inch revolving flat card, 110 flats, with collar, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with collar, 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, Whitinsville, Mass. One railway head, with coiler, 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 sliver lap machine, one ribbon lap machine and one six-head combing machine, made by Whitin Machine Works, Whitinsville, Mass. One 36-spindle slubber for 11 x 5½-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 x 4½-inch bobbin, made by Saco and Pettee Machine Shops, Biddeford, Me. One 64-spindle fine roving frame for 7 x 3½-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 x 2½-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. One 48-spindle spinning frame, combination build, made by D. A. Tompkins Co., Charlotte, N. C. One 240-spindle mule spinning frame, 1½-inch gauge, made by Asa Lees & Co., Oldham, England.

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 40-spindle spooler, made by D. A. Tompkins Co., Charlotte, N. C. One 48-spindle twister, made by Whitin Machine Works, Whitinsville, Mass. One 100-spindle wet twister, 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; two Northrop-Draper sateen loom; one Northrop-Draper loom with 20-harness dobby, made by Draper Company, Hopedale, Mass. Three high-speed sheeting looms, made by Kilburn & Lincoln, Fall River, Mass. One sheeting loom, one 12-harness dobby loom and one 24-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 4-harness twill loom, made by Lowell Machine Shop, Lowell, 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. One 4 x 1 box table-cover loom with 624-hook Halton Jacquard Machine, made by Crompton-Thayer Loom Co., Worcester, Mass. Ten 4 x 4 box hand looms with 30-harness witch-heads for narrow fabrics. Two 4 x 4 box hand looms with 400-hook and 600-hook Jacquard machines, from Thos. Halton's Sons, Philadelphia, Pa.

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 seventy by fifty feet which is fitted up to give instruction in practical dye-house work.

The dyeing laboratory is well fitted up with appropriate work tables, and all the necessary apparatus for doing experimental dyeing, dye-testing, color-matching, the testing of dyed samples to light, acids, and alkalies, etc., as well as carrying out the various chemical operations necessary in dyeing. The dye-house is equipped with the proper dyeing machinery needed in the dyeing of large quantities of material, and the giving of practical instruction in boiling out, bleaching, dyeing of raw stock, cops, skeins, warps, and piece goods.

The department has a large collection of dyestuffs and color cards. Through the kindness of the various dyestuff dealers and manufacturers the department is regularly supplied with all new dyestuffs and color cards as soon as they are put on the market, thus affording the student ample opportunity to become familiar with the latest methods and products for commercial work. The department is indebted to the following firms for donations of dyestuffs and chemicals:

Badische Company, 128 Duane St., New York, samples Indanthrene dyestuffs and color cards.

A. Klipstein & Co., 122 Pearl St., New York, 2 pounds aniline oil, 2 pounds aniline salt.

Farbenfabriken of Elberfeld Co., 66 Lafayette St., New York, 5 pounds Malapale soap, large collection of dyestuffs and color cards.

Berlin Aniline Works, New York, samples of dyestuffs and color cards.

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.

One 10-horse-power 3-phase 550-volt motor, made by Fairbanks, Morse Co., for driving dyeing machinery.

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

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

Heating Plant.

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

VIII. The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301}.....	1	1	1
Weaving, 302.....	2	2	2
Free-hand Drawing, 315.....	2	..	..
Mechanical Drawing, 317.....	..	2	..
Descriptive Geometry, 318.....	..	..	2
Wood-work, 320.....	2	2	2
Forge-work, 321.....	2	2	2
Algebra, 335.....	5	2	..
Geometry, 336.....	..	3	5
Elementary Physics, 331.....	2	2	2
English, 341.....	3	3	3
Military Drill, 359.....	3	2	2

*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.

TEXTILE COURSES.

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	2	2	2
Weaving, 302.....	2	2	2
Textile Designing, 303.....	2	1	1
Cloth Analysis, 304.....	..	1	1
Inorganic Chemistry, 309.....	3	3	3
Inorganic Chemistry (laboratory), 310.....	2	2	2
Geometry, 337.....	5	..	..
Advanced Algebra, 338.....	..	3	..
Trigonometry, 339.....	..	2	5
English, 342 and 344.....	3	3	3
Military Drill, 359.....	3	2	2

Junior Year.

Carding and Spinning, 301.....	4	4	4
Weaving, 302.....	3	3	3
Textile Designing, 303.....	2	1	1
Cloth Analysis, 304.....	..	1	1
Warp Preparation (special), 302.....	..	..	2
Dyeing, 306.....	2	2	2
Dyeing (laboratory), 307.....	2	2	2
Boilers, 326.....	2	..	..
Engines, 327.....	..	2	..
English and History, 347 and 345.....	2	2	2
Political Economy, 353.....	1	1	1
Military Tactics, 360.....	1	1	1
Military Drill, 359.....	3	2	2
Modern Languages (elective), 348, 349, or 350.....	3	3	3

Senior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	4	4	4
Weaving, 302.....	4	4	4
Textile Designing, 303.....	2	2	2
Cloth Analysis, 304.....	1	1	1
Dyeing, 306.....	2	2	2
Machine-shop Work, 324.....	2	2	2
Elect six periods from the following:			
English, 345 and 343.....	2	2	2
Business Law, 352.....	1	1	1
Military Drill, 359.....	3	2	2
Modern Languages, 348, 349, or 350.....	3	3	3

VIIIa. The Two-year Course in Textile Industry.

First Year.

Carding and Spinning, 301.....	2	2	2
Weaving, 302.....	3	3	3
Textile Designing, 303.....	2	1	1
Cloth Analysis, 304.....	..	1	1
Free-hand Drawing, 316.....	2	..	..
Mechanical Drawing, 317.....	..	2	..
Descriptive Geometry, 318.....	..	..	2
Forge-work, 321.....	2	2	2
Arithmetic, 333.....	5	..	..
Algebra, 334.....	..	5	5
English, 340.....	3	3	3
Military Drill, 359.....	3	2	2

Second Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	5	5	5
Weaving, 302.....	6	6	6
Textile Designing, 303.....	2	1	1
Cloth Analysis, 304.....	..	1	1
Machine-shop, 324.....	2	2	2
English, 341.....	3	3	3
Military Drill, 359.....	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: cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. 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. Text books: *Cotton Mill Processes and Calculations*, by Tompkins; *Cotton Spinning*, by Nasmith. Required of Freshmen, Sophomores, Juniors, and Seniors, and of first and second year students. Assistant Professor PARKER.

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; cylinder; 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; value of ingredients; sizing receipts for light, medium, and heavy sizing. Loom-mounting: reeds and harnesses; drawing in, and putting warps in loom. Looms: hand looms

and power looms; construction 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 looms; 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 index; construction and fixing of dobbie; 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; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Weaving, Plain and Fancy*, by Nelson. Required of Freshmen, Sophomores, Juniors, and Seniors, and of first and second year students. Professor NIXSON and Mr. STREED.

303. **Textile Designing.**—Lectures and practice in 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 combination 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. Required of Sophomores, Juniors, and Seniors, and of first and second year students. Professor NELSON, Mr. SHUFORD, and Mr. STEED.

304. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Draughting 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. 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. Required of Sophomores, Juniors, and Seniors, and of first and second year students. Professor NELSON, Mr. SHUFORD, and Mr. STEED.

DYEING COURSE.

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 dyestuffs, 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 Sophomore year, with the other textile students, and with them devotes attention to shop-work, 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.

VII. The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Carding and Spinning, 301.....	1	1	1
Weaving, 302.....	2	2	2
Free-hand Drawing, 316.....	2	..	..
Mechanical Drawing, 317.....	..	2	..
Descriptive Geometry, 318.....	..	..	2
Wood-work, 320.....	2	2	2
Forge-work, 321.....	2	2	2
Algebra, 335.....	5	2	..
Geometry, 336.....	..	3	5
Elementary Physics, 331.....	2	2	2
English, 341.....	3	3	3
Military Drill, 359.....	3	2	2

Sophomore Year.

Carding and Spinning, 301.....	2	2	2
Weaving, 302.....	2	2	2
Textile Designing, 303.....	2	1	1
Cloth Analysis, 304.....	..	1	1
Inorganic Chemistry, 309.....	3	3	3
Inorganic Chemistry (laboratory), 310.....	2	2	2
Geometry, 337.....	5	..	..
Advanced Algebra, 338.....	..	3	..
Trigonometry, 339.....	..	2	5
English, 342 and 344.....	3	3	3
Military Drill, 359.....	3	3	3

Junior Year.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Dyeing, 306.....	2	2	2
Dyeing (laboratory), 307.....	2	2	2
Organic Chemistry, 311.....	3	3	3
Analytical Chemistry, 312 and 313.....	7	7	7
English and History, 345 and 347.....	2	2	2
Political Economy, 353.....	1	1	1
Military Tactics, 360.....	1	1	1
Military Drill, 359.....	3	2	2
Modern Languages (elective), 348, 349, or 350.....	3	3	3

Senior Year.

Dyeing, 306.....	2	2	2
Industrial Chemistry, 315.....	3	3	3
Analytical Chemistry, 313.....	7	7	7
Organic Chemistry (laboratory), 314.....	4	4	4
Elect six periods from the following:			
English, 345 and 345.....	2	2	2
Business Law, 352.....	1	1	1
Military Drill, 359.....	3	2	2
Modern Languages, 348, 349, or 350.....	3	3	3

Description of Subjects.

306. **Dyeing.**—With the microscope and other testing apparatus the student makes a careful study of the various fibers used in the textile industry. He also studies the chemical and physical properties of these fibers; the action of acids, alkalies, heat, moisture, and the various other agencies to which fibers are liable to be subjected. He next takes up the study of the fundamental principles which underlie the arts of bleaching and dyeing, such as the boiling out and bleaching of cotton, and the chemical reactions involving each step. The adaptability of water for bleaching and dyeing, followed by the theories of dyeing. Substantive dyes and their application to cotton.

After-treatment of direct colors, including diazotising and developing and the topping with basic colors. The application to cotton of basic colors, acid colors, mordant colors, including a study of the various mordants and their fixation with metallic salts. Dyeing with sulphur colors, indigo, natural and artificial, aniline black, turkey red, and other insoluble azo colors developed on the fiber. The methods of bleaching and dyeing of linen, jute, ramie, and other vegetable fibers. The scouring and bleaching of wool. The carbonization and chlorination of wool. The application of basic, acid, chrome, eosine, and direct colors to wool. Dyeing wool with logwood, fustic, and other natural dyewoods. Methods of the making and dyeing of artificial silk. The boiling off, bleaching and dyeing of natural silk. Study of the chemical and physical changes which take place during mercerization; also the methods of dyeing mercerized goods. The use of the various kinds of machines used in bleaching and dyeing. The dyeing of raw-stock, skeins, cops, warps, piece goods, hosiery, underwear, and unions. The science of color-mixing. Color-matching on textiles. The use of the tintometer and colorimeter. Calico printing, including the various methods of preparing the various pastes, thickening agents, mordants and assistants used in printing. Quantitative analysis of mixed yarns, and fabric composed of cotton, wool, and silk. The testing of dyestuffs for their shade, tinctorial power, and leveling properties. Comparative dye trials to determine money value. Testing for mixtures. The reactions of acids, alkalies and reducing agents on several samples taken from the different classes of dyestuffs. The use of hyraldite and other stripping agents.

Oiney's Textile Chemistry and Dyeing is used as a text in connection with a course of lectures, which will include the consideration of many difficult problems that arise in the dye-house. Required of Juniors and Seniors in Textile Industry. Mr. SHUFORD.

307. Dyeing Laboratory.—A series of experiments is performed which covers all the subjects taken up in the lecture course, and includes a large amount of work done in the laboratory and dye-house. Special stress is put on the matching of colors and the dyeing of sulphur colors. Each student is required to bleach and dye a large number of samples of yarn and cloth on a small scale, and is required to mount specimens of his work in a scrap-book. At the discretion of the instructor in charge, the class bleaches and dyes larger quantities of raw-stock, cloth, and yarn in the dye-house, as well as prints samples on the laboratory printing machine. This work will be supplemented by visits to the mills which do dyeing in the city of Raleigh. Required of Juniors and Seniors in Textile Industry. Mr. SHUFORD.

CHEMISTRY.*

309. **Inorganic Chemistry.**—Remsen's *Introduction to the Study of 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 Doctor WILLIAMS.

310. **Inorganic Chemistry.**—Laboratory work. Remsen's *Chemical Experiments*. 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. WILSON.

311. **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. Three periods. Required of Juniors in Dyeing and elective for Seniors in Textile Industry. Professor WITHERS.

312. **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. Seven periods, first term. Required of Juniors in Dyeing. Doctor WILLIAMS.

313. **Analytical Chemistry.**—Treadwell's *Quantitative Analysis*. Gravimetric and volumetric analysis, special attention being given to the analysis of substances of technical importance. Seven periods, second and third terms. Required of Juniors in Dyeing. Seven periods. Required of Seniors in Dyeing. Doctor WILLIAMS.

314. **Organic Chemistry.**—Laboratory work. Gattermann's *Practical Methods of Organic Chemistry*, translated by Shoer. 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. One of each of the more important classes of dyestuffs is prepared and the properties studied. Four periods. Required of Seniors in Dyeing. Doctor SYME.

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

*For further information, see course in Chemistry.

engineering. Three 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. VAUGHAN.

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 term. Required of Freshmen and first-year students. Mr. VAUGHAN.

318. **Descriptive Geometry Drawing.**—Elementary principles; cylinders, cones, and prisms; intersection development of surfaces; miscellaneous problems. Two periods, third term. Required of Freshmen. Mr. VAUGHAN.

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

321. **Forge-work.**—Exercises in working with iron, welding; use and care of forge-tools and fires. Two periods. Required of Freshmen. Mr. WHEELER.

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 Seniors. Mr. PARK.

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 Juniors. Professor THOMAS.

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 Juniors. Professor THOMAS.

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. Mr. HEWLETT.

