

THE  
NORTH CAROLINA COLLEGE  
OF  
AGRICULTURE AND MECHANIC ARTS,

RALEIGH.

1900—1901..

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

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## COLLEGE CALENDAR.

1901.

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Saturday,	July	11,	{ Entrance examination at each county court-house, 10 A. M.
Tuesday,	September	3,	{ Entrance examination at the College, 9 A. M.
Wednesday,	September	4,	First Term begins; Registration Day.
Thursday,	November	28,	Thanksgiving Day.
Friday,	December	20,	First Term ends.

1902.

Thursday,	January	2,	Second Term begins; Registration Day.
Friday,	March	14,	Second Term ends.
Monday,	March	17,	Third Term begins; Registration Day.
Friday,	May	23,	Examinations end.
Sunday,	May	25,	Baccalaureate Sermon.
Monday,	May	26,	Alumni Day.
Tuesday,	May	27,	Annual Oration.
Wednesday,	May	28,	Commencement Day.

## BOARD OF TRUSTEES.

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

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

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

### EXECUTIVE COMMITTEE.

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

### COLLEGE FINANCE COMMITTEE.

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

### STATION FINANCE COMMITTEE.

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

## FACULTY.

---

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

LOUIS BENJAMIN ABBOTT, C. E., Instructor in Civil Engineering.

THOMAS ALFRED CHITTENDEN, B. S., Instructor in Mechanical Drawing.

WALTER E. WEIHE, D. V. M., Instructor in Veterinary Medicine.

VIRGIL WILLIAM BRAGG, Instructor in Wood-working.

CARROLL LAMB MANN, B. S., Assistant in Civil Engineering.

FRANCIS MARION FOY, JR., B. S., Assistant in Mathematics.

ARCHIBALD BLAIR HUBARD, B. S., Assistant in Mechanical Engineering.

MARTIN EARLEY CARTER, Assistant in Wood-working.

#### OTHER OFFICERS.

EDWIN BENTLEY OWEN, B. S., Librarian.

JOHN MEADE FIX, Bursar.

ARTHUR FINN BOWEN, Registrar and Secretary.

ELIZABETH VAN DER VEER DARBY, Stenographer.

BENJAMIN SMITH SKINNER, Farm Superintendent.

SUSAN COLWELL CARROLL, Matron.

JAMES RUFUS ROGERS, A. B., M. D., Physician.

#### AGRICULTURAL EXPERIMENT STATION DEPARTMENT.

GEORGE TAYLOE WINSTON, A. M., LL. D., President and Director.

WILLIAM ALPHONSO WITHERS, A. M., Chemist.

BENJAMIN IRBY, M. S., Agriculturist.

WILBUR FISK MASSEY, C. E., Horticulturist.

GEORGE STRONACH FRAPS, Ph. D., Assistant Chemist.

JAMES ADRIAN BIZZELL, M. S., Assistant Chemist.

ALEXANDER RHODES, Assistant Horticulturist.

CHARLES WALTER HYAMS, Assistant Botanist and Entomologist.

JAMES MARTIN JOHNSON, M. S., Assistant in Animal Industry.

JOHN MEADE FIX, Bursar.

ARTHUR FINN BOWEN, Secretary.

ELIZABETH VAN DER VEER DARBY, Stenographer. •

**MILITARY ORGANIZATION.**

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

**Staff.**

FRED. WILHELM BONITZ, Major.  
FELIX GRAY CRUTCHFIELD, First Lieutenant and Adjutant.  
ZOLLY MOSBY BOWDEN, First Lieutenant and Quartermaster.

**Non-commissioned Staff.**

JAMES LUMSDEN FEREBEE, Acting Sergeant-major.  
BEDFORD JETHRO BROWN, Quartermaster Sergeant.  
BEVERLY NATHANIEL SULLIVAN, Color Sergeant.

**Band.**

FLETCHER HESS BARNHARDT, Captain.  
WILLIAM DUNN BRIGGS, Captain and Drum-major.  
BENJAMIN OLIVER HOOD, First Lieutenant.  
PAUL EUGENE MORROW, First Sergeant.  
EDWARD OSCAR SMITH, Chief Trumpeter.  
EUGENE THOMAS ROBESON, Chief Musician.  
HAYWOOD LEWIS ALDERMAN, Assistant Chief Musician.  
WILLIAM ALDERMAN PARKER, Sergeant.

**Company Officers.**

**Co. A.**—W. D. FAUCETTE, Captain; W. F. PATE, First Lieutenant;  
C. R. NICHOLS, Second Lieutenant; R. E. SNOWDEN, First Sergeant;  
J. L. FEREBEE, Second Sergeant; W. D. BOSEMAN, Third Sergeant;  
R. I. HOWARD, Fourth Sergeant; J. H. SHUFORD, Fifth Sergeant; J. F.  
DIGGS, First Corporal; E. GUNTER, Second Corporal; W. A. HEDRICK,  
Third Corporal; S. W. ASBURY, Fourth Corporal.

**Co. D.**—W. S. STURGILL, Captain; B. V. WRIGHT, First Lieutenant;  
C. H. McQUEEN, Second Lieutenant; V. Y. MOSS, First Sergeant; E.  
E. CULBRETH, Second Sergeant; J. S. CATES, Third Sergeant; O.  
CARTER, Fourth Sergeant; L. GIDNEY, Fifth Sergeant; S. C. CORN-



WELL, First Corporal; E. LYTCH, Second Corporal; J. W. WHITE, Third Corporal; W. N. BOGART, Fourth Corporal.

**Co. B.**—L. O. LOUGEE, Captain; J. J. LILES, First Lieutenant; W. O. BENNETT, Second Lieutenant; C. D. WELCH, First Sergeant; A. L. CLARKE, Second Sergeant; O. M. GARDNER, Third Sergeant; W. B. REINHARDT, Fourth Sergeant; K. C. WAGSTAFF, Fifth Sergeant; W. L. BARLOW, First Corporal; D. S. OWEN, Second Corporal; E. C. JOHNSON, Third Corporal; E. S. WHITING, Fourth Corporal.

**Co. C.**—G. M. DAVIS, Captain; W. L. CRAVEN, First Lieutenant; W. P. CRAIGE, Second Lieutenant; L. MOSELY, First Sergeant; R. B. COCHRANE, Second Sergeant; J. M. KENNEDY, Third Sergeant; L. N. BONEY, Fourth Sergeant; C. L. CREECH, Fifth Sergeant; J. D. FERGURSON, First Corporal; J. E. WIDBY, Second Corporal; H. P. FOSTER, Third Corporal; J. H. GLENN, Fourth Corporal.

## GENERAL INFORMATION.

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

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

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

An annual appropriation of \$10,000 is made by the Legislature of North Carolina. With the exception of special appropriations, made from time to time by the Legislature, this is the only money received directly from the State.

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

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

### THE AGRICULTURAL EXPERIMENT STATION.

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

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

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

### THE PURPOSE OF THE COLLEGE.

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

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

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

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

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

### MANUAL TRAINING.

Such special students as desire it, may employ their whole time in manual training. The carpenter shop, the wood-turning shop, the blacksmith shop, the machine shop, the drawing and designing-rooms, the barns, dairies, fields, and green-houses afford facilities wherein young men not desiring a four year course or not able to take it may obtain very useful training and very profitable skill. Young men desiring to be mechanics, machinists, electricians, engine-tenders, boiler-tenders, or dynamo-tenders, may find very profitable instruction at the College in a course lasting one year, or even less. Very many lads have come to the institution with practically no advantages of previous training, and have left it fairly well equipped for successful work.

### PRIZES.

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

Mr. A. L. Chamberlain offers a prize of \$5 to the student who shall keep the best account of his college expenses during the year.

Mr. A. L. Chamberlain offers a prize of \$5 to the student who shall spend the least amount of money during the college year, exclusive of board, tuition, and fees.

### DISCIPLINE.

The College is under military discipline and the students are regularly organized into a battalion. A printed copy of rules and regulations is furnished each student on admission, and he is expected to conform to the same during his connection with the institution. The

discipline is intended to secure studious and economical habits, with punctuality, system, and order in the performance of all duties. A durable uniform, which is required to be worn on all occasions, prevents extravagance and folly in dress; rooms plainly furnished and a mess-hall economically managed by the College prevent extravagance in living; regular study hours, day and night, with proper restrictions as to visiting Raleigh, check, or at least minimize, tendencies to idleness, vice, and rowdiness.

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

### COLLEGE SOCIETIES.

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

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

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

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

**The Athletic Association** is intended to promote physical health and manly spirit through athletic sports. Under the direction of the

Athletic Committee of the Faculty, it promotes practice in base-ball, foot-ball, etc. The College is provided with extensive grounds, which furnish ample facilities for military drill and athletic sports.