*For full information, see course in Mechanical Engineering.

†For full information, see course in Electrical Engineering.

MATHEMATICS.*

333. **Arithmetic.**—Milne's *Standard Arithmetic*. Begin with decimal fractions and complete the subject. Five periods, first term. Required of first-year students. Mr. RICHARDSON and Mr. SYKES.

334. **Algebra.**—Wells's *New Higher Algebra*. Up to quadratic equations. Five periods, second and third terms. Required of first-year students. Mr. RICHARDSON and Mr. SYKES.

335. **Algebra (Continued).**—Wells's *New Higher Algebra*. Begin with quadratic equations and complete logarithms, embracing ratio and proportion, variation, the progressions, the binomial theorem, series and partial fractions. Five periods, first term; two periods, second term. Required of Freshmen. Mr. RICHARDSON and Mr. J. A. PARK.

336. **Geometry.**—Wentworth's *Plane and Solid Geometry*. Plane Geometry. Three periods, second term; five periods, third term. Required of Freshmen. Professor YATES, Mr. RICHARDSON, and Mr. J. A. PARK.

337. **Solid Geometry.**—Required of Sophomores. Five periods, first term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

338. **Advanced Algebra.**—Wells's *New Higher Algebra*. Compound interest and annuities, permutations, combinations, continued fractions, general theory of equations, and the solution of higher equations, etc. Required of Sophomores. Three periods, second term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

339. **Trigonometry.**—Wells's *Plane and Spherical Trigonometry*. Plane Trigonometry. Solution of plane triangles, triangulations, etc. Spherical Trigonometry. Solution of spherical triangles. Required of Sophomores. Two periods, second term; five periods, third term. Professor YATES, Mr. J. A. PARK, and Mr. RICHARDSON.

ENGLISH.

340. A drill on the forms of the language; the correct relation of words; the sentence; the paragraph. Daily written exercise. Three periods. Required of first-year students. Doctor SUMMEY and Mr. BONN.

341. **Introductory Composition and Rhetoric.**—This course in the fundamentals of Rhetoric is made thoroughly practical. Students

*For full information, see course in Engineering.

write instead of studying about how to write. The written work is accompanied by a steady drill on 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. BONN.

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. Three periods, first term. Professor HILL, Doctor SUMMEY, and Mr. BONN.

343. **Argumentation.**—A study of the methods of our best speakers, followed by the laws of argumentation, and the writing of 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. Three periods, second and third terms. Required of Sophomores. Professor HILL, Doctor SUMMEY, and Mr. BONN.

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.

MODERN LANGUAGES.

The aim of the department is to enable one to use a limited vocabulary for practical purposes in speaking and writing fluently simple sentences without idiomatic expressions or difficult constructions, and to read scientific works, and to know the meaning of difficult constructions and idiomatic expressions of the foreign language.

A unilingual method is used, based on conversation, humorous anecdotes, interesting short stories and scientific articles. The student is taught to think in the foreign language by a direct association of thoughts with foreign expressions without the medium of English.

The meaning and fluent use of foreign expressions are taught by a direct appeal to real objects, gestures, pictorial illustrations, cognates,

context, comparisons, contrasts, and associations, beginning with leading simple questions, and gradually progressing to more advanced ones, frequent repetitions and a strict adherence to the rule that answers be always given in complete short sentences of the foreign language, and never by "yes," "no," or some other short word alone.

Grammatical and lexical details for the thorough understanding of the lessons are given. The rules are deduced from the examples, and the student is trained in their correct use by interesting connected matter.

Written examinations consist of translations from English into the foreign language and of questions and answers in the foreign language. No English appears in an examination paper. No time is allowed for hesitancy. Answers are spoken fluently and written rapidly.

Instruction is given three or four hours per week, according to the size and convenience of the classes. When four hours are given, the class receives its instruction twice a week, and each time two hours in succession.

Students may take any one or all of the Modern Languages during the Junior or Senior year. The work is optional, but credit towards a degree is allowed for the successful completion of the work. Work begun and continued a month may not be dropped without consent of the Faculty.

The languages taught are German, French and Spanish.

348. German.—Worman's *Modern Languages*, first and second German books; *Studien und Plaudereien*, first and second books; Fischer's *Practical Lessons in German*; *Practical German Grammar*, by Calvin Thomas; *German Reader*, by Fischer; *Scientific Reader*. Doctor RUDY.

349. French.—Worman's *Modern Languages*, first and second French books; Worman's *Grammaire Française*; selected short stories of French literature, and scientific readers. Doctor RUDY.

350. Spanish.—Worman's *Modern Languages*, first and second Spanish books; a Spanish grammar to be selected; Fontaine's *Flores de Espana*, and other short stories of Spanish literature; *Modelos para Cartas*. Doctor RUDY.

BUSINESS LAW AND CIVICS.

352. Business Law.—This course includes such subjects as contracts, agency, sales, negotiable paper, insurance, patent rights, etc. The purpose of the course is to teach the general principles of business law. Text-book: *Parsons' Law of Business*. One period. Required of Seniors. President WINSTON.

POLITICAL ECONOMY AND GOVERNMENT.

353. **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. One period. Required of Juniors. President WINSTON.

354. **Advanced Political Economy and Government.**—Two periods. Elective for Seniors. President WINSTON.

MILITARY SCIENCE.

359. **Drill.**—School of the Soldier; Company and Battalion in Close and Extended Order; Ceremonies; Marches and Minor Tactics. United States Infantry Drill Regulations. Three hours, first term. Two periods, second and third terms. Required of all classes except Seniors. Seniors are to either take drill or two extra hours in some other subject instead. Commandant and Officers of the Battalion.

360. **Tactics.**—Theoretical instruction in Infantry Drill, Field Service, Army Regulations, Guard Duty, and Target Practice. One period. Required of Juniors. Lieutenant YOUNG.

NORMAL COURSES.

I. For Rural Teachers:

- (a) Two-year Course.
- (b) One-year Course.
- (c) A Two Weeks' Spring Course.

II. For City Teachers:

- (a) Two-year Course.
- (b) One-year Course.
- (c) A Two Weeks' Spring Course.

The Normal Courses are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and the College has a constant demand for teachers well trained in these subjects. 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 course, or May School, 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 College, except in the May School.

The Normal Courses are as follows:

I. Courses for Rural Teachers.

(a) TWO-YEAR COURSE.

First Year.

SUBJECTS.	PERIODS A 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	2	2

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	2	2

(b) ONE-YEAR COURSE.

SUBJECTS.	PERIODS A WEEK.		
	1st Term.	2d Term.	3d Term.
Methods of teaching Agriculture.....	2	2	2
Agriculture (general).....	3	3	3
Horticulture.....	3	3	3
Animal Husbandry.....	3	3	3
Dairying.....	5	..	..
Diseases of Live-stock.....	..	5	..
Botany.....	3	..	..
Poultry.....	..	3	3
Entomology.....	..	..	3
Diseases of Plants.....	..	..	2
Agricultural Literature.....	1	1	1

Elective in any College department; e. g., Agricultural Chemistry, Land Surveying, Physics and Physical Laboratory, Drawing and others.

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 A 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
Military Drill.....	3	3	2

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

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.

The May School for Teachers.

MAY 3 TO 15, 1909.

The chief subjects of instruction in this course are Agriculture and Nature Study. Attention is also given to school gardens and the common branches are reviewed, meeting the legal requirement that teachers attend an institute once in each two years.

No fees are charged to this course. Board is supplied at \$2.50 a week, and lodging at \$1 a week.

DONATIONS.

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

To the Electrical Engineering Department.

General Electric Company, Harrison, N. J.—Samples of Tungsten Tantalum and general incandescent lamps.

To the Mechanical Department.

The John-Manville Co.—A full set of insulating materials for steam and refrigeration.

To the Animal Husbandry Department.

American Saddle Horse Register.—Five volumes.

Dutch Belted Cattle Breeders' Record.—Nine volumes.

American Chester White Record.—Seven volumes.

Merino Sheep Breeders' Record.—Three volumes.

American Oxford Down Record.—Two volumes.

American Leicester Sheep Breeders' Record.—Two volumes.

National DeLaine Sheep Breeders' Record.—Three volumes.

Standard Poland China Breeders' Record.—Twenty-one volumes.

To the Textile Department.

Lahne & Co., Lowell, Mass.—Two pair iron lug straps.

Emmons Loom Harness Company, Lawrence, Mass.—Loom harness and reeds.

Hampton Company, Easthampton, Mass.—Mercerized yarns.

Draper Company, Hopedale, Mass.—One sateen loom, ball warper, and loom supplies.

American Enamel Company, Providence, R. I.—Lease rods.

Lowell Machine Shop, Lowell, Mass.—Loom.

American Moistening Company, Boston, Mass.—Complete humidifying system.

Woonsocket Machine and Brass Company, Woonsocket, R. I.—Balls for top rolls.

Kilburn-Lincoln Company, Fall River, Mass.—Loom supplies.

Corn Products Refining Company, Chicago, Ill.—One barrel corn starch.

- Fairpoint Corporation, New Bedford, Mass.*—Tubes and cones.
Tolhurst Machine Works, Troy, N. Y.—Hydro extractor.
Jones & Laughlin Steel Company, Pittsburg.—Shafting, hangers, and pulleys for dye-house.
Edward R. Ladew, New York.—Reduction on belting.
The Robert Schaeffbaum Company, Providence, R. I.—Two sets patent grids.

Courtesies Extended to the Textile Department.

- American Textile Manufacturer, Charlotte, N. C.
 Textile Manufacturers' Journal, New York.
 Fiber and Fabric, Boston, Mass.
 Textile World Record, Boston, Mass.
 The Tradesman, Chattanooga, Tenn.
 American Industries, New York City.
 Cotton, Atlanta, Ga.
 American Cotton and Wool Reporter, Boston, Mass.
 Mill News, Charlotte, N. C.
 The Dyer and Calico Printer, London, Eng.
 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 Rural Science Club.

- International Harvester Company, Chicago, Ill.*—New reversible extension head disc harrow.

CATALOGUE OF STUDENTS.

GRADUATES.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
GEORGE GILDEROY ALLEN,	Hiddenite,	Tex.
WILEY THEODORE CLAY, B.E.,	Hickory,	M. E.
THOMAS DOTERER EASON, B.S.,	Charleston, S. C.,	Agr.
WELDON THOMPSON ELLIS, B.E.,	Spencer,	M. E.
WM. CARLYLE ETHERIDGE, B.AGR.	Manteo,	Agr.
CLARENCE WILSON HEWLETT, B.E.,	Wilson,	E. E.
WILLIAM KERR, B.S.,	Bryson City,	Agr.
JOHN LUTHER MCKINNON, B.AGR.,	Laurinburg,	Agr.
THOMAS FRANKLIN PARKER, B.AGR.,	Raleigh,	Agr.
SAMUEL OSCAR PERKINS, B.S.,	Muttentz,	Chem.
VANCE SYKES, B.E.,	Esland, R. 2,	C. E.
JAMES CLARENCE TEMPLE, B.AGR.,	Sanford,	Chem.
REID TULL, B.E.,	Kinston,	C. E.
LILLIAN LEE VAUGHAN, B.E.,	Franklin, Va.,	M. E.
ARTHUR JOHN WILSON, B.S.,	Knoxville, Ill.,	Chem.

SENIOR CLASS.

JOHN CAMILLUS APP,	Charleston, W. Va.,	Chem.
FRANK OSCAR BALDWIN,	Raleigh,	Chem.
GEORGE FRANCIS BASON,	Charlotte,	E. E.
JOHN LELAND BECTON,	Goldsboro,	C. E.
HARWOOD BEEBE,	Baltimore, Md.,	C. E.
WILLIAM LAMAR BLACK,	Mooreville,	E. E.
ASA GRAY BOYNTON,	Biltmore,	C. E.
FRANK HAMILTON BROWN,	Cullowhee,	Agr.
JOHN HARVEY BRYAN,	Goldsboro,	M. E.
WILLIAM BRYANT BURGESS,	Rocky Mount,	E. E.
LEWELLYN HILL COUCH,	Lexington,	E. E.
CLAUD COUNCIL DAWSON,	Grifton,	Tex.
ALVIN DEANS DUPREE,	Greenville,	C. E.
RAYMOND ROWE EAGLE,	Statesville,	C. E.
MINNIC LUTHER EAGLE,	Delmar, S. C.,	Agr.
ISAAC HERBERT FARMER,	Wilson,	C. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
BENJAMIN TROY FERGUSON,	Kimbolton,	Agr.
WARREN GROSS FERGUSON,	Southern Pines,	E. E.
PERCY LEIGH GAINES,	Fayetteville, R. 7,	Agr.
JUNIOUS TALMAGE GARDNER,	Shelby,	C. E.
SETH MANN GIBBS,	Middleton,	C. E.
MAURICE MORDECAI GLASSER,	Charleston, S. C.,	E. E.
MOSES HENRY GOLD,	Beaufort,	C. E.
JOHN DAVID GRADY,	Albertson,	Agr.
THOMAS DELAWARE GRIMSHAW,	Montvale,	C. E.
DORSEY YATES HAGAN,	Greensboro,	C. E.
MAURICE HENDRICK,	Shelby,	Tex.
HERBERT WILLIAM KUEFFNER,	Durham,	C. E.
CLAUDE MILTON LAMBE,	Durham,	C. E.
CHARLES EDWARD LATTA,	Raleigh,	Tex.
BENJAMIN BUSSEY LATTIMORE,	Shelby,	C. E.
DAVID LINDSAY,	Stoneville, R. 1,	Tex.
JOHN HENRY LITTLE,	Pinetops,	E. E.
GEORGE LAFAYETTE LYERLY,	Hickory,	E. E.
CLARENCE TALMAGE MARSH,	Aulander,	C. E.
LARRY LEONIDAS MCLENDON,	Wadesboro,	Agr.
DAVID JOHN MIDDLETON,	Warsaw, R. 2,	Agr.
JOHN SHAW PESCUD,	Raleigh,	C. E.
BENJAMIN FRANKLIN PITTMAN,	Tarboro,	E. E.
LAWRENCE LYON PITTMAN,	Whitakers,	C. E.
RUBLE POOLE,	Randleman, R. 3,	C. E.
HARRY ALEXANDER POWELL,	Fair Bluff,	Tex.
JAMES ALEXANDER POWELL,	Raleigh,	M. E.
THOMAS MILTON POYNER,	Poplar Branch,	C. E.
EDGAR ENGLISH SMITH,	Greensboro,	C. E.
JAMES LAWRENCE SMITH, JR.,	Duke,	C. E.
JESSE PAGE SPOON,	Hartshorn,	Agr.
JOHN SNIPES STROUD,	Bynum,	Tex.
JAMES FENTON TOWE,	Chapanoke,	E. E.
JOHN LAWRENCE VON GLAHN,	Wilmington,	C. E.
ROYALL EDWARD WHITE,	Aulander,	C. E.
JOHN C. WILLIAMS,	Duke, R. 1,	C. E.
WOODFIN BRADSHAW YARBROUGH,	Locust Hill,	E. E.
JOHN FRANKLIN ZIGLAR,	Winston-Salem,	C. E.

JUNIOR CLASS.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
JOHN ALLEN AREY,	Elmwood,	Agr.
JOHN WILLIAM BARRETT, JR.,	Rocky Mount,	Agr.
CECIL DEWITT BROTHERS,	Conetoe,	C. E.
THOMAS KINCAID BRUNER, JR.,	Raleigh,	Tex.
CHARLES LEE CLARK, JR.,	Weldon,	E. E.
THORNE MCKINZIE CLARK,	Raleigh,	C. E.
WALTER MILLER COWLES,	Charlotte,	M. E.
JOHN BENNETT CRAVEN,	Charlotte,	Chem.
JOSEPH FRANK DAVIDSON,	Statesville,	E. E.
WILLIAM SAMUEL DEAN,	Oxford,	Tex.
CARLTON O'NEAL DOUGHERTY,	North, S. C.,	Tex.
FRED ATHA DUKE,	Raleigh,	C. E.
WILLIAM HUNT EATON,	Cleveland,	Agr.
RALPH RINGGOLD FAISON,	Goldsboro,	Agr.
WILLIAM ALEXANDER FAISON,	Goldsboro,	M. E.
FRANK LINDSAY FOARD,	Winston-Salem,	Agr.
ROSCOE LOOMIS FOX,	Waynesboro,	Tex.
LEWIS PRICE GATTIS,	Raleigh,	C. E.
ALBERT SIDNEY JOHNSTON GOSS,	Union, S. C.,	C. E.
CHARLIE POOL GRAY,	Buxton,	C. E.
ANDREW HARTSFIELD GREEN,	Raleigh,	Agr.
CECIL LINWOOD GRIFFIN,	Manteo,	C. E.
WILLIAM ROY HAMPTON,	Plymouth,	Chem.
JOHN WILLIAM HARRELSON,	Lawndale,	M. E.
GORDON HARRIS,	Raleigh,	E. E.
GEORGE HARRISON,	Enfield,	C. E.
FRANK HAWKS,	Kinston,	M. E.
THOMAS FREDERIC HAYWOOD.	Trenton,	C. E.
LEONARD HENDERSON,	Salisbury,	M. E.
BASCOMBE BRITT HIGGINS,	Leicester, R. 2,	Agr.
DANIEL HARVEY HILL, JR.,	West Raleigh,	Chem.
WAYNE ARINGTON HORNADY,	Burlington,	Agr.
DONALD BARRETT ISELEY,	Burlington,	C. E.
JOHN WILLIAM IVEY,	LaGrange,	M. E.
WILLIAM FLADGER R. JOHNSON,	Marion, S. C.,	C. E.
FREDERICK JOHN JONES,	New Bern,	C. E.
JAMES EDWARD LATHAM,	Washington,	Agr.
RALPH LONG,	Graham,	Agr.
SAMUEL MACON MALLISON,	Washington,	C. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
WILLIAM ROYDEN MARSHALL,	Rocky Mount,	M. E.
RALPH CECIL MASON,	Edenton,	Agr.
ARTHUR BALLARD MASSEY,	Salisbury, Md.,	Agr.
WALKER MOREHEAD MILLNER,	Leaksville,	Tex.
BENJAMIN FRANKLIN MONTAGUE,	Winston-Salem,	C. E.
OWEN MOORE,	Asheville,	Chem.
WILLIAM FLAUD MORRIS,	Ashboro,	M. E.
SAMUEL LOFTIN OLIVER,	Mt. Olive, R. 2,	E. E.
JULIUS MONROE PARKER,	Hunting Creek,	C. E.
JOHN GILBERT PASCHAL,	Goldston,	E. E.
WILLIAM MURDOCK PECK,	Wilmington,	C. E.
ISHAM ROLAND PEIRCE,	Warsaw,	Agr.
PETER PENICK PIERCE,	Pelham,	E. E.
PAUL MILLER PITTS,	Concord,	M. E.
JOHN MOIR PRICE,	Leaksville,	M. E.
ROBERT RICHARD REINHARDT,	Stanley Creek,	Agr.
ALFRED PRATTE RIGGS,	Wanchese,	C. E.
THOMAS WOOD ROBBINS,	Durham,	E. E.
JOSEPH HENRY ROBERTSON,	Burlington,	E. E.
JAMES OLIN SADLER,	Charlotte, R. 12,	C. E.
FRANCIS WEBBER SHERWOOD,	Raleigh,	Chem.
ROBERT ARNOLD SHOPE.	Weaverville,	C. E.
GEORGE GRAY SIMPSON,	Norfolk, Va.,	Tex.
WILLIAM NEVILLE SLOAN,	Franklin,	C. E.
HUGH STUART STEELE,	Yadkin Valley,	C. E.
SAMUEL FATIO STEPHENS,	Norfolk, Va.,	C. E.
HENRY NEWBOLD SUMNER,	Hertford,	C. E.
MALVERN HILL TERRELL,	Old Fort,	C. E.
CLAUDE STRATTON TATE,	Littleton,	M. E.
JOHN DICK THOMASON,	Hickory,	M. E.
FRANK MARTIN THOMPSON,	Raleigh,	Tex.
JAMES EDWIN TOOMER,	Wilmington,	Chem.
JOSEPH SLAUGHTER WHITEHURST,	Elizabeth City,	C. E.
OLIVER GAINES WHITLEY,	Albemarle,	C. E.
JOHN SPICER WILSON,	Winston,	E. E.
PAUL ADAMS WITHERSPOON,	Mooresville,	C. E.
ROBERT JOB WYATT,	Raleigh,	M. E.

SOPHOMORE CLASS.

JAMES CICERO ALBRIGHT,	Rock Creek,	E. E.
ALFRED SCALES ARMFIELD,	Statesville,	Tex.
CHARLES GRAY ARMFIELD,	Statesville,	C. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
ROBERT ALBAN ATKINSON,	Lenoir,	E. E.
ROBERT KENNETH BABINGTON,	Gastonia,	E. E.
THOMAS ROPEE BALDWIN, JR.,	Mt. Gilead,	Tex.
ANDREW JACKSON BEALL,	Charlotte,	E. E.
JOHN BURGESS BERRIER,	Lexington, R. 3,	E. E.
FRED McCULLOUGH BLACK,	Mooreville,	E. E.
THOMAS SAWYER BOND,	Windsor,	C. E.
ROY BOWDITCH,	Toe Cane,	E. E.
GEORGE WASHINGTON BRADY,	Westbrook,	E. E.
CARL RAY BRADLEY,	Old Fort,	E. E.
JOHN BENJAMIN BRAY,	Sligo,	C. E.
JAMES SEXTON BRAY,	Elkin,	Agr.
THOMAS JOHNSON BREVARD,	Fairview,	Agr.
ELTON ELMROY BUCK,	Hampton, Va.,	C. E.
VON PORTER BYBUM,	Charlotte, R. 3,	M. E.
HENRY ROY CATES,	Swepsonville,	Agr.
JOSEPH BLOUNT CHERRY,	Windsor,	E. E.
DA COSTA MOORE CLARK,	Old Fort,	E. E.
KARL BARRINGER CLINE,	Concord,	E. E.
HERBERT GEORGE COUGHENOUR,	Scotland Neck,	E. E.
JESSE KEA COUNCIL,	Wananish,	C. E.
JOHN MONROE COUNCIL,	Wananish,	E. E.
WILLIAM HENRY CROW,	Monroe,	E. E.
WILLIAM EARLE DAVIS,	Hiddenite,	E. E.
THOMAS THEODORE DAWSON,	Grifton,	C. E.
EDWIN GRAY DEANS,	Wilson,	C. E.
JAMES LEONIDAS DUNN,	Scotland Neck,	Agr.
JOSEPH OSCAR ELLER,	Berlin,	Agr.
WALTER FREDERICK ELLER,	Berlin,	M. E.
ROBERT WINSTON ETHERIDGE,	Selma,	Chem.
RISDEN BENNETT GADY,	Monroe,	E. E.
RANSOM EATON GILL,	Raleigh,	E. E.
WILLIAM THOMAS GRIMES, JR.,	Hamilton,	Chem.
WALTER PIERSON HARDEE,	Stem,	Agr.
THOMAS DEVIN HARRIS,	Oxford,	C. E.
FRANK HAWKS,	Kinston,	M. E.
ERNEST ALBERT HAYNES,	Raleigh,	C. E.
EDMUND BURKE HAYWOOD,	Raleigh,	C. E.
ALBERT ROLAND HICKS,	Faison,	E. E.
RUFUS WILLIAMS HICKS, JR.,	Wilmington,	M. E.
LYDA ALEXANDER HIGGINS,	Leicester, R. 2,	Agr.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
CLINTON WHITE HINSHAW,	Winston-Salem,	M. E.
MURPHY McNEILL HOLLOWAY,	Cardenas,	M. E.
LOUIE LEE HOOD,	Asheville,	C. E.
ROBERT FRANK JONES,	Washington,	C. E.
CLYDE RAYMOND JORDAN,	Gulf,	E. E.
LINWOOD A. JOYNER,	Jackson,	E. E.
LUTHER HILL KIRBY,	Lenoir,	C. E.
WILLIAM HUGH KITCHIN,	Scotland Neck,	Agr.
MARK CLINTON LASITTER,	Snow Hill,	C. E.
EDWARD HUGH LEE, JR.,	Raleigh,	Agr.
ASHIE LOCKHART,	Wadesboro,	Agr.
UPHIAN CARB LOFTIN,	West Raleigh,	Agr.
WILLIAM LEAKE MANNING,	Henderson,	E. E.
MELVIN SOLOMON MAYES,	Stem,	M. E.
FRANK NEELEY McDOWELL,	Charlotte,	Agr.
LENNOX POLK McLENDON,	Wadesboro,	Agr.
SAMUEL HUXLEY McNEELY,	Waxhaw,	E. E.
LEON DAVIS MOODY,	East Laporte,	M. E.
EUGENE BOISE MOORE,	Morven,	E. E.
ROBERT LEE MORRAN,	Wilson,	M. E.
HERBERT PENNELL MOSELEY,	Kinston,	C. E.
HARRY MOTT,	Mooresville,	Agr.
ROBERT LIVINGSTON MURPHY,	Morganton,	M. E.
WILLIAM McCORMICK NEALE,	Greensboro,	M. E.
RAYMOND OTTERBOURG,	Charlotte,	M. E.
GUS PALMER,	Gulf,	Agr.
JOE BAXTER PARKS,	Concord,	E. E.
WILLIAM CASPER PENNINGTON,	Thomasville,	M. E.
WILLIAM RANSOME PHILLIPS,	Dunn,	E. E.
JAMES BRUCE PRICE,	Leaksville,	E. E.
FRANK TOWNLEY REDFEARN,	Monroe,	E. E.
ARCHIE KNIGHT ROBERTSON,	Rowland,	Agr.
JAY FREDERICK ROBINSON,	Hampton, Va.,	C. E.
CARL COLLINS SADLER,	Charlotte,	C. E.
LEON RAYMOND SANFORD,	Norfolk, Va.,	C. E.
EARLE ALOYSIUS SIEDENSPINNER,	Washington, D. C.,	Chem.
JOHN WALDORF SEXTON,	Salem Church,	C. E.
CARL SILER SLAGLE,	Franklin,	Agr.
EDWIN HARRISON SMITH,	Weldon,	C. E.
HENRY LEE SMITH,	Dunn,	C. E.
JOHN FRANCIS SPEIGHT,	Whitakers,	C. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
SAMUEL ADISON SPENCER,	Ashboro,	M. E.
ST. JULIAN LACHICOTTE SPRINGS,	Georgetown, S. C.,	Agr.
CHARLES BURT STALNBACK,	Henderson,	E. E.
THOMAS BARNES STANSEL,	Allenton,	Chem.
WILLIAM CLARK STYRON,	Washington,	M. E.
THOMAS BRYAN SUMMERLIN,	Mt. Olive,	E. E.
LLOYD HURST SWINDELL,	Raleigh,	Tex.
KENNETH SPENCER TANNER,	Charlotte,	Tex.
WALTER CLYBURN TAYLOR,	Rhodhiss,	Tex.
THOMAS HAMPTON THOMPSON,	Thomasville,	M. E.
ISAAC NORRIS TULL,	Kinston,	E. E.
CLEMENT MANLY WARE,	Morehead City,	C. E.
CHARLES EMMETTE WALTON,	Hamilton, Ga.,	E. E.
HOWARD W. WELLES, JR.,	Poughkeepsie, N. Y.,	E. E.
DAVID RAND WELLONS,	Smithfield,	C. E.
JOHN STAFFORD WILSON,	Charlotte,	Tex.
EDWARD LEIGH WINSLOW,	Hertford,	C. E.
DANIEL CUTTS YOUNG,	Cary,	M. E.