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

### REQUISITES FOR ADMISSION.

Applicants for admission must be sixteen years of age and must bring certificates of good moral character from the last school attended. Applicants for admission to the Full (or Technical) Courses and to the Short Courses in Agriculture and Cotton Manufacturing will be examined on the following subjects: Arithmetic (complete), Algebra (through simple equations), English Grammar, Analysis and Composition, and American History. Applicants for admission to the Short (or Manual) Course in Mechanic Arts will be examined on Arithmetic (through decimal fractions), English Grammar and Composition, and American History. Any applicant found deficient in spelling and in power to write simple sentences grammatically will be rejected. Applicants for admission to the Special Courses will not be required to stand any entrance examinations, but they must be over eighteen years of age.

### ENTRANCE EXAMINATIONS.

Entrance examinations will be held by the County Superintendents of Instruction in each court-house in the State at 10 o'clock A. M. the second Thursday in July of each year. The date for 1901 is July 11th. These examinations will save the expense of a trip to Raleigh in case the candidate should fail, or if there should not be room enough for him in the College. Entrance examinations will be held also at the College on the first Wednesday in September of each year. The date for 1901 is September 4th, 9 o'clock A. M.

### ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

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

**SESSION.**

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

**EXPENSES.**

The annual expenses are as follows:

Tuition, \$20; Lodging, \$10; Fuel and Lights, \$12.50; Furniture, \$2; Library, \$1; Incidental, \$1; Medical Fee and Medicine, \$4.50; Board, \$72; total, \$123. Payments are made monthly in advance. A fee of \$1 is charged all students reporting for registration after the regular day appointed for that purpose—said fee being placed to the credit of the student loan fund.

Students in the courses in Engineering and in Mechanic Arts taking shop-work are required to make a deposit at the beginning of each year for the use of tools, as follows: Seniors and Juniors, \$1.50; all others, \$2. If the tools are returned in good condition at the end of the year ninety per cent. of these amounts will be refunded to the student. A fee of \$1, no part of which is returnable, must be paid at the beginning of each year by Juniors and Seniors taking drawing.

Students in the chemical laboratory are required to make a deposit at the beginning of the year, to cover breakages, as follows: Sophomores and Juniors, \$2.50; Seniors, \$5; any unused portion of this will be returned at the end of the year.

There is no deduction for less time than one month, except for board. The College uniform costs, including cap, \$13.80, and must be paid for when received. A cheap set of overalls should be purchased for shop and field-work. Each student must supply four sheets, two pillow-cases, four towels and two counterpanes, which he can bring from home, and must purchase his own books, stationery, drawing instruments and materials, which he can obtain at the College. Students who are willing to work may reduce their total annual expenses to one hundred dollars.

**UNIFORM.**

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

### FREE TUITION.

Scholarships, conferring free tuition and lodging, are given to needy boys of talent and character. As far as possible, these scholarships are distributed among the counties of the State. Appointments are made only by the President of the College upon written recommendation of 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 indorsed by the person recommending him. A scholarship once bestowed will be retained by the holder until graduation, unless he should prove neglectful of his studies or guilty of serious misconduct.

### SELF-HELP.

Many students pay their own expenses, either wholly or partly, by doing various kinds of work. There is regular employment for a limited number, enabling them to earn from \$4 to \$10 a month. There is also occasional employment, paying from \$2.50 to \$5 a month. New students should not rely upon securing employment the first four months. Except when arrangements have previously been made with the College authorities, young men in needy circumstances are not advised to come to the College, unless during the year they can have at their command at least one hundred dollars.

### STUDENT LOAN FUND.

The Alumni Association of the College has established a small fund to be lent to needy students of talent and character. The loans are made at six per cent., and good security is required. Sufficient time is given for repayment to enable the student to earn the money himself. The amount lent 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 about one hundred and fifty dollars.



### BOARD AND LODGING.

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

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

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

### CARE OF THE SICK.

Every effort is made to protect the health of young men in the College. Regular inspections of the entire institution are made once a year, or oftener, by the State Board of Health. Similar inspections, at frequent intervals, are made by the College physician. There is an abundant supply of pure water from twelve deep wells. Each cadet has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

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

## COURSES OF INSTRUCTION.

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The College offers the following Courses of Instruction:

**I. Full (or Technical) Courses** of four years, leading to degrees in:

**1st. Agriculture** (including Agriculture, Horticulture, Animal Industry, Agricultural Chemistry, and Botany).

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

**3d. Textile Industry** (including Cotton Manufacturing, Designing, and Dyeing).

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

**II. Short (or Manual) Courses** of two years (not leading to a degree) in: Agriculture, in the Textile Industry, and in the Mechanic Arts (including Carpentry, Wood-turning, Blacksmithing, Machinery-work, Mill-work, Boiler-tending, Engine-tending, and Dynamo-tending).

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

**III. Special Courses**, requiring about three months in Agriculture, Carpenter-work, Machine Shops, Engine-tending, Boiler-tending, Machine Drawing and Designing. The special courses are intended for persons of limited means, or limited opportunity, who desire special training in a single line.

**IV. Graduate Courses**, extending over two years and leading to advanced degrees, are intended for students who have completed the Full Courses and who desire further instruction and training along special lines. Upon completion of the Graduate Courses the following degrees are conferred: Master of Agriculture, Mechanical Engineer, Civil Engineer, Electrical Engineer, Chemical Engineer.

The Faculty earnestly advises all students to pursue a Full Course of instruction.

### COURSES IN AGRICULTURE.

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

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

#### Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
✓ Elements of Agriculture	2	2	--
✓ Staple Crops	--	--	2
✓ Agricultural Practice	2	--	2
✓ Elementary Horticulture	--	2	--
✓ Free-hand Drawing	4	--	--
✓ Mechanical Drawing	--	4	4
Elementary Carpentry	2	2	--
Elementary Forge Work	--	--	2
✓ Algebra	4	4	--
✓ Geometry	--	--	4
Book-keeping	1	1	1
✓ Plant Morphology	2	--	2
✓ English	3	3	3
Physics, or Phys. Geography, Physiology and Civics, or History, Military Drill	2	2	2
	3	3	3

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## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
✓ Agricultural Practice .....	--	--	4
✓ Breeds of Live Stock .....	3	--	--
✓ Dairying .....	--	3	--
✓ Poultry .....	--	--	3
✓ Pomology .....	--	2	2
✓ Horticultural Practice .....	2	2	2
✓ Geometry .....	4	--	--
✓ Trigonometry .....	--	4	--
✓ Inorganic Chemistry .....	3	3	3
✓ Inorganic Chemistry (laboratory) .....	4	4	4
✓ Systematic Botany .....	--	--	2
✓ Entomology .....	2	--	--
✓ English .....	2	2	2
✓ Military Drill .....	3	3	3

## Junior Year.

✓ Meteorology .....	2	--	--
✓ Soil Physics .....	--	--	3
✓ Agricultural Practice .....	--	2	2
✓ Physiological Botany .....	2	--	--
✓ Botanical Laboratory .....	--	2	2
✓ Landscape Gardening .....	2	2	--
✓ Forestry .....	--	--	2
✓ Horticultural Practice .....	2	--	--
✓ Vertebrate Zoology .....	--	3	--
✓ Dairy Bacteriology .....	3	--	--
✓ Stock Feeding .....	--	3	--
✓ Veterinary Medicine .....	--	--	3
✓ Agricultural Chemistry .....	3	3	3
✓ Qualitative Analysis .....	4	4	4
✓ English and History .....	2	2	2
✓ Military Tactics .....	1	1	1
✓ Military Drill .....	3	3	3

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## Senior Class. Group A.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
✓ Agricultural Economics .....	--	--	3
✓ Agricultural Seminary .....	1	1	1
✓ Agricultural Practice .....	--	2	2
✓ Market Gardening .....	2	--	--
✓ Commercial Floriculture .....	--	2	--
✓ Horticultural Seminary .....	--	--	2
✓ General Biology .....	2	2	2
✓ Biological Laboratory .....	2	2	2
✓ Stock-breeding .....	--	3	--
✓ Geology and Palaeobotany .....	2	2	2
✓ Surveying .....	2	--	--
✓ Surveying (field-work) .....	4	--	--
✓ English .....	2	2	2
✓ Political Economy .....	2	2	2
✓ Military Drill .....	3	3	3

## Senior Class. Group B

Organic Chemistry .....	2	2	2
Chemical Seminary .....	1	1	1
Quantitative Analysis .....	8	8	8
Geology and Palaeobotany .....	2	2	2
General Biology .....	2	2	2
Biological Laboratory .....	2	2	2
English .....	2	2	2
Political Economy .....	2	2	2
Military Drill .....	3	3	3