FRESHMAN CLASS.

CHARLES VANCE ABERNATHY,	Shelby,	E. E.
HARVEY DURWARD ABERNETHY,	Hickory,	E. E.
HAZEL ROBINSON AIKEN,	Hickory,	E. E.
GRAHAM HUDSON ANTHONY,	Shelby,	C. E.
JOHN ERSKINE ARDREY,	Pineville,	C. E.
CHARLES RAYMOND AUSTIN,	Charlotte, R. 8,	E. E.
WILLIAM BAILEY,	Raleigh,	M. E.
AUBREY LELAND BAKER,	Raleigh,	Tex.
ROBERT JONES BARBER,	Raleigh,	C. E.
TOLLIE CHESTER BARBER,	Pinnacle,	E. E.
JOHN MANN BEAL,	Rocky Mount, R. 3,	Agr.
CHARLES EDWARD BELL,	Kinston,	C. E.
HINTON QUINERLY BEST,	Grifton,	E. E.
JULIUS HUFHAM BIVENS,	Cottonville,	Agr.
ALAN THURMAN BOWLER,	Wilmington,	C. E.
RUFUS TUCKER BOYLAN,	Raleigh,	Agr.
JOSEPH MALCOLM BRADFIELD,	Charlotte,	E. E.
JAMES HOWARD BROWN,	Charlotte, R. 4,	Agr.
GUY KEDAR BRYAN,	Tampa, Fla.,	C. E.
KIT BRYAN,	Catharine Lake, R. 1,	C. E.
HENRY CARL BUCHAN,	Manly,	Agr.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
CHARLES MARSHALL BURROUGHS,	Portsmouth, Va.,	Chem.
BRICE LEGRIER CALDWELL,	Concord,	M. E.
JAMES WALTER CALL,	Mocksville,	M. E.
HENRY CALEB CLAY,	Hickory,	M. E.
MARSHALL CLOUD CORL,	Concord,	E. E.
CHARLIE ALBIN DANIELS,	New Bern,	M. E.
WILLIAM HURD DAVIS,	Marshville, R. 1,	E. E.
EDWIN SEXTON DEWAR,	Raleigh,	M. E.
JAMES HENRY DURHAM, JR.,	Wilmington,	E. E.
JOHN IVEY EASON,	Speight's Bridge,	Agr.
JAMES THOMPSON EDWARDS,	Morehead City,	M. E.
JULIAN DELK ELLIOTT,	Edenton,	Tex.
EARL MONTIER EVANS,	Raleigh,	M. E.
ROBERT STACKHOUSE FAIRLY,	Laurinburg,	Agr.
ARCHER PLEASANT FARMER,	Fuquay Springs,	E. E.
JAMES GREY FENNELL,	Wilmington,	E. E.
CLEM M. FLOWERS,	Maribel,	Agr.
DANIEL RALPH FREEMAN,	Charlotte,	Agr.
MALTHUS REAMER FREEMAN,	Taylor,	Agr.
GEORGE WINBURY GILLETTE,	Marines,	E. E.
LOOMIS MCARTHUR GOODWIN,	Raleigh,	E. E.
ROBERT WALTER GRAEBER,	Concord,	Agr.
CHARLES BENJAMIN GREEN,	Kittrell,	C. E.
CHARLES GANZER HALL,	Wilmington,	C. E.
WILLIAM JAMES HALL,	Clemmons,	E. E.
THOMAS JEFFERSON HARDISON,	Morven,	Agr.
MARMADUKE JAMES HAWKINS, JR.,	Ridgeway,	E. E.
PAUL HENDREN,	Chadbourn,	E. E.
RUSSELL POINDEXTER HEWLETT,	Wilson,	E. E.
JAMES HILLIARD,	Cary,	E. E.
ERNEST RUSSELL HINE,	Old Town,	C. E.
DAVID RAYMOND HINKLE,	Lexington,	E. E.
ROBERT LAWFORD HOLDER,	Durham,	M. E.
JAMES ROY HUTCHISON,	Charlotte, R. 7,	Tex.
EUGENE JOHNSTON,	Mooresville,	E. E.
ROBERT THOMAS JOYNER,	Rocky Mount,	E. E.
GEORGE SHIRLEY KILPATRICK,	Kinston,	Tex.
JOHN SMEDES KNOX,	Raleigh,	E. E.
FABIUS HENRY KOHLOSS,	Columbia,	C. E.
WINGATE AGUSTA LAMBERTSON,	Rich Square,	E. E.
WALTER MOORE LAMBETH,	Fayetteville,	Tex.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
JOHN EMSLEY LEE,	Monroe,	Tex.
RICHARD HENRY LEWIS, JR.,	Kinston,	M. E.
THOMAS SEIGLE LINTON,	Raleigh,	E. E.
SIDNEY MACDONALD,	Wilmington,	C. E.
JOSEPH JENKINS MACKAY, JR.,	Raleigh,	M. E.
GRADY GILMER MARLER,	Winston,	Tex.
JACOB LEE MARTIN,	Graham,	E. E.
WILLIAM CORTEANUS MASSEE,	Marshallville, Ga.,	Agr.
EUGENE RICHARD McCRACKEN,	Graham,	M. E.
CHARLES MCKIMMON,	Raleigh,	Chem.
CHARLES RICHARD McMANAWAY,	Charlotte,	M. E.
ROGER WILLIAMS MONTAGUE,	Winston,	Tex.
JACOB O. MOOSE,	Mt. Pleasant,	E. E.
ROBERT LEE MORRISON,	Concord,	C. E.
JOEL WILLIAM MOYE,	Farmville,	Agr.
ALBERTUS PHARR MURDOCK,	Statesville,	C. E.
HORACE MOORE NEAL,	Monroe,	E. E.
JAMES CALDWELL NEAL,	Charlotte, R. 8,	E. E.
WILLIAM SHEPARD NICHOLSON,	Union, S. C.,	Tex.
ROBERT ANDREW PATTON,	Franklin,	Agr.
FRED TAYLOR PEDEN,	Wilkesboro,	Agr.
JOHN TAYLOR PEDEN, JR.,	Wilkesboro,	C. E.
SILAS BRUCE PRIFER,	Cleveland, R. 2,	E. E.
JOSEPHUS PLUMMER QUINERLY,	Grifton,	Agr.
SHERMAN RAMSEY,	Statesville,	E. E.
BENJAMIN SMITH ROBERTSON, JR.,	Haw River,	Tex.
JOHN WESLEY ROLLINSON,	Elizabeth City,	C. E.
GEORGE ROMULUS ROSS,	Ashboro,	Agr.
GRAEME WILLIAM ROSS,	Charlotte,	E. E.
DEBERNIRE HOOPER SANDERS,	Smithfield,	E. E.
IRA SHORT,	Boardman,	M. E.
ORIN MORROW SIGMON,	Hickory,	M. E.
WILLIAM RUFFIN SMITH,	Charlotte,	E. E.
CHARLIE AUGUSTINE SPEAS,	Cana, R. 2,	C. E.
ROBERT LEAK STEELE, JR.,	Rockingham,	Tex.
LUCIUS ESEK STEERE, JR.,	Charlotte,	E. E.
MARVIN MERRITT STEPHENSON,	Angier,	M. E.
WILLIAM SHELBURN THOMAS,	Raleigh,	E. E.
THOMAS WHITMELL THORNE,	Littleton,	M. E.
FRANKLIN WOOD THORP,	Rocky Mount,	Agr.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
WILLIAM PURCELL THURSTON,	Burlington,	C. E.
FRED GOODE TUCKER,	Henderson,	E. E.
ROBERT TERRY WADE,	Morehead City,	C. E.
EDWIN WADSWORTH,	Charlotte,	E. E.
EDWARD HARVIE WARD,	Tarboro,	C. E.
JAMES HUNTER WATSON,	Raleigh,	Chem.
NATHANIEL SULLIVAN WILSON, JR.,	Winston,	Tex.
WILLIAM PAGE WILSON,	Goldsboro,	Tex.
WALTER BOOKER WINFREE,	Wadesboro, R. 3,	Agr.
MARION FULLER WYATT,	Raleigh,	C. E.

THE TWO-YEAR COURSES.

First Year.

JOHN HOWARD ABERNETHY,	Stanley,	M. A.
HIRAM MILLER ARMENTROUT,	High Point,	M. A.
WILLIAM BENJAMIN AYCOCK,	Goldsboro,	App. E.
CLAUDE BERNARD BAKER,	Hickory, R. 1,	App. E.
BENNIE FRANK BRADY,	Washington,	M. A.
JOE WINDLEY BUCHANAN,	Roper,	M. A.
DON MCD. BURGESS,	High Point,	M. A.
WM. SUMNER REDDICK BURWELL,	Kittrell,	Tex.
HENRY DUNCAN COOKE,	Haw River,	Tex.
JAMES HORTON DOUGHTON,	Gulford College,	M. A.
HARRY FALLS,	Kings Mountain,	Tex.
LAWRENCE BYNUM FARRIS,	Cherryville,	Tex.
ARCHIE BOYD FLETCHER,	Gibson,	M. A.
EMMETT ELIAS FULP,	Fulp,	Tex.
ECKIE HAYWOOD GATTIS,	Raleigh,	App. E.
JOHN KRAUSE GUNN,	Tampa, Fla.,	App. E.
WILLIE JAMES HANKINS,	Spray,	Tex.
HENRY MCCOMBS HEATH,	Matthews,	Tex.
JOHN JACKSON HEDRICK,	Wilmington,	M. A.
LARY TUCKER HILL,	Bosley,	Tex.
THOMAS GREENWOOD HILL,	Louisburg,	App. E.
CARL HORN,	Rutherfordton, R. 3,	Tex.
LESTER McALWAIN JACOBS,	New Bern,	App. E.
ANDREW JONES,	Messie,	M. A.
EDGAR NELSON KELLER,	Kings Mountain,	Tex.
WINSTON ELIJAH LAWRENCE,	Raleigh, R. 4,	App. E.
BASCOM CAMPBELL LIVINGSTON,	Tryon,	M. A.
NATHANIEL RAYBORN MARTIN,	Danbury,	App. E.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
GORMAN MCPHAIL,	Clinton, R. 5,	App. E.
NEILL MCQUEEN,	Fayetteville,	M. A.
RONALD EARL NEWBORN,	Kinston,	M. A.
CHARLES ERNEST MILLS,	Mooreville,	App. E.
ANDREW WEAVER MOODY,	East La Port,	M. A.
NATHANIEL STREET MUNROE,	Goldsboro,	App. E.
WOODARD MYERS,	Charlotte,	M. A.
JAMES ANGUS NIEMYER,	Hamlet,	M. A.
WILLIAM OWEN POTTER,	Cash Corner,	M. A.
ROBERT WILLIAM POWELL,	Goldsboro,	App. E.
EDWARD ALEXANDER ROBBINS,	Charlotte, R. 2,	Tex.
JOSIAH HERBERT ROBERTSON,	Selma,	App. E.
JOHN LEONIDAS SCOTT, JR.,	Graham,	Tex.
DAVID WALTER SEIFERT,	Wilmington,	M. A.
SAMUEL NEILL SMITH,	Raleigh,	App. E.
CLARENCE ALEXANDER STEDMAN,	Greensboro,	App. E.
WILLIAM AUGUSTUS STOKELY,	Elizabeth City, R. 1,	M. A.
WILLIAM PERRY SUGG,	Princeton,	M. A.
THOMAS JOHNSON SUMMEY,	Brevard,	M. A.
GROVER CLEVELAND TILLEY,	Rougemont,	M. A.
WILLIAM BEVERLEY WHITLEY,	Smithfield,	Tex.

Second Year.

ROBERT DANIEL BLAND,	Currie,	M. A.
ROBERT GRAHAM PERSON,	Laurel,	M. A.
HILARY DOWDY POTTER,	Cash Corner,	M. A.
JAMES RICHARD SUGG,	Wilson,	App. E.

THE ONE-YEAR COURSE IN AGRICULTURE.

NEILY ORMAN ALEXANDER,	Matthews, R. 17,	Agr.
JAMES CLARK ARCHBELL,	Washington,	Agr.
EDWARD SIDNEY BLOUNT,*	Roper,	Agr.
JOHN FRANK BUTLER,	Hoffman,	Agr.
ARCHIE GRAHAM McLEOD,	Racford, R. 1,	Agr.
LEWIS McKEE MORRISON,	Concord, R. 6,	Agr.
BERT PRICE,	Ellenboro,	Agr.
WILLIAM HENRY PRITCHARD,	Elizabeth City,	Agr.
GEORGE PARK ROBINSON,*	Matthews,	Agr.
ARTHUR SHARPE,	Greensboro, R. 6,	Agr.
FRANK THOMASON,	Salisbury, R. 1,	Agr.

*Registered in Textile.

IRREGULAR.

<i>Name.</i>	<i>Post-office.</i>	<i>Course.</i>
HENRY ELLISON TRIPPE, JR.,	Bonnerton,	Agr.
WM. HERBERT DOUGHTY BANCK,	Wilmington,	C. E.
JOHN BOONE,	Lumberton,	Agr.
CHARLES LEE CRUSE,	Spencer,	Agr.
WILLIAM HERBERT ELLIS,	Wilson,	Agr.
JAMES MILL GRAY,	Cullasaja,	Agr.
GEORGE WASHINGTON HILL,	Trinity,	Agr.
JAMES NEWTON LOWRANCE,	Mooresville,	Agr.
CLAUDE LENOIR MAST,	Valle Cruces,	Agr.
JAMES MORGAN SHERMAN,	Ash Grove, Va.,	Agr.
CLAUDE WOOD THOMPSON,	Elmwood,	Agr.
JOSEPH TYSON WARD,	Wilson,	Agr.
FRED BARNETT WHEELER,	Archdale,	M. E.

SPECIAL.