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

## First Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Elements of Agriculture.....	2	2	--
Staple Crops.....	--	--	2
Agricultural Practice.....	2	2	2
Elementary Horticulture.....	--	2	2
Horticultural Practice.....	2	2	2
Dairying.....	--	3	--
Physical Geography.....	2	--	--
Plant Morphology.....	2	--	2
Algebra.....	4	4	--
Geometry.....	--	--	4
Book-keeping.....	1	1	1
English.....	3	3	3
Military Drill.....	3	3	3

## Second Year.

Soil Physics.....	--	--	3
Agricultural Practice.....	2	2	2
Pomology.....	--	2	2
Landscape Gardening.....	2	2	--
Forestry.....	--	--	2
Entomology.....	2	--	--
Breeds of Live Stock.....	3	--	--
Stock-feeding.....	--	3	--
Poultry.....	--	--	3
Dairy Bacteriology.....	3	--	--
Inorganic Chemistry.....	3	3	3
Inorganic Chemistry (laboratory).....	4	4	4
Elementary Agricultural Chemistry.....	--	2	--
Military Drill.....	3	3	3

III. Special Course, beginning January 2, 1902. (No entrance examination required).

	No. OF HOURS PER WEEK.
Elements of Agriculture .....	2
Agricultural Practice.....	4
Elementary Horticulture.....	2
Horticultural Practice.....	4
Dairying .....	3
Poultry .....	3
Care of Live Stock.....	3
Elementary Agricultural Chemistry .....	2

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

### COURSES IN CIVIL ENGINEERING.

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

#### Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
✓ Free-hand Drawing .....	4	--	--
✓ Mechanical Drawing .....	--	4	4
✓ Elementary Carpentry.....	4	--	--
✓ Wood-turning .....	--	4	--
✓ Cabinet-making .....	--	--	4
✓ Elementary Forge-work.....	2	2	2
✓ Algebra .....	4	4	--
✓ Geometry .....	--	--	4
✓ Book-keeping .....	1	1	1
✓ Elementary Physics .....	2	2	2
✓ English .....	3	3	3
✓ History, or Physical Geog., Physiology and Civics, Military Drill.....	2	2	2
	3	3	3

## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam-engine .....	2	--	--
Architecture .....	1	1	1
Architectural Drawing .....	6	6	6
Geometry .....	4	--	--
Trigonometry .....	--	4	--
Analytical Geometry .....	--	--	4
Electricity and Magnetism .....	--	2	2
Inorganic Chemistry .....	3	3	3
Inorganic Chemistry (laboratory) .....	4	4	4
English .....	2	2	2
Military Drill .....	3	3	3

## Junior Year.

Surveying .....	2	2	2
Surveying (field-work) .....	4	4	4
Construction .....	2	--	--
Mechanics .....	3	--	--
Applied Mechanics .....	--	3	3
Drawing .....	4	4	4
Graphic Statics .....	--	2	2
Analytical Geometry .....	5	--	--
Calculus .....	--	5	5
English and History .....	2	2	2
Military Tactics .....	1	1	1
Military Drill .....	3	3	3



## Senior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Strength of Materials .....	3	--	--
Engineering Laboratory .....	--	4	--
Construction .....	--	2	2
Hydraulics .....	--	2	2
Municipal Engineering .....	2	2	2
Surveying (field-work) .....	8	--	6
Roofs and Bridges .....	2	--	--
Bridge Design .....	--	6	4
Calculus .....	2	--	--
Astronomy .....	--	2	2
English .....	2	2	2
Political Economy .....	2	2	2
Military Drill .....	3	3	3

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

## COURSES IN MECHANICAL ENGINEERING.

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

## Freshman Year.

Free-hand Drawing .....	4	--	--
Mechanical Drawing .....	--	4	4
Elementary Carpentry .....	4	--	--
Wood-turning .....	--	4	--
Cabinet-making .....	--	--	4
Elementary Forge-work .....	2	2	2
Algebra .....	4	4	--
Geometry .....	--	--	4
Book-keeping .....	1	1	1
Elementary Physics .....	2	2	2
English .....	3	3	3
History, or Physical Geog., Physiology and Civics, } .....	2	2	2
Military Drill .....	3	3	3

## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam-engine .....	2	--	--
Mechanical Drawing .....	4	4	4
Pattern-making and Moulding .....	4	4	--
Forging and Tempering .....	--	--	4
Geometry .....	4	--	--
Trigonometry .....	--	4	--
Analytical Geometry .....	--	--	4
Electricity and Magnetism .....	--	2	2
Inorganic Chemistry .....	3	3	3
Inorganic Chemistry (laboratory) .....	4	4	4
English .....	2	2	2
Military Drill .....	3	3	3

## Junior Year.

Steam Engineering .....	--	3	3
Mechanics .....	3	--	--
Applied Mechanics .....	--	3	3
Machine Drawing and Designing .....	4	4	4
Valve Gears .....	2	--	--
Mechanical Engineering Laboratory .....	--	2	2
Forging and Tempering .....	4	--	--
Elementary Machinist's Work .....	--	4	4
Analytical Geometry .....	5	--	--
Calculus .....	--	5	5
Electricity and Magnetism .....	3	--	--
Electrical Engineering Laboratory .....	--	4	4
English .....	2	--	--
Military Tactics .....	1	1	1
Military Drill .....	3	3	3

## Senior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam Engineering -----	2	2	--
Mechanics of Machinery -----	3	3	--
Graphics of Mechanism -----	--	--	3
Boiler Design -----	2	2	2
Machine Design -----	4	4	4
Mechanical Engineering Laboratory -----	4	4	4
Machine Construction -----	6	6	6
Hydraulics -----	--	2	2
Industrial Chemistry -----	--	--	2
Calculus -----	2	--	--
English and Political Economy -----	2	2	2
Military Drill -----	3	3	3

## II. Short (or Manual) Course in Mechanic Arts (two years).

## First Year.

Free-hand Drawing -----	4	--	--
Mechanical Drawing -----	4	8	8
Elementary Carpentry -----	8	--	--
Wood-turning -----	4	4	4
Cabinet-making -----	--	8	8
Elementary Forging -----	4	4	4
Arithmetic -----	5	--	--
Algebra -----	--	5	5
English Composition -----	3	3	3
American History -----	2	2	2
Military Drill -----	3	3	3

## Second Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanical Technology -----	3	3	3
Machine Drawing and Designing -----	8	8	8
Machine Carpentry and Cabinet-making -----	4	4	--
Foundry-work -----	2	2	2
Forging and Tempering -----	4	4	4
Pattern-making -----	--	--	4
Elementary Machinist's Work -----	8	8	8
Algebra -----	4	4	--
Geometry -----	--	--	4
Book-keeping -----	1	1	1
Elementary Physics -----	2	2	2
or			
English -----	3	3	3
Military Drill -----	3	3	3

## III. Special Courses.

(a) **Special Course in Carpenter-work.** No entrance examination required.

Bench and Machine Carpentry -----	24	24	24
Mechanical Drawing -----	8	8	8
Running Engine, care Shafts and Belting,	8	8	8

(b) **Special Course in Machine Shop.** No entrance examination required.

Machinist's Work -----	24	24	24
Mechanical Drawing -----	8	8	8
Running Engine, care Shafts and Belting,	8	8	8

(c) **Special Course in Engine and Boiler-tending.** No entrance examination required.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Firing Boilers-----	16	16	16
Pipe-fitting-----	8	8	8
Engine-running (valve-setting, etc.)-----	8	8	8
Care of Pumps, Shafts and Belting-----	4	4	4
Mechanical Drawing-----	4	4	4

(d) Special Course in Machine Drawing and Designing. No entrance examination required.

Machine Drawing and Designing-----	24	24	24
Shop-work (wood-working)-----	8	8	8
Engine-running, Shafts and Belting-----	8	8	8

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

### COURSES IN ELECTRICAL ENGINEERING.

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

#### Freshman Year.

Free-hand Drawing-----	4	--	--
Mechanical Drawing-----	--	4	4
Elementary Carpentry-----	4	--	--
Wood-turning-----	--	4	--
Cabinet-making-----	--	--	4
Elementary Forge-work-----	2	2	2
Algebra-----	4	4	--
Geometry-----	--	--	4
Book-keeping-----	1	1	1
Elementary Physics-----	2	2	2
English-----	3	3	3
History, or Phys. Geography, Physiol. and Civics, } Military Drill-----	2	2	2
	3	3	3

## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam-engine .....	2	--	--
Mechanical Drawing .....	4	4	4
Forging and Tempering .....	4	--	--
Geometry .....	4	--	--
Trigonometry .....	--	4	--
Analytical Geometry .....	--	--	4
Electricity and Magnetism .....	2	2	2
Physical Laboratory .....	--	4	4
Inorganic Chemistry .....	3	3	3
Inorganic Chemistry (laboratory) .....	4	4	4
English .....	2	2	2
Military Drill .....	3	3	3

## Junior Year.

Electricity and Magnetism .....	3	--	--
Dynamo Machinery .....	--	2	2
Electrical Laboratory .....	4	--	--
Electrical Engineering Laboratory .....	--	4	4
Steam Engineering .....	--	3	3
Mechanics .....	3	--	--
Applied Mechanics .....	--	3	3
Machine Drawing and Designing .....	4	--	--
Analytical Geometry .....	5	--	--
Calculus .....	--	5	5
English and History .....	2	2	2
Military Tactics .....	1	1	1
Military Drill .....	3	3	3

## Senior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Alternating Currents of Electricity-----	3	--	--
Light and Power Plants-----	--	3	3
Electrical Engineering Laboratory-----	6	6	6
Dynamo Design-----	2	2	2
Steam Engineering-----	2	--	--
Mechanical Engineering Laboratory-----	--	4	4
Machine Construction-----	4	4	--
Hydraulics-----	--	2	2
Industrial Chemistry-----	--	--	2
Calculus-----	2	--	--
English-----	2	2	2
Political Economy-----	2	2	2
Military Drill-----	3	3	3

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

## COURSES IN CHEMICAL ENGINEERING.

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

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

## Freshman Year.

Free-hand Drawing-----	4	--	--
Mechanical Drawing-----	--	4	4
Elementary Carpentry-----	4	--	--
Wood-turning-----	--	4	--
Cabinet-making-----	--	--	4
Elementary Forge-work-----	2	2	2
Algebra-----	4	4	--
Geometry-----	--	--	4
Book-keeping-----	1	1	1
Elementary Physics-----	2	2	2
English-----	3	3	3
History, or Phys. Geography, Physiology and Civics, } Military Drill-----	2	2	2
	3	3	3

## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam-engine -----	2	--	--
Mechanical Drawing -----	4	4	4
Forging and Tempering -----	4	--	--
Geometry -----	4	--	--
Trigonometry -----	--	4	--
Analytical Geometry -----	--	--	4
Electricity and Magnetism -----	--	2	2
Physical Laboratory -----	--	4	4
Inorganic Chemistry -----	3	3	3
Inorganic Chemistry (laboratory) -----	4	4	4
English -----	2	2	2
Military Drill -----	3	3	3

## Junior Year.

Steam Engineering -----	--	3	3
Mechanical Engineering Laboratory -----	--	2	2
Analytical Geometry -----	5	--	--
Calculus -----	--	5	5
Electricity and Magnetism -----	3	--	--
Electrical Laboratory -----	4	--	--
Electrical Engineering Laboratory -----	--	4	4
Organic Chemistry -----	2	2	2
Qualitative Analysis -----	4	4	4
English and History -----	2	2	2
Military Tactics -----	1	1	1
Military Drill -----	3	3	3



## Senior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Mechanics .....	3	--	--
Applied Mechanics .....	--	3	3
Mechanical Engineering Laboratory .....	4	4	4
Industrial Chemistry .....	2	2	2
Chemical Seminary .....	1	1	1
Quantitative Analysis .....	8	8	8
English and Political Economy .....	2	2	2
Elective .....	3	3	3
Military Drill .....	3	3	3

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

## COURSES IN COTTON MANUFACTURING.

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

## Freshman Year.

Free-hand Drawing .....	4	--	--
Mechanical Drawing .....	--	4	4
Elementary Carpentry .....	4	--	--
Wood-turning .....	--	4	--
Cabinet-making .....	--	--	4
Elementary Forge-work .....	2	2	2
Algebra .....	4	4	--
Geometry .....	--	--	4
Book-keeping .....	1	1	1
Elementary Physics .....	2	2	2
English .....	3	3	3
History,	2	2	2
or			
Phys. Geography, Physiology and Civics, }	3	3	3
Military Drill .....			

## Sophomore Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Steam-engine .....	2	--	--
Mechanical Drawing .....	4	4	4
Forging and Tempering .....	4	4	--
Elementary Machinist's Work .....	--	--	4
Geometry .....	4	--	--
Trigonometry .....	--	4	--
Analytical Geometry .....	--	--	4
Electricity and Magnetism .....	--	2	2
Inorganic Chemistry .....	3	3	3
Inorganic Chemistry (laboratory) .....	4	4	4
English .....	2	2	2
Military Drill .....	3	3	3

## Junior Year.

Steam Engineering .....	--	3	3
Electricity and Magnetism .....	3	--	--
Machine Drawing and Designing .....	4	4	4
Carding and Spinning .....	6	6	6
Weaving .....	6	6	6
Textile Designing .....	4	4	4
English and History .....	2	2	2
Military Tactics .....	1	1	1
Military Drill .....	3	3	3

## Senior Year.

Machine Design and Mill Engineering .....	4	4	4
Textile Chemistry and Dyeing .....	2	2	2
Textile Chemistry and Dyeing (laboratory) .....	4	4	4
Carding and Spinning .....	6	6	6
Weaving .....	6	6	6
Textile Designing .....	6	6	6
English and Political Economy .....	2	2	2
Military Drill .....	3	3	3

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

## First Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing -----	4	--	--
Mechanical Drawing -----	--	4	4
Inorganic Chemistry -----	3	3	3
Inorganic Chemistry (laboratory) -----	4	4	4
Carding and Spinning -----	6	6	6
Weaving -----	6	6	6
Textile Designing -----	4	4	4
English -----	3	3	3
Military Drill -----	3	3	3

## Second Year.

Carding and Spinning -----	6	6	6
Weaving -----	6	6	6
Textile Designing -----	6	6	6
Textile Chemistry and Dyeing -----	2	2	2
Textile Chemistry and Dyeing (laboratory) -----	4	4	4
Steam-engine -----	2	--	--
Mechanical Drawing -----	4	4	4
Electricity and Magnetism -----	--	2	2
Military Drill -----	3	3	3

## COURSE IN DYEING.

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

## Freshman Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK		
	1st Term.	2d Term.	3d Term.
Free-hand Drawing -----	4	--	--
Mechanical Drawing -----	--	4	4
Elementary Carpentry -----	4	--	--
Wood-turning -----	--	4	--
Cabinet-making -----	--	--	4
Elementary Forge-work -----	2	2	2
Algebra -----	4	4	--
Geometry -----	--	--	4
Book-keeping -----	1	1	1
Elementary Physics -----	2	2	2
English -----	3	3	3
History, or Phys. Geography, Physiology and Civics, } Military Drill -----	2	2	2
	3	3	3

## Sophomore Year.

Steam-engine -----	2	--	--
Mechanical Drawing -----	4	4	4
Forging and Tempering -----	4	4	--
Elementary Machinist's Work -----	--	--	4
Geometry -----	4	--	--
Trigonometry -----	--	4	--
Analytical Geometry -----	--	--	4
Electricity and Magnetism -----	--	2	2
Inorganic Chemistry -----	3	3	3
Inorganic Chemistry (laboratory) -----	4	4	4
English -----	2	2	2
Military Drill -----	3	3	3

## Junior Year.

SUBJECTS.	NUMBER OF HOURS PER WEEK.		
	1st Term.	2d Term.	3d Term.
Textile Chemistry and Dyeing-----	2	2	2
Textile Chemistry and Dyeing (laboratory)	4	4	4
Organic Chemistry-----	2	2	2
Qualitative Analysis-----	4	4	4
Textile Designing-----	4	4	4
Electricity and Magnetism-----	3	—	—
Steam Engineering-----	—	3	3
Machine Drawing and Designing-----	4	4	4
English and History-----	2	2	2
Military Tactics-----	1	1	1
Military Drill-----	3	3	3

## Senior Year.

Chemistry of Dye-stuffs-----	2	2	2
Dyeing-----	2	2	2
Dyeing (laboratory)-----	8	8	8
Industrial Chemistry-----	2	2	2
Qualitative Analysis-----	8	8	8
Chemical Seminary-----	1	1	1
English and Political Economy-----	2	2	2
Military Drill-----	3	3	3

## SUBJECTS OF INSTRUCTION.

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

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

### AGRICULTURE.

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

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

**3. Soil Physics.**—French's *Farm Drainage*. A discussion of the physical condition of the soil; farm drainage in all its phases, open ditches, pole drains, stone drains, plank drains, and last and best of all, tile drains. The students are taught to reconnoiter the ground, survey the land, take the levels, dig the ditches, and lay the tile. Three hours, third term. Required of Juniors in Agriculture. Professor IRBY.

**4. Meteorology.**—Waldo's *Meteorology*. Especial attention is paid to the climatology of North Carolina. The students are made to

realize the importance of a knowledge of this new science and its relation to Agriculture. Two hours, first term. Required of Juniors in Agriculture. Professor IRBY.