WOODBERRY LENNON,	Lumberton,	C. E.
JOHN DIXON LINBERGER, JR.,	Shelby,	Tex.
CHARLES HENRY MAYNOR,	Graham,	M. E.
CANTWELL FAULKNER MUCKENFUSS,	Charleston, S. C.,	Agr.
HERBERT NATHANIEL STEED,	Steeds,	Tex.

WINTER COURSES.

OFY THOMPSON BEASLEY,	Loulsburg,	Agr.
OSCAR WELLS COX,	Wilmington,	Agr.
PAUL KINDRED DRYE,	Mt. Pleasant,	Tex.
JAMES MASTIN FAGG,	Red Shoals,	Agr.
HENRY EDWARD FOXWELL, JR.,	Edenton,	Agr.
ROY FRANKLIN HARTMAN,	Hartman,	Agr.
THOMAS HORNADAY,	Burlington, R. 10,	Agr.
LOVIE HARRIS HUNTER,	Charlotte,	Agr.
SHADE RUFUS JOINES,	North Wilkesboro,	Agr.
ALLEN HENRY ALEXANDER LEE,	Dunn,	Agr.
J. YOUNG TODD,	Due West, S. C.,	Agr.

ONE-WEEK COURSE IN AGRICULTURE.

HEFLIN HENBY BATTEN,	Wendell,	Agr.
J. P. CHAMBLEE,	Wakefield,	Agr.
ENOCH MARTIN DODSON,	Pinnacle, R. 3,	Agr.
JOHN EDMON STONE,	Pilot Mountain,	Agr.

MAY SCHOOL FOR TEACHERS.

<i>Name.</i>	<i>Post-office.</i>
BARNETTE WILLIAM ALLEN,	Kittrell, N. C.
ROSA ETHEL BARROW,	Raleigh, N. C.
DAISY LEE BLAND,	Sanford, N. C.
ROSE BLAND,	Sanford, N. C.
ERNESTINE NOLIE BOOKER,	Apex, N. C.
MARTHA LIZZIE EASON,	Gatesville, N. C.
LIZZIE HODGES,	Washington, N. C.
LUELLA H. HOLLOWAY,	Raleigh, N. C.
KENNETH H. MCINTYRE,	Carl, N. C.
MAGGIE MAE MITCHELL,	Reidsville, N. C.
TILLIE GOLDIE RANES,	Wake Forest, N. C.
EMET ROBINSON,	Beaver Creek, N. C.
WILLIAM HENRY WYNNE,	Winterville, N. C.

EIGHTEENTH ANNUAL COMMENCEMENT.

MAY 29, 1907.

Degrees Conferred.

BACHELORS OF AGRICULTURE.

JACOB TATUM EATON,	JAMES ELWOOD OVERTON,
BENJAMIN BRYAN EVERETT,	THOMAS FRANKLIN PARKER,
LAWRENCE JAMES HERRING,	ARTHUR LEE PASCHALL,
ALBERT CARL JONES,	JOHN ED. TURLINGTON,
LAFAYETTE FRANCK KOONCE,	EDMUND FARRISS WARD,
	DAVID LYNDON WHITE.

BACHELORS OF SCIENCE.

In Industrial Chemistry.

LEWIS EDGAR LOUCEE,	HENRY STARBUCK MONTAGUE,
HENRY KREIGER McCONNELL,	JAMES KEMP PLUMMER,
	ARTHUR JOHN WILSON.

BACHELORS OF ENGINEERING.

In Civil Engineering.

HERBERT SCANDLIN BATTIE,	OSCAR FRANKLIN MCNAIRY,
SEBA ELDRIDGE,	JOHN LIGHTFOOT MORSON,
CLEMENT LEINSTER GARNER,	GUY PINNER,
ROY JOSEPH GILL,	LEON JACOB SCHWAB,
PHILIP WILLIAM HARDIE,	VANCE SYKES,
GUY FRANCIS HINSHAW,	LUTHER RUSSELL TILLET,
	JOHN JACKSON WELLS.

In Electrical Engineering.

JOE PITTMAN BIVENS,	GEORGE ROM HARDESTY,
CARNEY JOHN BRYAN,	JOKTAN LAFAYETTE HEMPHILL,
LINDSAY FERGUSON CARLETON,	WILLIAM WHITMORE JONES,
ROBERT HILL CARTER,	FRANK CURTIS MICHAEL,
JOHN LINDSAY FERGUSON,	FRED MAYNARD PARKS,
ELIAS VAN BUREN FOWLER,	JOHN OSCAR SHUFORD,
ROBERT STRICKLER GRAVES,	CECIL BERNARD WHITEHURST.

In Mechanical Engineering.

EUGENE FRANKLIN MEADOR,	WINSLOW GERALD PITMAN,
BENNETT TAYLOR MIAL,	WILLIAM BROOKS TRUITT,
JOHN MAPLE MILLS,	LINDSAY MARADE WEAVER.

In Textile Industry.

JOHN WASHINGTON CLARK, B.E.,	LOVIC RODGERS GILBERT.
	WILLIAM NORMAN HOLT,

CIVIL ENGINEER.

GEORGE FREDERICK SYME, B.S.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

C. L. GARNER,	W. B. TRUITT,
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FOR 1906-'07.

Senior Class. 1907

S. ELDRIDGE,	H. K. McCONNELL,
C. L. GARNER,	W. B. TRUITT.

Junior Class. 1908

F. H. BROWN,	H. W. KUEFFNER,
R. R. EAGLE,	DAVID LINDSAY,
M. L. EARGLE,	C. T. MARSH,
P. L. GAINNEY,	E. E. SMITH,
D. Y. HAGAN,	J. P. SPOON.

J. L. VONGLAHN.

Sophomore Class. 1909

J. W. HARRELSON,	R. C. MASON.
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Freshman Class. 1910

L. P. McLENDON,	C. E. WALTON.
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First Year Mechanic Arts.

H. C. CLAY.

HONORS FOR PUNCTUALITY.

E. V. FOWLER,	L. D. MOODY,
R. J. GILL,	W. C. PENNINGTON,
L. A. HIGGINS,	R. G. PERSON,
L. L. HOOD,	L. L. PITTMAN,
L. F. KOONCE,	R. POOLE,
D. LINDSAY,	T. M. POYNER,
C. T. MARSH,	J. T. WARD,
G. L. MILLER,	J. C. WILLIAMS.

FRESHMAN PRIZES FOR AGRICULTURAL LABOR.

First Prize, \$10.00,	. . . . .	L. A. HIGGINS.
Second Prize, \$5.00,	. . . . .	G. W. HILL.

REGISTER OF ALUMNI.

CLASS OF 1893.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT WILSON ALLEN, Superintendent of Graded School.	B. E.,	Sanford, N. C.
SAMUEL ERSON ASBURY, M. S. 1896. First Assistant State Chemist.	B. S.,	College Station, Texas.
HENRY EMIL BONITZ, Architect.	B. E.,	Wilmington, N. C.
FRANK FULLER FLOYD, Jellico Coal Mining Co.	B. E.,	Knoxville, Tenn.
CHARLES DUFFY FRANCKS, Superintendent of Graded Schools.	B. E.,	Richlands, N. C.
EDWARD MOORE GIBSON, Civil Engineer The Engineering Company of America.	B. E.,	Charlotte, N. C.
GEORGE FENDER GRAY, Commercial Traveler Marks & Gayle.	B. S.,	Montgomery, Ala.
CHARLES BOLLING HOLLADAY, Treasury Department The Dupont Co.	B. E.,	Wilmington, Del.
WILLIAM McNEILL LYTCH, Superintendent Laurinburg Oil Co.	B. E.,	Laurinburg, N. C.
JAMES WILLIAM MCKOY, Civil Engineer and Merchant.	B. E.,	Black Mountain, N. C.
WALTER JEROME MATHEWS, Electrician and Chief Engineer for the Eastern N. C. Asylum for Insane.	B. E.,	Goldsboro, N. C.
FRANK THEOPHILUS MEACHAM, M. S. 1894. Superintendent State Test Farm.	B. S.,	Statesville, N. C.
CARL DEWITT SELLARS, Cono Export and Commission Co.	B. E.,	Greensboro, N. C.
CHARLES EDGAR SEYMOUB,* Farmer.	B. S.,	Raleigh, N. C.
BUNTON WILLIAMS THORNE, Cashier Peoples Bank.	B. E.,	Holly Springs, Miss.
WILLIAM HARRISON TURNER, Broker and Wholesale Dealer in Mill Feed and Grain.	B. E.,	Winston-Salem, N. C.

*Deceased.

It is the purpose of the College to keep in touch with the Alumni.

Please notify the Registrar promptly of any change in business or address.

- CHARLES BURGESS WILLIAMS, B. S., West Raleigh, N. C.
M. S. 1896. Director of N. C. Experiment Station.
- LOUIS THOMAS YARBROUGH, B. E., Raleigh, N. C.
Clerk Raleigh Post-office.
- SAMUEL MARVIN YOUNG, B. E., Raleigh, N. C.
Salesman Richmond Hardware Co.

CLASS OF 1894.

- CHARLES EDWARD CORPENING, B. E., Lenoir, N. C., R. F. D. 3.
Farmer and Dealer in Lumber.
- DAVID COX, JR., B. E., Hertford, N. C.
County Surveyor; also in employ of Yeopim Lumber Co.
- ROBERT DONNELL PATTERSON, B. S., Chase City, Va.
M. S. 1898. Cashier First State Bank.
- CHARLES PEARSON, B. E., Summerville, S. C.
Civil Engineer.
- ZEBBIE GEORGE ROGERS, B. E., Washington, D. C.
Inspector of Building Construction Baltimore and Ohio Railroad.
- JOHN HYER SAUNDERS, B. E., Rocky Mount, N. C.
Locomotive Engineer Atlantic Coast Line Railway.
- BENJAMIN FRANKLIN WALTON, B. S., Raleigh, N. C., R. F. D. 1.
Farmer.
- JOHN McCAMY WILSON, B. E., Spartanburg, S. C.
Secretary and General Manager of Russel-Compton Co.,
Founders and Machinists.

CLASS OF 1895.

- THOMAS MARTIN ASHE* B. E., Raleigh, N. C.
- JAMES ADRIAN BIZZELL, B. S., Ithaca, N. Y.
M. S. 1900. Ph. D. Cornell University. Chemist N. Y. State
College of Agriculture.
- JOHN ISHAM BLOUNT, B. E., Birmingham, Ala.
C. E. 1897. M. E. Cornell University. Owner Machinery Business
of J. I. Blount & Co.

*Deceased.

REGISTER OF ALUMNI.

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<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES WASHINGTON BRAWLEY,	B. S.,	Greensboro, N. C. Superintendent of Agents Southern Life and Trust Co.
WILLIAM AUSTIN BULLOCK,	B. S.,	Amsterdam, Ga. General Superintendent of Tobacco Plantation A. Cohn & Co.
DAVID CLARK,	B. E.,	Jonesboro, N. C. M. E. 1896, C. E. 1897. M. E. Cornell University 1898. President Eugenia Manufacturing Co., also Clark Manufacturing Co.
GEORGE WASHINGTON CORBETT, JR.,	B. E.,	Curtie, N. C., R. F. D. 2. Of firm of Corbett & Corbett, Manufacturers of Lumber.
EDWIN SPEIGHT DARDEN,	B. S.,	Wilson, N. C. Bookkeeper Clark, Jones & Bass.
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. Farmer and County Superintendent of Schools.
ISAAC HENRY FAUST,	B. E.,	Norlina, N. C. Secretary and Treasurer Lewis Lumber Co.
CHARLES WILLIS GOLD,	B. S.,	Raleigh, N. C. Secretary and Superintendent of Agencies of the Jefferson Standard Life Insurance Co.
WILLIAM HENRY HARRISS,	B. E.,	Atlanta, Ga. B. S. 1895, M. E. 1896. Pres. and Gen. Mgr. Bellevue Mills Co., Pres. and Gen. Mgr. Harriss Mfg. Co., Gen. Mgr. Hamilton-Corboret Cotton Mills.
CHRISTOPHER MILLER HUGHES,	B. E.,	Fayetteville, N. C. B. S. 1899. Lumber Business with W. J. McDiarmid & Co.
MALCOLM BEALL HUNTER,	B. E.,	Cambridge, Penn. Philadelphia Bell Telephone Co.
SAMUEL CHRISTOPHER McKEOWN,	B. E.,	Sumter, S. C. The Sumter Telephone Manufacturing Co.
MANN CABE PATTERSON,	B. E.,	Durham, N. C. Machinist American Tobacco Co.
ABRAM HINMAN PRINCE,	B. S.,	San Augustine, Texas. Farmer.
CHARLES MARCELLUS PRITCHETT,	M. E.,	Charlotte, N. C. C. E. 1896. Engineer.
VICTOR VASHTI PRIVOTT,	B. E.,	Sanford, N. C. Chief Engineer and Machinist Sanford Cotton Mill.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HOWARD WISWALL, JR.,	B. E.,	Marion, S. C.
		Johnson & Wiswall, Civil Engineers.
CHARLES GARRETT YARBROUGH,	B. E.,	Chicago, Ill.
		Constructing Engineer Western Electric and Manufacturing Co.

CLASS OF 1896.

DANIEL ALLEN,	B. S.,	Raleigh, N. C.
		Traveling Salesman.
GEORGE STRONACH FRAPS,	B. S.,	College Station, Texas.
		Ph. D. Johns Hopkins University. State Chemist and Chemist Texas Experiment Station.
MARION JACKSON GREEN,	B. S.,	Charlotte, N. C.
		Pattern Maker Cole Manufacturing Co.
JOHN HOWARD,	B. S.,	Middleboro, Ky.
		Treas. and Gen. Mgr. Rossland Coal Co., Pres. Black Hawk Coal Co.
WILLIAM COLBERT JACKSON,	B. S.,	Ayden, N. C.
		Vice-President J. R. Smith Mercantile Co.
ROBERT GRAHAM MEWBORNE,	B. S.,	Louisville, Ky.
		Chemist Kentucky Tobacco Product Co.
LEVI ROMULUS WHITTED,	B. S.,	Washington, D. C.
		C. E. 1897. Structural Engineer U. S. Treasury Department.
HENRY LLOYD WILLIAMS,	B. S.,	Cofield, N. C.
		Manager of Saw Mill, Cofield Manufacturing Co.