**5. Agricultural Seminary.**—This consists in reviewing and discussing the leading State and United States bulletins, etc. One hour. Required of Seniors in Agriculture taking Group A. Professor IRBY.

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

## GEOLOGY.

**1. Physical Geography.**—Tarr's *Physical Geography*. Two hours, first term. Required of all Freshmen in Agriculture. Elective for students in Engineering and Textile Industry. Professor MASSEY.

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

## BOTANY.

**1. Plant Morphology.**—Bailey's *Lessons with Plants*. Two hours' practice, first and third terms. Required of Freshmen in Agriculture. Mr. HYAMS.

**2. Systematic Botany.**—Two hours, third term. Required of Sophomores in Agriculture. Mr. HYAMS.

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

**4. Botanical Laboratory.**—Histology. Two hours, second and third terms. Required of Juniors in Agriculture. Mr. HYAMS.

**5. Biology.**—Dodge and Huxley and Martin. Lectures. Two hours. Required of Seniors in Agriculture. Professor MASSEY.

**6. Biology.**—Laboratory work. Two hours. Required of Seniors in Agriculture. Professor MASSEY.

**HORTICULTURE.**

**1. Elementary Horticulture.**—Massey's *Trucking in the South*. Two hours, second and third terms. Required of Freshmen in Agriculture. Professor MASSEY.

**2. Market Gardening.**—Lectures on the theory and practice of growing vegetables in the open ground and under glass commercially. Two hours, first term. Required of Seniors in Agriculture taking Group A. Professor MASSEY.

**3. Floriculture.**—Lectures on commercial floriculture, construction of horticultural buildings, green-house management and general trade methods. Two hours, second term. Required of Seniors in Agriculture taking Group A. Professor MASSEY.

**4. Landscape Gardening.**—Lectures on the history of garden art and styles of ornamental gardening, planning of country places and farm-houses and improvement of grounds in general. Two hours, first and second terms. Required of Juniors in Agriculture. Professor MASSEY.

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

**6. Horticultural Practice.**—Two hours. Required of Sophomores in Agriculture. Two hours, first term. Required of Juniors in Agriculture. Mr. RHODES.

**7. Pomology.**—Bailey's *Principles of Fruit Growing*. Two hours, second and third term. Required of Sophomores in Agriculture. RHODES.

**8. Horticultural Seminary.**—Two hours, third term. Required of Seniors in Agriculture taking Group A. Professor MASSEY.

**ZOOLOGY.**

**1. Entomology.**—Two hours, first term. Required of Sophomores in Agriculture. Mr. HYAMS.

**2. Human Physiology.**—Lectures. Lectures will be illustrated by charts and models. Two hours, second term. Required of all Freshmen in Agriculture. Elective for Freshmen in Engineering and in Textile Industry. Professor IRBY.

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



**ANIMAL INDUSTRY.**

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

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

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

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

How the different breeds of sheep and hogs were developed for their several places. Three hours, first term. Required of Sophomores in Agriculture. Mr. JOHNSON.

**3. Poultry-keeping.**—The origin, history, and classification of the domestic breeds of poultry; breeding, feeding, and management of fowls; locating and arranging the poultry plant, construction of building, incubators, and brooders will be discussed in lectures. Three hours, third term. Required of Sophomores in Agriculture. Mr. JOHNSON.

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

**5. Stock-feeding.**—Lectures. Reference books: Armsby, Stewart, and Henry. Topics: best feed stuffs, composition of feeds, balancing of rations, and best methods of caring for stock. Three hours, second term. Required of Juniors in Agriculture. Mr. JOHNSON.

**6. Veterinary Medicine.**—Report of the United States Department of Agriculture on the Diseases of the Horse. Only the most common diseases are discussed and their prevention and treatment given. Three hours, third term. Required of Juniors in Agriculture. Dr. W. E. WEIHER.

**7. Stock-breeding.**—Miles' *Stock-Breeding*. In this they learn the power and importance of heredity, atavism, law of correlation, cross-breeding, and grading. The importance of pedigrees and the keeping of official records is impressed on their minds. How the different

breeds were produced and how the different breeders' associations are formed and maintained. Three hours, second term. Required of Seniors in Agriculture taking Group A. Professor IRBY.

**8. Practice Work.**—Two hours, first and third term. Required of Freshmen in Agriculture. Professor IRBY.

**9. Practice Work.**—Work in barn, dairy, and field correlating with the work in the class-room. Judging cattle with the score-card, milking, feeding the stock, testing milk, running the separator and churn. Practice work will be given in running incubators and brooders; judging and selecting fowls; and preparing poultry for market and keeping records. Four hours, third term. Required of Sophomores in Agriculture. Professor IRBY and Mr. JOHNSON.

**10. Practice Work.**—Two hours, second term. Required of Juniors in Agriculture. Professor IRBY and Mr. JOHNSON.

**11. Practice Work.**—This includes work with stock, work and observation on different field operations, setting up and running of farm machinery, and planning various farm buildings. Two hours, second and third terms. Required of Seniors in Agriculture taking Group A. Professor IRBY.

### ARCHITECTURE.

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

**2. Architectural Drawing.**—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Six hours. Required of Sophomores in Civil Engineering. Mr. Fox.

### CIVIL ENGINEERING.

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

**2. Surveying.**—Land surveying, leveling, elements of triangulation, topographical surveying, road making. Merriman's *Land Surveying*. Two hours, first term. Required of Juniors in Civil Engineering and of Seniors in Agriculture taking Group A. Mr. ABBOTT.

**3. Railroad Engineering.**—Reconnoissance, preliminary, and

location surveys, cross-sections, etc. Searles' *Field Engineering*. Two hours, second and third terms. Required of Juniors in Civil Engineering. Mr. ABBOTT.

**4. Surveying, Field-work.** Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes and platting. Four hours. Required of Juniors in Civil Engineering. Four hours, first term. Required of Seniors in Agriculture taking Group A. Mr. ABBOTT.

**5. Municipal Engineering.**—Text-book, Lectures. Two hours, second and third terms. Required of students in Civil Engineering. Professor RIDDICK.

**6. Surveying (Field-work).**—Triangulation and topography, surveys for sewers, water-works, etc. Eight hours, first term; six hours, third term. Required of Seniors in Civil Engineering. Mr. MANN.

**7. Roofs and Bridges.**—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and Bridges*. Original problems. Two hours, first term. Required of Seniors in Civil Engineering. Mr. ABBOTT.

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

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

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

**11. Astronomy.**—Descriptive and practical astronomy. Two hours, second and third terms. Required of Seniors in Civil Engineering. Professor RIDDICK.

## MECHANICAL ENGINEERING.

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

**2a. Elementary Mechanical Drawing.**—Use of instruments. Drawing practice on elementary machine pieces. Elementary projections. Drawings made to scale from working sketches of pieces of machines. Four hours, second and third terms. Required of all Freshmen. Four hours, first term; eight hours, second and third terms. Required of second-year class in Mechanic Arts. Mr. CHITTENDEN and Mr. HUBARD.

**2b. Mechanical Drawing.**—Isometric sketches from mechanical drawings. Elements of machine design. Working sketches and drawings of simple machine parts from the model. Shadow lines. Four hours. Required of Sophomores in Mechanical, Electrical, and Chemical Engineering and in Textile Industry. Mr. CHITTENDEN.

**2c. Mechanical Drawing.**—Isometric sketches from mechanical drawings. Elements of machine design. Working sketches and drawings of simple machine parts from the model. Shadow lines. Sketching and making finished drawings, tracings and blue-prints from tools and machines in shops and laboratories. Elementary designing. Eight hours. Required of second-year class in Mechanic Arts.

**4a. Elementary Carpentry.**—Use of bench tools, working from drawings, principles of correct measurement, lining, planing and sawing, exercises in common joints used in building. Mechanical technology. Four hours, first term. Required of Freshmen in Engineering and in Textile Industry. Eight hours, first term. Required of first-year class in Mechanic Arts. Two hours, first and second terms. Required of Freshmen in Agriculture. Mr. BRAGG.

**4b. Wood-turning.**—Use of wood lathe, care and adjustment of parts, care of pulleys, shafting, and belting, care of lathe tools, elementary wood-turning. Mechanical technology. Four hours, second term. Required of Freshmen in Engineering and Textile Industry. Four hours. Required of first-year class in Mechanic Arts. Mr. CARTER.

**4c. Cabinet-making.**—Construction of brackets, book-shelves, tables, and simple furniture in which the uses and operation of the saw-bench, surface planer, jig saw, lathes, shaper, and other wood-working machines are taught. Mechanical technology. Four hours, third term. Required of Freshmen in Engineering and Textile Industry. Eight hours, second and third terms. Required of first-year class in Mechanic Arts. Mr. BRAGG and Mr. CARTER.

**4d. Machine Carpentry and Cabinet-making.**—Instruction in making sash, doors, blinds, mantels, tables, washstands, and bureaus.

Four hours, first and second terms. Required of second-year class in Mechanic Arts. Mr. BRAGG and Mr. CARTEL.

**5a. Elementary Forge-work.**—The names, uses, and care of ordinary forge tools. The fire, its preparation. Effect and adjustment of blast, proper use and economy of fuel. Characteristics of wrought-iron, how affected by heat, forging, welding, burning. Practice in making simple exercises by forging and welding of iron. Two hours. Required of all Freshmen in Engineering. Two hours, third term. Required of Freshmen in Agriculture. Four hours. Required of first-year class in Mechanic Arts. Mr. PARK.

**5b. Forging and Tempering.**—Effect of heat on iron and steel, theory of welding and use of fluxes. Hard and soft steel, welding, hardening, and tempering steel, tool-temper, spring-temper, case hardening. Practice in making iron and steel tools, difficult forging, welding, and tempering. Four hours, third term. Required of Sophomores in Mechanical Engineering. Four hours, first term. Required of Juniors in Mechanical Engineering and Sophomores in Electrical and Chemical Engineering. Four hours, first and second terms. Required of Sophomores in Textile Industry. Four hours. Required of second-year class in Mechanic Arts. Mr. PARK.

**7. Pattern-making.**—Exercises in the construction of patterns of pipe bends, pulleys, valves, and parts of machine tools, with explanations of moulding, draft, shrinkage, fillets, and core boxes. Four hours, first and second terms. Required of Sophomores in Mechanical Engineering. Four hours, third term. Required of second-year class in Mechanic Arts. Mr. BRAGG and Mr. CARTEL.

**8a. Elementary Machinist's Work.**—Bench and machine work in iron, steel, and brass. Exercises in chipping straight and grooved surfaces in cast and wrought-iron, in filing to line and to template and in fitting. Exercises on machine tools in centering, chucking, straight and taper-turning, boring, reaming, drilling, planing, milling and shaper-work. Also use and care of hand tools and machine tools. Care of bearings, shafting, belting, pulleys, and similar accessories. Cutting tools, proper form and position of the cutting edge, speed and weight of cutting with different materials. Four hours, second and third terms. Required of Juniors in Mechanical Engineering. Four hours, third term. Required of Sophomores in Textile Industry. Eight hours. Required of second-year class in Mechanic Arts. Mr. PARK.

**8b. Machine Construction.**—Making the parts of some machine or of a steam-engine. Instruction in making tools, such as arbors,

taps, reamers, cutting of gears and the more difficult operations of fitting. Six hours. Required of Seniors in Mechanical Engineering. Four hours, first and second terms. Required of Seniors in Electrical Engineering. MR. PARK.

**9. Mechanical Technology.**—Tools, their classification and uses. Mechanical principles involved in the construction and use of different hand and machine tools and their adaptation for working various materials. Reference books, printed notes, and shop-talks. Special hours in shop-time. Required of all classes in shop-work. Three hours. Required of second-year class in Mechanic Arts. SHOP INSTRUCTORS.

**10. Steam-engine.**—Descriptive study of Engines and Boilers, covering the details of cylinders, pistons, valves, connecting-rods, bed plates, foundations, and the ordinary types of boilers with their settings. Holmes' *The Steam Engine*, supplemented by sketching from cuts, drawings, and such engines and boilers as are accessible. Two hours, first term. Required of Sophomores in Engineering and Textile Industry. PROFESSOR SCRIBNER.

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

**12. Pure and 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. Study of materials, law of stress and strain, bending and resisting moment, shear and moment diagrams, shear and elastic curves of cantilever, simple, restrained, and continuous beams, column formulas, torsion, maximum internal stresses, common flexure theory tested by experiment, problems in beams, analysis and design, specifications. Church's *Mechanics of Engineering*. Three hours. Required of all Juniors in Civil, Mechanical, and Electrical Engineering and of Seniors in Chemical Engineering. PROFESSOR SCRIBNER.

**13a. Machine Drawing and Designing.**—Making working sketches, finished drawing, tracings and blue prints, from the tools and machines in the laboratories. Designing parts of tools or some piece of mechanism. Four hours. Required of Juniors in Mechanical Engineering and in Textile Industry. Four hours, first term.

Required of Juniors in Electrical Engineering. Professor SCRIBNER and Mr. HUBARD.

**13b. Machine Design.**—Complete design and drawing of some piece of mechanism, involving cam motion, gearing, etc., design of some piece of machinery, such as a punch, shears, riveting machine, crane, pump, hoist, water-motor, etc., studies and sketches of existing machines, determination of dimensions according to practice. *Unwin, Reuleaux, Kent, Haswell, Klein, Weisbach, Richards*, etc. Four hours. Required of Seniors and Post-graduates in Mechanical Engineering. Professor SCRIBNER.

**14a. Steam Engineering.**—Nature and measurement of heat, its effect on gases and water, theory of the Steam-engine. Expansion and cushioning, indicator cards, simple and compound engines, the condenser, steam jacket, steam-engine efficiencies. Types of boilers, materials used, construction, staying, settings, furnaces and chimneys, fittings and appliances, boiler power, use and care of boilers, fuels, and combustion, corrosion and incrustation. *Holmes' Steam Engine, Peabody and Miller's Steam Boilers*, lectures, and reference books. Three hours, second and third terms. Required of all Juniors in Engineering and in Textile Industry. Professor SCRIBNER.

**14b. Steam Engineering.**—Engine Analysis. Mechanics of the reciprocating parts, fly-wheel and governor; various types, such as the plain slide-valve, the Corliss, the high-speed automatic engine; their comparative efficiency and adaptation to varying requirements; commercial efficiency, commercial tests, equipment of power plants. Lecture notes and reference books. Two hours, first and second terms. Required of Seniors in Mechanical Engineering. Two hours, first term. Required of Seniors in Electrical Engineering. Professor SCRIBNER.

**16a. Mechanical Engineering Laboratory.**—Determination of leverages and velocity ratios, testing ganges, indicator springs, weirs, dynamometers, tests of materials for strength, co-efficient of friction, valve-setting, indicator practice. Two hours, second and third terms. Required of Juniors in Chemical and Mechanical Engineering. Professor SCRIBNER and Mr. HUBARD.

**16b. Mechanical Engineering Laboratory.**—Investigation of the efficiency of screws, hoists, and machine tools; efficiency tests of steam boilers, injectors, steam pumps, steam-engines, hot-air engines, gas-engines, motors and dynamos, also of complete power plants. Original experiment and thesis work. Four hours. Required of Seniors and Post-graduates in Mechanical and Chemical Engineering.

Four hours, second and third terms. Required of Seniors in Electrical Engineering. Professor SCRIBNER and Mr. HUBARD.

**17. Mechanics of Machinery.**—Application of the laws of forces to machines, determination of motive or driving forces, including consideration of acceleration, inertia, friction, wear, and efficiency by use of analytical methods; solution of problems. Kennedy's *Mechanics of Machinery*. Also lecture notes and reference books. Three hours, first and second terms. Required of Seniors in Mechanical Engineering. Professor SCRIBNER.

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

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

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

**21. Thermodynamics.**—Mechanical theory of heat. Application to steam, air and gas-engines, and refrigerating machinery. Two hours, for Post-graduates. Professor SCRIBNER.

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



**PHYSICS.**

**1. 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 hours. Required of Freshmen in Engineering and Textile Industry. Elective in the Course in Agriculture.

**2. Elementary Lessons in Electricity and Magnetism.**—Two hours, second and third terms. Required of Sophomores in Engineering and Textile Industry. Three hours, first term. Required of Juniors in Mechanical, Electrical, and Chemical Engineering and Textile Industry.

**3. Physical Laboratory.**—Measurements of length, area, and volume; determinations of density; laws of forces and velocities; pendulum. Four hours, second and third terms. Required of Sophomores in Electrical and Chemical Engineering.

**4. Electrical Laboratory.**—Electric and magnetic measurements. Four hours, first term. Required of Juniors in Electrical and Chemical Engineering.

**ELECTRICAL ENGINEERING.**

**1. Dynamo Machinery.**—Practical units. Dynamo-electric machines. Dynamos and motors. Efficiency. Characteristic curves. Two hours, second and third terms. Required of Juniors in Electrical Engineering.

**2. Alternating Currents of Electricity.**—Alternating current generators and motors. Static and rotary transformers. Condensers. Three hours, first term. Required of Seniors in Electrical Engineering.

**3. Electric Light and Power Plants.**—Storage batteries. Transmission of electric power. Three hours, second and third terms. Required of Seniors in Electrical Engineering.