CLASS OF 1897.

JOSEPH SAMUEL BUFFALO, JR.,	B. S.,	Garner, N. C.
		M. D. Baltimore Medical College. Physician.
JOHN WILLIAM CARROLL,	B. S.,	Wallace, N. C.
		M. D. University of Maryland 1903. Physician.
CHARLES EDWARD CLARK,	B. S.,	Charlotte, N. C.
		Market Gardener and Supt. of the Farmers' Co-operative Demonstration Work in Mecklenburg County, U. S. Department of Agriculture.
WM. ALEXANDER GRAHAM CLARK,	B. S.,	Jonesboro, N. C.
		M. E. Cornell University. Special Agent Dept. of Commerce and Labor, U. S. A., to visit Hawaii, Japan, China, India, Egypt and Turkey.
NICHOLAS LOUIS GIBSON,	B. S.,	Blideford, Me.
		Mill Engineer Saco & Pettee Machine Shops.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CEBURN DODD HARRIS,	B. S.,	Raleigh, N. C.
A. M. Cornell University. Assistant Chemist and Microscopist N. C. Department of Agriculture.		
JERE EUSTIS HIGHSMITH,	B. S.,	Parkersburg, N. C.
Farmer.		
CLYDE BENNETT KENDALL,	B. S.,	Washington, D. C.
Assistant Topographer U. S. Geological Survey.		
SYDNEY GUSTAVUS KENNEDY,	B. S.,	Sanford, Fla.
With Atlantic Coast Line Railroad Company.		
JOSEPH LAWRENCE KNIGHT,	B. S.,	Dewey, Fla.
Turpentine Operator Dewey Co.		
WALTER JONES McLENDON, JR.,	B. S.,	Marshall, N. C.
President and General Manager Capitola Manufacturing Co.		
REPTON HALL MERRITT,	B. S.,	Raleigh, N. C.
Secretary and Treasurer Powell & Powell (Incorporated).		
ALBERT HICKS OLIVER,	B. S.,	Eastover, S. C.
Manager of Goodwill Plantation.		
HUGH WILLIAMS PRIMROSE,*	B. S.,	Raleigh, N. C.
M. S. 1900.		
WILLIS HUNTER SANDERS,	B. S.,	Roanoke Rapids, N. C.
Superintendent of Power Plants Roanoke Navigation and Water-power Co.		
THOMAS JEHU SMITHWICK,		Mt. Airy, N. C.
Chief Engineer and Electrician N. C. Granite Corporation.		
JORDAN LEA WATSON,	B. S.,	Atlanta, Ga.
Salesman Allis-Chalmers Co.		
BRADLEY JEWETT WOOTEN,*	B. S.,	Wilmington, N. C.
Lieutenant United States Army.		

CLASS OF 1898.

DORSEY FROST ASBURY,	B. S.,	Washington, D. C.
Draftsman Naval Gun Factory.		
SIDNEY HAMILTON BECK,	B. S.,	Washington, D. C.
Marine Engineer Navy Department.		
ANSON ELIKEM COHOON,	B. S.,	Portland, Oregon.
Forest Service U. S. Department of Agriculture.		
HUGH McCULLOM CURRAN,	B. S.,	Washington, D. C.
Forest Service U. S. Department of Agriculture.		

*Deceased.

REGISTER OF ALUMNI.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
BENJAMIN CARRY FENNELL, M. E. 1900. Manager Southern Office American Blower Co.	B. S.,	Atlanta, Ga.
ALPHEUS ROUNTREE KENNEDY, Draftsman Fore River Shipbuilding Co.	B. S.,	Quincy, Mass.
FREDERICK CREECY LAMB, City Chemist and Bacteriologist.	B. S.,	El Paso, Texas.
EDWIN BENTLEY OWEN, Registrar North Carolina College of Agriculture and Mechanic Arts.	B. S.,	West Raleigh, N. C.
B. MOORE PARKER, Assistant Professor of Carding and Spinning, North Carolina College of Agriculture and Mechanic Arts.	B. S.,	West Raleigh, N. C.
NUMA REID STANSEL, Mechanical and Electrical Engineer Treasury Department.	B. S.,	Omaha, Neb.
TEISAKU SUGISHITA, Civil Engineer.	B. S.,	Kokufu, Japan.
GEORGE FREDERICK SYME, C. E. 1907. South and Western Railway, Church Hill, Tenn.	B. S.,	Raleigh, N. C.

CLASS OF 1899.

WM. DAVIDSON ALEXANDER, JR., Superintendent of Public Works City of High Point.	B. S.,	High Point, N. C.
IRA WILSON BARBER, Superintendent Electric Light and Power Plant and Water-works.	B. S.,	Mt. Airy, N. C.
JOHN HENDERSON BURDSONG, Chief Chemist The National Malleable Castings Co.	B. S.,	Chicago, Ill.
FRANCIS MARION FOY,*	B. S.,	Scott's Hill, N. C.
ALBERT SIDNEY LYON, Superintendent Public Works City of Rocky Mount.	B. S.,	Rocky Mount, N. C.
CARROLL LAMB MANN, Civil Engineer and Instructor in Civil Engineering N. C. College of Agriculture and Mechanic Arts.	B. S., C. E.,	West Raleigh, N. C.
O'KELLY W. MYERS, Civil Service.	B. S.,	Mantazilla, P. I.
EUGENE LEROY PARKER, Analytical and Consulting Chemist E. L. Parker & Co.	B. S.,	Mt. Pleasant, Tenn.
EUGENE GRAY PERSON, Bookkeeper Bibb Manufacturing Co.	B. S.,	Macon, Ga.

*Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
FREDERICK ERASTUS SLOAN, District Agent The Security Life and Annuity Co., of Greensboro, N. C.	B. S.,	Raleigh, N. C.
ANDREW THOMAS SMITH, Draftsman in charge New York Shipbuilding Co.	B. S.,	Camden, N. J.
ALEXIS PRESTON STEELE, Mechanical Engineer J. C. Steele & Sons.	B. S.,	Statesville, N. C.
WILLIAM ANDERSON SYME, M. S. 1903. Ph. D. Johns Hopkins 1906. Assistant Chemist N. C. Experiment Station.	B. S.,	Raleigh, N. C.
HUGH WARE, Chemist Decatur Car Wheel and Manufacturing Co.	B. S.,	Birmingham, Ala.
CLAUDE B. WILLIAMS, M. D. University College of Medicine 1903. Physician.	B. S.,	Elizabeth City, N. C.

CLASS OF 1900.

KEMP ALEXANDER, Superintendent Yadkin Knitting Mills Co.	B. E.,	Lexington, N. C.
LESLIE LYLE ALLEN, Superintending construction Tennessee Coal, Iron and Railroad Co.	B. E.,	Ensley, Ala.
ROBERT LINN BERNHARDT, Bookkeeper Salisbury Hardwood and Furniture Co.	B. S.,	Salisbury, N. C.
LESLIE GRAHAM BERRY, Contracting Engineer.	B. E.,	6th Ave., Des Moines, Iowa.
JAMES HARRY BUNN, Assistant Secretary Henderson Cotton Mill.	B. E.,	Henderson, N. C.
SAMUEL MERRILL HANFF, Episcopal Minister.	B. S.,	Duke, N. C.
GEORGE ROLAND HARKELL, Manufacturing Foreman The Grasselli Chemical Co.	B. S.,	Grasselli, N. J.
HENRY ALLEN HUGGINS, Bookkeeper George W. Huggins.	B. S.,	Wilmington, N. C.
GARLAND JONES, JR., Chemist Armour & Co.	B. S.,	Fort Worth, Texas.
LOUIS HENRY MANN, D. D. S. University of Maryland 1904. Dentist.	B. E.,	Washington, N. C.
ROBERT HALL MORRISON, President Mariposa Cotton Mills.	B. E.,	Stanley, N. C.
WILLIAM MONTGOMERY PERSON, Superintendent of Coke Ovens.	B. E.,	Sparrow's Point, Md.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JUNIOUS EDWARD PORTER, Assistant Engineer A. C. L. Railway Co.	B. E.	Portsmouth, Va. Home address, Emerson, N. C.
ROGER FRANCIS RICHARDSON, Construction Engineer Tennessee Coal, Iron and Railroad Co.	B. E.	Box 759, Ensley, Ala.
WILLIAM EDWIN ROSE, Draftsman Newport News Steamship and Dry Dock Co.	B. E.	Newport News, Va.
FLOYD DE ROSS, Traveling Salesman Fostoria Incandescent Lamp Co.	B. E.	W. Ave., Charlotte, N. C.
IRA OBED SCHAUB, Assistant Professor of Soils Iowa Agricultural College.	B. S.	Ames, Iowa.
JOHN WADE SHORE, Teacher and Farmer.	B. S.	Boonville, N. C.
WILLIAM TURNER SMITH, Secretary and Treasurer Georgia Hydraulic Stone Co.	B. E.	Dublin, Ga.
SOLOMON ALEXANDER VEST, B. S. 1900, B. Agr. 1901, Rocksedale, Tenn. Analytical Chemist in employ of F. G. Smith, Propr. of Vest Laboratory.		
ROSCOE MARVIN WAGSTAFF, Draftsman with Newport News Shipbuilding and Dry Dock Co.	B. E.	Newport News, Va.
GAITHER HALL WHITING,* Assistant Chemist Virginia-Carolina Chemical Co.	B. S.	Richmond, Va.

CLASS OF 1901.

FLETCHER HESS BARNHARDT, Structural Engineer with Phoenix Bridge Co.	B. E.	Phoenixville, Pa.
WILLIAM OSBORNE BENNETT, Manager South Atlantic Oil Co.	B. E.	Wadesboro, N. C.
FRED WILHELM BONITZ, Attorney-at-Law.	B. E.	Wilmington, N. C.
ZOLLY MOSBY BOWDEN, Electrician Prairie Pebble Phosphate Co.	B. E.	Mulberry, Fla.
BEDFORD JETHRO BROWN, Meter Expert Southern Power Co.	B. E.	Charlotte, N. C.
PAUL COLLINS, Assistant Chemist L. P. Brown & Co.	B. S.	Nashville, Tenn.
WILLIAM PESCUD CRAIGE, With Peter F. Pescud, Underwriter.	B. S.	New Orleans, La.
WILLIAM LOIS CRAVEN, Draftsman York Bridge Co.	B. E.	York, Pa.

*Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
FELIX GRAY CRUTCHFIELD, Foreman Chatham Manufacturing Co.	B. E.,	Winston-Salem, N. C.
GEORGE MASLIN DAVIS, Chief Draftsman Southbound Railway Co.; also General Manager Winston Tag Machine Co.	B. E.,	Winston-Salem, N. C.
WILLIAM DOLLISON FAUCETTE, Assistant Civil Engineer Seaboard Air Line Railway.	B. E.,	Portsmouth, Va.
BENJAMIN OLIVER HOOD, Structural Draftsman Fort Pitt Bridge Works.	B. E.,	Canonsburg, Pa.
MARTIN KELLOGG, Register of Deeds of Gates County.	B. Agr.,	Gatesville, N. C.
JESSE JULIAN LILES, Salesman General Electric Co.	B. E.,	Pittsburg, Pa.
LEWIS OMER LOUGEE, Of the firm of George S. Eaton & Co., Civil and Mining Engineers.	B. E.,	Pittsburg, Pa.
CHARLES HARDEN MCQUEEN, Civil Engineer with J. L. Ludlow, C. E.	B. E.,	Winston-Salem, N. C.
WILLIAM FRANKLIN PATE, Assistant Chemist Agricultural Experiment Station.	B. S.,	Wooster, Ohio.
EDWARD OSCAR SMITH, Special Draftsman Newport News Shipbuilding and Dry Dock Co.	B. E.,	Newport News, Va.
WALTER STEPHEN STURGILL, First Lieutenant Second Field Artillery, United States Army.	B. E.,	Fort D. A. Russell, Wyo.
BEVERLY NATHAN SULLIVAN, Superintendent Winston-Salem Light and Fuel Co.	B. S.,	Winston-Salem, N. C.
CHARLES AUGUSTUS WATSON, With Bertin Aniline Works.	B. S.,	Atlanta, Ga.
BENJAMIN VADEN WRIGHT, Assistant Engineer G. V. G. & N. Railroad Co.	B. E.,	Globe, Arizona.

CLASS OF 1902.

WILLIAM DAVID BOSEMAN, Farmer.	B. E.,	Rocky Mount, N. C.
JUNIUS SIDNEY CATES, M. Agr. 1904. U. S. Department of Agriculture.	B. S.,	Washington, D. C.
ROBERT BAXTER COCHRAN, Electrical Engineer.	B. E.,	Urbana, Ohio.
JAMES LUMSDEN FEREBEE, Assistant Engineer Water Department.	B. E.,	Wilmington, Del.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT IRVING HOWARD, Assistant Cashier The Bank of Greenville.	B. E.,	Greenville, N. C.
JOHN LUTHER MCKIMMON, Farmer.	B. Agr.,	Laurinburg, N. C.
LAURIE MOSELEY, Southern Representative Owego Bridge Co.	B. E.,	Greensboro, N. C.
VASSAR YOUNG MOSS, Structural Draftsman Fort Pitt Bridge Works.	B. E.,	Canonsburg, Pa.
CHARLES ARTHUR NICHOLS, Merchant.	B. E.,	Muscogee, Indian Ter.
JAMES LAFAYETTE PARKER, Assistant Engineer H. C. Keith, Consulting Engineer.	B. E.,	116 Nassau St., New York.
WILLIAM BENEDICT REINHARDT, Electrician Dawson Electric Light and Power Co. Ltd.	B. E.,	Dawson, Y. T.
RUSSELL ELSTNER SNOWDEN, Assistant Civil Engineer Southern Railway, Lynchburg, Va. Home address, Snowden, N. C.	B. E.,	Lynchburg, Va.
JOSEPH PLATT TURNER, Superintendent of Cotton Mill.	B. E.,	Spray, N. C.
CLEVELAND DOUGLAS WELCH, Luray Cotton Mills.	B. E.,	Gastonia, N. C.

CLASS OF 1903.

WILLIAM MORTON BOGART, Draftsman General Fire Extinguisher Co.	B. E.,	Charlotte, N. C.
LESLIE NORWOOD BONEY, Cashier Bank of Wallace.	B. E.,	Wallace N. C.
JOHN SAMUEL P. CARPENTER, Superintendent Cherryville Mfg. Co. and Melville Mfg. Co.	B. E.,	Cherryville, N. C.
WALTER CLARK, JR., Lawyer.	B. E.,	Raleigh, N. C.
JOHN ELIOT COIT, Ph. D. Cornell University, Horticulturist Arizona Experiment Station.	B. Agr.,	Tucson, Arizona.
SUMMEY CROUSE CORNWELL, Civil Engineer in charge highway construction Gaston County.	B. E.,	Dallas, N. C.
CHARLES LESTER CRECH, Manager of New York Office of John W. Fries.	B. S.,	New York City, N. Y.
EUGENE ENGLISH CULBRETH, Bookkeeper E. M. Uzzell & Co., Printers.	B. E.,	Raleigh, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WALTER LEE DARDEN, Draftsman Seaboard Air Line Railway, Portsmouth, Va.	B. E.,	Portsmouth, Va.
JUNIUS FRANKLIN DIGGS, Farmer and Merchant.	B. S.,	Rockingham, N. C., R. 1.
TREOPHILUS THOMAS ELLIS, Farmer.	B. E.,	Henderson, N. C., R. 4.
JOHN DANIEL FERGUSON, Civil Engineer and Farmer.	B. E.,	Monroe, N. C., R. 9.
HUGH PIERCE FOSTER, Assistant Chief Engineer Weed Distilling and Manufacturing Co.	B. E.,	Wilmington, N. C.
OLIVER MAX GARDNER, Lawyer.	B. S.,	Shelby, N. C.
LAMAR CARSON GIDNEY, JOHN HOWARD GLENN,*	B. E.,	Shelby, N. C.
EMIL GUNTER, Chief Engineer and Electrical Engineer Winnebago Traction Co.	B. E.	Oshkosh, Wis.
EUGENE COLISTUS JOHNSON, Sawmilling.	B. E.,	Ingold, N. C.
JAMES MATTHEW KENNEDY, Architect.	B. E.,	Raleigh, N. C.
BENNETT LAND, JR., Division Engineer Seaboard Air Line Railway.	B. E.,	Jacksonville, Fla.
JOHN THOMAS LAND, Civil Engineer with E. C. Foreman and J. T. Land.	B. E.,	Norfolk, Va.
EDMOND SHAW LYTCH, Electrical Engineer Prairie Pebble Phosphate Co.	B. E.,	Mulberry, Fla.
JESSE JOHN MORRIS, Civil Engineer Norfolk and Southern Railroad.	B. E.,	Norfolk, Va.
DAVID STARR OWEN, Suprintendent Standard Turpentine Co. Plant No. 1.	B. E.,	Fayetteville, N. C.
JOHN HARVEY PARKER, Manager Pepsi-Cola Co.	B. E.,	Savannah, Ga.
JOEL POWERS, Draftsman Dewey Bros.	B. E.,	Goldsboro, N. C.
EDWARD HAYS RICKS, Salesman William Sellers & Co.	B. E.,	Philadelphia, Pa.
GASTON WILDER ROGERS, C. E. 1905. With F. S. Royster Guano Co.	B. E.,	Macon, Ga.

*Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CHARLES BURDETTE ROSS,	B. E.,	W. Ave., Charlotte, N. C. Contractor.
JOHN HOUSTON SHUFORD,	B. S.,	West Raleigh, N. C. Instructor in Dyeing N. C. College of Agriculture and Mechanic Arts.
EDWARD ROE STAMPS,	B. E.,	Macon, Ga. Superintendent F. S. Royster Guano Co.
GEORGE YATES STRADLEY,	B. E.,	Roanoke, Va. Structural Draftsman Virginia Bridge and Iron Company.
CHARLES EDWARD TROTTER,	B. S.,	Baltimore, Md. Medical Student Johns Hopkins University.
JONATHAN WINBORNE WHITE,	B. S.,	State College, Pa. Assistant Chemist and Instructor in Agricultural Chemistry.
EDWIN SEYMOUR WHITING,*	B. E.,	Hamlet, N. C.

CLASS OF 1904.

NELSON ADAMS,	B. E.,	McColl, S. C. Farmer.
HAYWOOD LEWIS ALDERMAN,	B. E.,	Box 153, Panama, R. P. Asst. Engineer of Ice and Electric Plant Panama-American Corporation.
EUGENE CLEVELAND BAGWELL,	B. E.,	Hull, Fla. Supt. and Chief Engineer Charlotte Harbor and Northern Railway.
EDWARD PAR BAILEY,	B. E.,	Wilmington, N. C. President Wilmington Iron Works.
JAMES CLAUDIUS BARBER,	B. E.,	Barber, N. C. Farmer.
WILLIAM WALTER BARBER,	B. E.,	Barber, N. C. Farmer.
WILLIAM ALEXANDER BARRETT,	B. E.,	Missoula, Montana. Chief Engineer Missoula Light and Power Co.
TIMOTHY ELDRIDGE,	B. E.,	Anaconda, Montana. Inspector Anaconda Copper Mining Co., Electrical Department.
JAMES WILLIAM FARRIOR,	B. E.,	Schenectady, N. Y. General Electric Company, Testing Department.
WILLIAM WALTER FINLEY,	B. S.,	North Wilkesboro, N. C. Farmer and Breeder of Registered Percheron Horses.
GEORGE WASHINGTON FOSHKE,	B. E.,	Gibsonville, N. C. Overseer of Spinning, Mineola Manufacturing Co.
EDGAR WILLIAM GAITHER,	B. S.,	Nashville, Tenn. Manager L. P. Brown & Co.'s Chemical Laboratory.

*Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
PAUL STREWALT GRIERSON,	B. E.,	Newport News, Va. Electrician in employ of Charles Cory & Son, New York.
JOSEPH PERRIN GULLEY, JR.,	B. E.,	Philadelphia, Pa. Meterman Philadelphia Electric Light Co.
JARVIS BENJAMIN HARDING,	B. E.,	Nogales, Sonora, Mexico. Locating Engineer in charge field party Southern Pacific Railway. Home address, Greenville, N. C.
GEORGE HERBERT HODGES,	B. E.,	Scottdale, Pa. Engineer H. C. Frick Coke Co.
JESSE McRAE HOWARD,	B. E.,	Concord, N. C. Assistant Superintendent Gibson Manufacturing Co.
BRANTON FAISON HUGGINS,	B. E.,	Valdosta, Ga. Member of firm of J. M. Youngblood & Co., Planing Mill.
HILL McIVER HUNTER,	B. E.,	Greensboro, N. C. Assistant Purchasing Agent Proximity Mfg. Co. and White Oak Mills.
WILLIAM KERB,	B. S.,	West Raleigh, N. C. Superintendent Experiment Farm.
ERNEST EDWIN LINCOLN,	B. E.,	Phoenixville, Pa. Draftsman Phoenixville Bridge Co.
JOHN FAIRLY McINTYRE,	B. E.,	Laurinburg, N. C.
JAMES McKIMMON,	B. E.,	Raleigh, N. C. BookKeeper Raleigh Banking and Trust Co.
JOSEPH ALFRED MILLER, JR.,	B. E.,	Brevard, N. C. Secretary Miller-DeVane Supply Co.
WILLIAM FIELD MORSON,	B. E.,	Raleigh, N. C. Civil Engineer Greater Raleigh Land Co., Raleigh, N. C.
LEON ANDREW NEAL,	B. E.,	Bristol, Tenn. Assistant Engineer Virginia and Southwestern Railway Co.
WILLIAM JOEL PATTON,	B. E.,	Brevard, N. C. Lumber Business.
FREDERICK COLWELL PHELPS,	B. E.,	Fortress Monroe, Va. Second Lieutenant United States Army.
WILLIAM WALTER RANKIN,	B. E.,	Charlotte, N. C. Principal Shopton High School.
RISDEN PATTERSON REECE,	B. E.,	Winston-Salem, N. C. Assistant Mechanical Engineer Salem Iron Works.
WILLIAM RICHARDSON, JR.,	B. E.,	Scottdale, Pa. Draftsman H. C. Frick Coke Co.
JAMES CLARENCE TEMPLE,	B. S.,	West Raleigh, N. C. Assistant Bacteriologist and Chemist N. C. Experiment Station.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOSEPH KENDALL WAITT,	B. E.,	Portsmouth, Va.
	Civil Engineer.	
MARION EMERSON WEEKS,	B. E.,	Portsmouth, Va.
	Draftsman Equipment Department Norfolk Navy Yard.	
ALBERT CLINTON WHARTON, JR.,	B. S.,	Clemmonsville, N. C.
	Farmer.	

CLASS OF 1905.

LEON FRANKLIN ABERNETHY,	B. Agr.,	Hickory, N. C.
	With The Abernethy Hardware Co.	
ROBERT JAMES AVERY,	B. Agr.,	Morganton, N. C.
OSCAR LUTHER BAGLEY,	B. S.,	Weldon, N. C.
	Manager Coca-Cola Bottling Works.	
BENJAMIN ALEXANDER BROOM,	B. E.,	Milwaukee, Wis.
	Erecting Engineer (Steam Turbine) Allis-Chalmers Co.	
JOEL W. BULLOCK,	B. Agr.,	Whigham, Ga., R. 4.
	Bullock Bros., Tobacco Growers.	
HENRY BROZIER CARTWRIGHT,	B. E.,	Raleigh, N. C.
	Civil Engineer Seaboard Air Line Railway, Raleigh, N. C.	
WILLIAM MILLER CHAMBERS,	B. E.,	Hotchkiss, W. Va.
	Pay-roll Clerk W. M. Ritter Lumber Co.	
WALTER GOSS FINCH,	B. E.,	Washington, D. C.
	Civil Engineer United States Government.	
STERLING GRAYDON,	B. E.,	Charlotte, N. C.
	Engineer D. A. Tompkins Co.	
JARVIS BENJAMIN HARDING,	B. E.,	Nogales, Sonora, Mexico.
	Locating Engineer in charge of field party Southern Pacific Railway.	
	Home address, Greenville, N. C.	
RICHARD HUGH HARPER,	B. S.,	Patterson, N. C.
	Gwyn-Harper Manufacturing Co.	
JERE ISAAC HERRITAGE,	B. E.,	Jacksonville, N. C.
	Surveying timber land J. C. Foster and R. C. Remick.	
LABAN MILES HOFFMAN, JR.,	B. E.,	Dallas, N. C.
	With Monarch Cotton Mills Co.	
FLOYD RAINY HUNT,	B. E.,	Great Falls, S. C.
	Electrical Engineer Southern Power Co.	
ARTHUR TEMPLETON KENTON,	B. E.,	Clinton, N. C.
	Engineer Panama Canal. Home address, Clinton, N. C.	

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WM. FRANKLIN KIRKPATRICK,	B. E. 1904, B. Agr.,	Kingston, R. I.
		Agent in Turkey Investigation U. S. Department of Agriculture, Bureau of Animal Industry.
STARR NEELY KNOX,	B. E.,	Charlotte N. C.
		Assistant Engineer Southern Railway.
JAMES HERRITAGE KOONCE,	B. E.,	Richlands, N. C.
		Civil Engineer U. S. Government. Home address, Richlands, N. C.
HENRY MARVIN LILLY,	B. E.,	Wilmington, N. C.
		Civil Engineer and member of firm of Field & Lilly, Architects and Engineers.
LIPSCOMBE GOODWIN LYKES,	B. E.,	Habana, Cuba.
		With Lykes Bros.
GEORGE GREEN LYNCH, JR.,	B. E.,	Wilmington, N. C.
MALCOLM ROLAND MCGIRT,	B. Agr.,	Winston-Salem, N. C.
		Manager West End Dairy.
WALTER HOGE MCINTIRE,	B. S.,	State College, Pa.
		Assistant Chemist Institute of Animal Nutrition.
JAMES OSCAR MORGAN,	B. Agr.,	Ithaca, N. Y.
		Graduate Student in Agronomy. Assistant in Experimental Agronomy Cornell University.
LINDSAY ALEXANDER MURR,	B. E.,	Jacksonville, Fla.
		Assistant Engineer Seaboard Air Line Railway.
GARLAND PERRY MYATT,	B. S.,	Bayonne, N. J.
		Chemist General Chemical Co.
JOHN ALSEY PARK,	B. E.,	Raleigh, N. C.
		Instructor in Mathematics N. C. College of Agr. and Mechanic Arts.
JAMES HICKS PEIRCE,	B. S.,	Warsaw, N. C.
		Wholesale Lumber Business.
PLEASANT H. POINDEXTER, JR.,	B. Agr.,	Donoha, N. C.
		Farmer.
EDWARD GRIFFITH PORTER,	B. E.,	Goldsboro, N. C.
		Sales Agent Punch-I-Nello Co.
ROBERT WALTER SCOTT, JR.,	B. Agr.,	Rocky Mount, N. C.
		Supt. of Edgecombe Test Farm, N. C. Agricultural Department.
JONATHAN RHODES SMITH,	B. E.,	Phoenixville, Pa.
		Structural Draftsman The Phoenix Bridge Co.
JOHN DAVIDSON SPINKS,	B. E.,	Hull, Fla.
		Assistant Engineer Charlotte Harbor and Northern Railway.
ERVIN BLAKENEY STACK,	B. E.,	Monroe, N. C.
		Electrical Engineer General Electric Co.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
SYLVESTER MURRAY VIELE, Draftsman Electrical Department Pennsylvania Railroad Co.	B. E.,	Altoona, Pa.
WALTER JENNINGS WALKER, General Electric Co.	B. E.,	Schenectady, N. Y.
STEVEN DOCKERY WALL,*	B. E.,	Rockingham, N. C.
WALTER WELLINGTON WATT, JR., Draftsman Saco & Pettee Machine Shops.	B. E.,	Charlotte, N. C.
ARCHIE CARRAWAY WILKINSON, Locating Engineer Shoobred & Seaver, Civil Engineers.	B. E.,	Waynesville, N. C.