**4. Electrical Engineering Laboratory.**—Standardizing of measuring instruments. Measurements of power. Characteristic curves. Four hours, second and third terms. Required of Juniors in Electrical, Mechanical, and Chemical Engineering.

**5. Electrical Engineering Laboratory.**—Efficiency tests of direct and alternating current dynamos and motors and of transformers. Efficiency tests of electric plants. Photometry. Two hours, throughout the entire year. Required of Seniors in Electrical Engineering.

**6. Designing of Electrical Machinery.**—Design of dynamos, motors, and transformers. Two hours, throughout the entire year. Required of Seniors in Electrical Engineering.

### CHEMISTRY.

**1a. 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 and recitations are illustrated with experiments and the exhibition of specimens. Three hours. Required of all Sophomores. Professor WITHERS and Dr. FRAPS.

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

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

**3a. 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 taken up. Two hours. Required of Juniors in Chemical Engineering and in Dyeing and of Seniors in Agriculture taking Group B. Mr. BIZZELL.

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

**4a. Quantitative Analysis.**—Laboratory work. After the completion of the determinations involving a training in quantitative manipulation, the work of the student is arranged to correspond with his course of study. Recitations are held from time to time to test the student's knowledge of the chemical changes involved in the determinations. Eight hours. Required of Seniors in Chemical Engineering, in Dyeing, and in Agriculture taking Group B. Professor WITHERS and Mr. BIZZELL.

**4b. Quantitative Analysis.**—Laboratory work. A continuation of 4a. Required of Post-graduates in Chemistry. Professor WITHERS.

**5. Chemical Seminary.**—A review and discussion of current chemical literature. One hour. Required of Seniors in Chemical Engineering, in Dyeing, and in Agriculture taking Group B. Professor WITHERS.

**6a. Elementary Agricultural Chemistry.**—Snyder's *Chemistry of Soils and Fertilizers*. Two hours, second term. Required of special students in Agriculture and of second-year students in the Short Agricultural Courses. Professor WITHERS.

**6b. Agricultural Chemistry.**—Attention is given to a consideration of the atmosphere as a plant-feeder; the constituents of the plant and their functions; the chemistry of soils and fertilizers; the preparation of manures and composts; the composition of feeding-stuffs; the principles of feeding animals, etc. Three hours. Required of Juniors in Agriculture. Professor WITHERS.

**7a. Industrial Chemistry.**—Thorpe's *Outlines of Industrial Chemistry*. A discussion of the processes and principles involved in the more important chemical industries. Two hours, first and second terms. Required of Seniors in Chemical Engineering and in Dyeing. Professor WITHERS.

**7b. Industrial Chemistry.**—A discussion of the materials of engineering. Two hours, third term. Required of Seniors in Mechanical, Electrical, and Chemical Engineering and Dyeing. Professor WITHERS.

**8b. Textile Chemistry and Dyeing.**—Lectures. A study of the chemistry of textile fibres and the principles involved in bleaching, dyeing, and printing. Two hours. Required of Juniors in Dyeing and of Seniors in Cotton Manufacturing. Dr. FRAPS.

**8c. Textile Chemistry and Dyeing.**—Laboratory work. The experiments are designed to accompany Course 8a. The student becomes acquainted with the most important dyes and the methods of applying them. Four hours. Required of Juniors in Dyeing and of Seniors in Cotton Manufacturing. Dr. FRAPS.

**9. Chemistry of Dye-stuffs.**—Nietzki's *Chemistry of the Organic Dye-stuffs*. A study of the chemistry of the dye-stuffs and the processes involved in their manufacture. Two hours. Required of Seniors in Dyeing. Dr. FRAPS.

**10a. Dyeing.**—Lectures. A further study of the properties and modes of application of dye-stuffs and mordants. Two hours. Required of Seniors in Dyeing. Dr. FRAPS.

**10b. Dyeing Laboratory.**—Involves practical work in dye-house and a study of the testing of dyes and their properties. Eight hours. Required of Seniors in Dyeing. Dr. FRAPS.

**COTTON MANUFACTURING.**

**1. 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; railway-heads; drawing-frames; slubbers; intermediates; speeders; jacks. Ring spinning-frames and mules. Spoolers and warpers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Six hours. Required of Juniors and Seniors in the full course and of first and second-year students in the short course in Cotton Manufacturing.

**2. Weaving.**—Lectures and recitation; practice in operating looms, warp preparation, cloth-room and finishing machinery. Preparing warp for the looms; section-warpers; beam-warpers; pin-frame warping. Sizing; size-vats; slashers. Drawing-in and reeding. Weaving; hand and power-looms; loom-fixing; plain, box and dobby-looms; explaining and setting the principal motions; producing plain and fancy cotton goods of various coloring, design and texture. Finishing; gray goods and colored cottons; folding and packing for the market. Six hours. Required of Juniors and Seniors in the full course and of first and second-year students in the short course in Cotton Manufacturing.

**3. Textile Designing.**—Lectures and practice in analyzing and constructing fabrics from weave and color stand-point. Fabric structure; warp and filling; plain weaves; weaves constructed on plain basis; twill weaves; weaves based on twills; regular and fancy twills; satin weaves; weaves based on satins; combination weaves. Designing shirts and cotton dress-goods, plain and fancy; special cotton fabrics. Fabric analysis; structure; coloring and counts of warp and filling; computing costs of yarns and fabrics; yarn and cloth calculations; drafting and chain-building; calculations for reeds and harness. Four hours. Required of Juniors and Seniors in the full course and of first and second-year students in the short course in Cotton Manufacturing and of Juniors in Dyeing.

**4. Mill Engineering.**—Lectures and practice in mill-work, mill construction and mill superintendence. Proper speeds, drafts and production on all machines. Mill construction; equipments; arrange-

ments of machinery; heating; lighting; ventilation; sanitation; power systems; steam, electricity, and water; transmission by belt and by rope. Mill book-keeping and systems of economy. Four hours. Required of Seniors in the full course in Cotton Manufacturing.

### MATHEMATICS.

**1. Arithmetic.**—Begin with decimal fractions and complete the subject. Five hours, first term. Milne's *Standard Arithmetic*. Required of first-year students in short course in Mechanic Arts. Mr. FOY and Mr. MANN.

**2. Algebra.**—Up to quadratic equations. Five hours, second and third terms. Required of students in first year of short course in Mechanic Arts. Well's *Higher Algebra*. Mr. YATES and Mr. ABBOTT.

**3. Advanced Algebra.**—Begin at quadratic equations; general theory of equations, solution of higher equations, etc. Four hours, first and second terms. Well's *Higher Algebra*. Required of all Freshmen in full courses and of second-year students in short course in Mechanic Arts. Mr. YATES and Mr. ABBOTT.

**4. Geometry.**—Plane and Solid. Four hours, third term. Required of all Freshmen in full courses and of second-year students in short course in Mechanic Arts. Four hours, first term. Required of all Sophomores. Wentworth's *Plane and Solid Geometry*. Mr. YATES and Mr. ABBOTT.

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

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

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

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

**ENGLISH.**

**1. Introductory Rhetoric and Composition.**—Scott & Denny's *Composition Rhetoric* and Buehler's *Exercises* are used as texts. These are accompanied by drills on the forms of the language and methods of sentence formation. The student is taught to plan all work, and every effort is made to develop his constructive faculties. Three hours a week. Required of all Freshmen. Professor HILL and Mr. WRIGHT.

**2. Rhetoric.**—Newcomer's *Rhetoric*. The organic parts of discourse and the essential qualities of good style are considered. Especial study is given this year to themes in narration and description. Many exercises are required. Required of all Sophomores. Two hours for two terms. Professor HILL.

**3. Analysis and Construction of Themes in Exposition and Argumentation.**—Two hours, one term. Required of all Seniors.

**4. American Literature.**—By means of an introductory text and by much reading students are introduced to what is best in the literature of their own country. Books are studied at first hand. Synopses, paraphrases, and critiques required. Two hours for one term. Professor HILL.

**5. 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. Required of all Seniors. Professor HILL.

**HISTORY.**

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

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

**CIVICS AND POLITICAL ECONOMY.**

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

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

**MILITARY SCIENCE.**

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

**Tactics.**—Theoretical instruction in the Schools of the Soldier, Company, and Battalion in close and Extended Order; Ceremonies, etc. One hour. Required of all Juniors. Captain PHELPS.