CLASS OF 1906.

DURANT STEWART ABERNETHY, Civil Engineer Southern Railway.	B. E.,	Lynchburg, Va. Home address, Hickory, N. C.
GEORGE GILDEROY ALLEN, Second Hand in Carding, Neuse River Cotton Mill.	B. E.,	Raleigh, N. C.
GEORGE PAGE ASBURY, Civil Engineer Norfolk and Southern Ry.	B. E.,	Raleigh, N. C. Home address, Burkmont, N. C.
JAMES CLAUDIUS BRAVERS, Department of Agriculture.	B. Agr.,	Washington, D. C.
NEEDHAM ERIC BELL, Assistant Chemist Agricultural Experiment Station.	B. S.,	Auburn, Ala.
KENNETH LEON BLACK, With I. J. Smith Co., Contractors.	B. E.,	Richmond, Va.
WILLIAM ANDREWS BUYS, Civil Engineer for Cooperage Lumber Co.	B. E.,	Belhaven, N. C.
MARK HOPKINS CHESERO, Farmer.	B. Agr.,	Claremont, Va.
CONNOE CALHOUN CLARDY, General Electric Co.	B. E.,	Schenectady, N. Y.
JOHN WASHINGTON CLARK, B. E. 1907. Student Philadelphia Textile School.	B. E.,	Philadelphia, Pa.
JAMES DUNCAN CLARK, Carbonic Acid Manufacturer.	B. S.,	Tampa, Fla.
SAMUEL HERBERT CLARKE, Civil Engineer.	B. E.,	Statesville, N. C.
WILEY THEODORE CLAY, Instructor N. C. College of Agriculture and Mechanic Arts.	B. E.,	West Raleigh, N. C.

*Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DUNCAN ARCHIBALD COX, Assistant Chemist Tennessee Coal, Iron and Railway Co.	B. S.,	Ensley, Ala.
ALEXANDER DOANE CROMARTIE, Farmer.	B. Agr.,	Garland, N. C.
LATTA VANDERION EDWARDS, Instructor in Civil Engineering Cornell University.	B. E.,	Ithaca, N. Y.
WELDON THOMPSON ELLIS, Instructor N. C. College of Agriculture and Mechanic Arts.	B. E.,	West Raleigh, N. C.
ALBERT EDWARD ESCOTT, Secretary Raleigh Cotton Mills and Neuse River Mills.	B. E.,	Raleigh, N. C.
WILLIAM CARLYLE ETHERIDGE, Assistant in Farm Crops, N. C. Experiment Station.	B. Agr.,	West Raleigh, N. C.
JAMES BECKETT EWART, Engineer in Experimental Laboratory Western Electric Co.	B. E.,	New York City, N. Y.
SHIRLY WATSON FOSTER, Agent and Expert in The Bureau of Entomology, U. S. Dept. of Agr.	B. Agr.,	Washington, D. C.
ARTHUR WYNN'S GREGORY, Assistant in Agricultural Chemistry University of Illinois.	B. S.,	Urbana, Ill.
HORACE LESTER HAMILTON, Employee of General Electric Co.	B. E.,	Schenectady, N. Y.
JOHN FREDERICK HANSELMAN, With Morrison Machinery and Supply Co.	B. E.,	Richmond, Va.
CLARENCE WILSON HEWLETT, Instructor N. C. College of Agriculture and Mechanic Arts.	B. E.,	West Raleigh, N. C.
JAMES ALLAN HIGGS, JR., Civil Engineer Southern Railway.	B. E.,	Knoxville, Tenn.
WILLIAM GRAHAM KNOX, Assistant Chemist Northampton Portland Cement Co.	B. E.,	Stockertown, Pa.
JOE POINDEXTER LOVILL, Engineer Elkin and Alleghany Railroad, Elkin, N. C.	B. E.,	Elkin, N. C.
THOMPSON MAYO LYKES, With Lykes Bros., Cattle Dealers.	B. E.,	Tampa, Fla.
HORACE SMITH McLENDON, Farmer.	B. Agr.,	Wadesboro, N. C., R. 1.
RAYMOND MAXWELL, Chief Engineer Mattamuskeet Railroad.	B. E.,	Swan Quarter, N. C.
LACY MOORE, Civil Engineer Southern Railway, Lynchburg, Va. Home address, Graham, N. C.	B. E.,	Graham, N. C.
JOSEPH GRAHAM MORRISON, Of firm of J. G. & R. H. Morrison, Merchants.	B. Agr.,	Stanley, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JESSE CLARENCE MYRICK, Consolidated Railways, Light and Power Co.	B. E.,	Wilmington, N. C.
CHARLES FRANKLIN NIVEN, Student at Cornell University.	B. Agr.,	Ithaca, N. Y.
LOLA ALEXANDER NIVEN, Student at Cornell University.	B. Agr.,	Ithaca, N. Y.
LEWIS MILTON ODEN, Dairyman.	B. Agr.,	Raleigh, N. C.
THOMAS JEFFERSON OGBURN, JR., Monotype and Linotype Machinist Everett Waddey Co.	B. E.,	Richmond, Va.
CLYDE ESTER PARKER, Cotton Merchant, Parker Bros. & Co.	B. S.,	Raleigh, N. C.
SAMUEL OSCAR PERKINS, Assistant Chemist N. C. Department of Agriculture.	B. S.,	Raleigh, N. C.
ANGELO BETTLENA PIVER, Draftsman Phoenix Bridge Co.	B. E.,	Phoenixville, Pa.
WILLIAM CRAWFORD PIVER, Analytical Chemist.	B. S.,	New York, N. Y.
DURANT WAITE ROBERTSON, Traveling Salesman American Tobacco Co.	B. E.,	Washington, D. C.
FREDDIE JACKSON TALTON, Poultry Farming.	B. Agr.,	Pikeville, N. C., R. 2.
RICHARD HENRY TILLMAN, Testing Department General Electric Co.	B. E.,	Schenectady, N. Y.
WILLIAM SIDNEY TOMLINSON, City Engineer.	B. E.,	Lumberton, N. C.
REID TULL, Civil Engineer Durham and Charlotte Railway.	B. E.,	Elise, N. C.
JACKSON CORPENING TUTTLE, Testing Department General Electric Co.	B. E.,	Schenectady, N. Y.
ROBERT PEELE UZZELL, Farming.	B. Agr.,	Goldboro, N. C.
PETER VALAER, JR., Assistant Chemist Bureau of Internal Revenue.	B. S.,	Washington, D. C.
LILLIAN LEE VAUGHAN, Instructor N. C. College of Agriculture and Mechanic Arts.	B. E.,	West Raleigh, N. C.
JOHN HARLEIGH WILLIAMS, Assistant Y. M. C. A. Secretary Southern Railway.	B. E.,	Spencer, N. C.
LEWIS TAYLOR WINSTON, Estimator Forest Department Bltmore Estate.	B. Agr.,	Asheville, N. C.

CLASS OF 1907.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HERBERT SCANDLIN BATTLE,	B. E.,	Pittsburg, Pa.
McClintic-Marshall Construction Co.		Home address, Greensboro, N. C.
JOE PITTMAN BIVENS,	B. E.,	Richmond, Va.
Testing Department		Richmond Light and Power Co.
CARNEY JOHN BRYAN,	B. E.,	Morton Park, Ill.
		Western Electric Co.
LINDSAY FERGUSON CARLETON,	B. E.,	North Wilkesboro, N. C.
Superintendent		North Wilkesboro Light and Power Co.
ROBERT HILL CARTER,	B. E.,	Wilkesburg, Pa.
Westinghouse Electric and Manufacturing Co.		
JOHN WASHINGTON CLARK,	B. E.,	Philadelphia, Pa.
Student in		Philadelphia Textile School.
JACOB TATUM EATON,	B. Agr.,	Farmington, N. C.
Assistant in		Dairying, United States Government.
SEBA ELDRIDGE,	B. E.,	New York City, N. Y.
		Student Columbia University.
BENJAMIN BRYAN EVERETT,	B. Agr.,	Palmyra, N. C.
		Farming.
JOHN LINDSAY FERGUSON,	B. E.,	Wilkesburg, Pa.
Westinghouse Electric and Manufacturing Co.		
ELIAS VAN BUREN FOWLER,	B. E.,	Schenectady, N. Y.
		General Electric Co.
CLEMENT LEINSTER GARNER,	B. E.,	Washington, D. C.
		United States Coast Survey.
LOVIC RODGERS GILBERT,	B. E.,	Jonesboro, N. C.
Cotton Mill Superintendent		Clark Manufacturing Co.
ROY JOSEPH GILL,	B. E.,	Manila, P. I.
		Civil Service.
ROBERT STRICKLER GRAVES,	B. E.,	Schenectady, N. Y.
		With General Electric Co.
GEORGE ROM HARDESTY,	B. E.,	Raleigh, N. C.
Central Hospital,		in charge of repairs.
PHILIP WILLIAM HARDIE,	B. E.,	Charleston, S. C.
Civil Engineer		United States Navy Department.
JOKTON LAFAYETTE HEMPHILL,	B. E.,	Schenectady, N. Y.
		With General Electric Co.
LAWRENCE JAMES HERRING,	B. Agr.,	Kansas City, Mo.
At Kansas City Veterinary College.		Home address, Clinton, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
GUY FRANCIS HINSHAW,	B. E.,	Winston-Salem, N. C. With City Engineer.
WILLIAM NORMAN HOLT,	B. E.,	Smithfield, N. C. Cotton Manufacturing.
ALBERT CARL JONES,	B. Agr.,	Kansas City, Mo. At Kansas City Veterinary College.
WILLIAM WHITMORE JONES,	B. E.,	Franklin, N. C. Laundry and Electrical Work.
LAFAYETTE FRANCK KOONCE,	B. Agr.,	Kansas City, Mo. At Kansas City Veterinary College.
LOUIS EDGAR LOUGEE,	B. S.,	Pittsburg, Pa. Jones & Laughlin Steel Co.
HENRY KREIGER McCONNELL,	B. S.,	West Nashville, Tenn. Chemist Federal Chemical Co.
OSCAR FRANKLIN McNAIRY,	B. E.,	Greensboro, N. C. Civil Engineer.
EUGENE FRANKLIN MEADOR,	B. E.,	Reidsville, N. C. Farmer.
BENNETT TAYLOR MIAL,	B. E.,	Wilkinsburg, Pa. Asst. to Foreman McClintic-Marshall Construction Co. Travels.
FRANK CURTIS MICHAEL,	B. E.,	Richmond, Va. Has charge of switchboard Virginia Passenger and Power Co.
JOHN MAPLE MILLS,	B. E.,	Raleigh, N. C. Raleigh and Southport Railway.
HENRY STARBUCK MONTAGUE,	B. S.,	Richmond, Va. Assistant Chemist Virginia-Carolina Chemical Co.
JOHN LIGHTFOOT MORSON,	B. E.,	Raleigh, N. C. Engineer for Greater Raleigh Land Co.
JAMES ELWOOD OVERTON,	B. Agr.,	Ahoskie, N. C. Farmer.
THOMAS FRANKLIN PARRER,	B. Agr.,	West Raleigh, N. C. Graduate Student A. & M. College.
FRED MAYNARD PARKS,	B. E.,	Pittsburg, Pa. Westinghouse Electric and Manufacturing Co.
ARTHUR LEE PASCHAL,	B. Agr.,	Vaughan, N. C. Farmer.
GUY PINNER,	B. E.,	Phoenixville, Pa. Draftsman The Phoenix Bridge Co.
WINSLOW GERALD PITMAN,	B. E.,	Cumberland, Md. McClintic-Marshall Construction Co., Pittsburg, Pa.

REGISTER OF ALUMNI.

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<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES KEMP PLUMMER, Chemist Rockdale Iron Co.	B. S.,	Rockdale, Tenn.
LEON JACOB SCHWAB, Civil Engineer.	B. E.,	Goldsboro, N. C.
JOHN OSCAR SHUFORD, Westinghouse Electric and Manufacturing Co.	B. E.,	Wilkinsburg, Pa.
VANCE SYKES, Instructor N. C. College of Agriculture and Mechanic Arts.	B. E.,	West Raleigh, N. C.
LUTHER RUSSELL TILLET, Florida East Coast Railroad. Home address, Carolla, N. C.	B. E.,	Jacksonville, Fla.
WILLIAM BROOKS TRUITT, Draftsman Greensboro Boller and Machine Co.	B. E.,	Greensboro, N. C.
JOHN ED. TURLINGTON, U. S. Department of Agriculture, Bureau of Animal Industry.	B. Agr.,	Lynchburg, Va.
EDMUND FARRISS WARD, Lawyer.	B. Agr.,	Lumberton, N. C.
LINDSEY MARADE WEAVER, Farmer.	B. E.,	Lexington, N. C.
JOHN JACKSON WELLS, Civil Engineer and Surveyor.	B. E.,	Rocky Mount, N. C.
DAVID LYNDON WHITE, Farm Superintendent Mrs. R. G. S. MacNeille.	B. Agr.,	Pine Bluff, N. C.
CECIL BERNARD WHITEHURST, Student Western Electric Co.	B. E.,	Morton Park, Ill.
ARTHUR JOHN WILSON, Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	West Raleigh, N. C.