## EQUIPMENT FOR INSTRUCTION.

The College possesses the following equipment for instruction:

**In Agriculture.**—The farm includes six hundred acres, with one hundred under cultivation, a large basement barn, 50x72 feet, three stories; first floor occupied by cattle; second story by horses, machinery, tools, grain-bins, etc.; third story by hay, which is elevated by a Ricker & Montgomery hay-carrier. Just outside the barn are two seventy-ton circular silos. These are connected with a No. 18 Ohio standard feed and ensilage cutter. The power of cutting is supplied by an eight-horse-power Skinner engine. The farm is supplied with a Kemp manure spreader, Favorite seed drill, cutaway harrows, etc. The dairy building contains three rooms and a cellar, besides a large room above, used as an Agricultural Society hall, in which the students' Agricultural Society meets on Saturday nights. The dairy is supplied with a De Laval, Sharpless, United States, and Reid separators, Babcock tester, rectangular churn, butter-worker, cheap heating apparatus, etc. The cellar is cemented, and has a cemented trough on one side, through which flows water from a spring situated above the dairy. This is an abundant water supply, and serves a useful purpose in ripening cream.

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

The poultry-yard is divided into sixteen lots. Buildings consist of basement, incubator-house, brooder-house, and hen-houses. The Cyphers and Prairie State incubators are in use. The poultry-yard contains the following breeds: Black Langshans, White Wyandottes, White and Barred Plymouth Rocks, Black Minorcas, Brown Leg-horns, and Pekin Ducks.

**In Botany.**—The Botanical Laboratory is equipped with sixteen compound microscopes of the best American and European makes, a supply of dissection lenses, and chemicals and staining fluids used in histological work. The Herbarium is fairly good, and is being



added to by collections and exchanges. The collection of weed seeds and of cultivated plants is very full, and is an important factor in the acquirement of a knowledge of the appearance of various seeds and fruits.

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

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

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

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

The laboratory is provided with the necessary apparatus for making boiler and engine tests and other work of an experimental character. The equipment consists of a two-horse-power engine, a ten-horse-power engine (both of which were built by the students), a twenty-five-horse-power Woodbury engine, a large Wheeler surface condenser, connected with a  $4\frac{1}{2} \times 6 \times 6$  Blake air-pump, a 50,000-lbs. Riehle stand-

ard screw-power testing machine, a Riehle improved cement testing machine with screw beam and necessary appliances, a large Ericsson hot-air pumping engine, apparatus for making analysis of flue gases, a hydraulic ram, a large Sturtevant fan and engine, a small water-motor, a Worthington water-meter, friction brakes, weirs, indicators, planimeters, slide rules, thermometers, calorimeters, gauges, tanks, scales, a Crosby gauge tester, and other apparatus for making tests.

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

The shops are equipped as follows:

The wood-working equipment consists of fifteen double carpenters' benches, which accommodate thirty students, and all necessary tools for each bench; twenty-five 12-inch swing turning lathes, each lathe being fully equipped with turning tools; a rip and 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 30-inch hand saw; a large jig saw; a shaper or edge moulding machine, with a very complete set of moulding cutters; a 38-inch grindstone; a wood trimmer; an adjustable mitre-box; a steam glue-heater and a large assortment of screw clamps and of bar carpenters' clamps, both iron and wooden.

The forge shop equipment consists of twenty-three Sturtevant hand forges and two Buffalo blast forges, latter having four fires each, all of which are provided with anvils and tools consisting of swagers, flatters, sets, chisels, etc.

The machine shop contains a 16-inch swing Davis and Eagan lathe with 10-foot bed, a 14-inch Winsor lathe with 3-foot bed, a 13-inch Barnes lathe with 5-foot bed, a 14-inch Putnam lathe with 4-foot bed, a 18-inch Prentiss shaper, a 24-inch upright Bickford drill press, a Brown and Sharp universal milling machine with all attachments, a 20-inch by 5-foot Pease planer, a large emery tool-grinding machine. The machine tools have full equipment of chucks, rests, and tools. The benches are well provided with vises.

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

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

**In Physics and Electrical Engineering.**—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.

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

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

**In Chemistry.**—The chemical laboratories are in the Main Building, and are well furnished. The tables are of yellow heart-pine, with oak tops. Each student is provided with one large and two small drawers, and one cupboard for keeping apparatus. Each working space is provided with gas, distilled water, reagents, and a sink. The laboratory for quantitative analysis will accommodate thirty-two students, sixteen of whom may work simultaneously, and the laboratory for general chemistry will accommodate fifty-six students, twenty-eight of whom may work simultaneously.

The laboratory instruction in dyeing is given at present in the chemical laboratory. The department has a collection of five hundred samples of dyes, a large number of sample cards, and many books on dyeing. Ample provision will be made in the Textile Building (to be erected during the summer of 1901) for a dyeing laboratory, dye-house, lecture room, and store-room.

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

**In Textile Industry.**—The General Assembly of North Carolina during its last session made provisions for the erection and equipment of a Textile Building. The site chosen for its location is just west of the Horticultural Building, on a rising eminence admirably

sued to the purpose. The building will be erected during the summer of 1901, and will be ready for occupancy at the beginning of the next College session. It will be two stories in height, with a basement, constructed throughout on the standard mill principles. It will contain carding and spinning, weaving, designing, and dyeing departments, each thoroughly equipped with all the necessary machinery and appliances for illustrating the processes in textile manufacturing.

In addition to the instruction given in the Textile Building, the courses in physics and chemistry, with the well-equipped laboratories of these departments, in mechanical engineering, with the shops and drawing-rooms in the Mechanical Building, in Mathematics and English, are all open to students in Textile Industry.

The following is a list of machinery already erected in College for instruction purposes. It will be largely added to during the coming year:

One 40-inch Saco and Pettee revolving flat card with coiler, 110 flats; one Saco and Pettee single railway head with coiler, metallic rolls, and evening motion; one Saco and Pettee drawing frame, four deliveries, with metallic rolls; one Whitin single railway head with coiler.

One Whitin spinning frame, 64 spindles; one Whitin twister, 48 spindles; one Draper twister, 72 spindles; one Draper spooler, 40 spindles; one Whitin spooler, 40 spindles.

One Draper section warper, 400 ends; one Lewiston Machine Company's beaming machine.

One Universal winding machine, 6 spindles; one Tompkins reel; 50 spindles.

One Northrop loom, 40 inches; one Northrop loom, 28 inches; one Whitin loom, 40 inches; one Kilburn-Lincoln loom, 36 inches; two hand looms.

Complete wet system of fire protection.

Pulleys, shafting, hangers, and couplings from Jones & Laughlins.

One 10-horse-power electric motor from Stanley Electric Co.

**The Library and Reading-rooms.**—The College Library and Reading-rooms are on the second story of the Main Building. The reading-rooms are supplied regularly with about one hundred and twenty-five magazines and journals of various kinds. The library contains about thirty-five hundred volumes. There are also reference libraries in the different departments. During the past year three hundred and forty-nine volumes have been added. The library and

reading-rooms are kept open from 8 A. M. to 6 P. M. Students are encouraged to spend their spare time there reading.

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

In this, as in other buildings, every precaution has been taken to secure good sanitation. The rooms are all 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 laboratories, drawing-rooms and recitation-rooms, and shops of the department.

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

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

**The Dairy and Barn** are frame buildings, of modern design, and carefully planned for the purposes to which they are devoted. The barn is 50 by 72 feet and three stories high; the dairy is 20 by 40 feet and two stories high; the incubator-house has a stone basement for the incubators and store-room above. The brooder-house is fitted up with fine brooders.

## DONATIONS.

The College acknowledges with thanks the following donations during the year:

### To the Department of Electrical Engineering.

Storage battery, six cells of 5 inches by 5 inches, from Lipe & Sigler, Cleveland, Ohio.

Storage battery, two cells, 5 by 5 plates, from the Gould Storage Battery Company, New York City.

A complete set of samples of carborundum, manufactured by The Carborundum Company, Niagara Falls, New York.

Sets of samples of incandescent lamps, from The New York and Ohio Company, Warren, Ohio; The Sawyer-Mann Electric Company, Alleghany, Pa.; The Franklin Electric Manufacturing Company, Hartford, Conn.; The Shelby Electric Company, Shelby, Ohio.

A donation of \$100 from the Skinner Engine Company towards buying one of their 35-horse-power self-oiling automatic engines.

Jones & Laughlins, Pittsburg, Pa., shafting, pulleys, hangers, and couplings for electrical engineering laboratory.

### To the Department of Textile Industry.

#### DIVISION OF DYEING.

*American Aniline Company, Philadelphia*—12 samples of direct cotton colors (1 ounce).

*Berlin Aniline Works, New York*—173 samples of dyes (5 ounce); book, "Textile Dyeing"; collection of sample cards.

*C. Bischoff & Co., New York*—19 samples of dyes (1 ounce); collection of sample cards.

*Farbenfabriken of Elberfeld Co., New York*—36 samples of dyes (4 ounce); collection of sample cards.

*Geisenheimer & Co., New York*—35 samples of dyes (3 ounce); collection of sample cards.

*O. S. Janney & Co., Philadelphia*—21 samples of dyes (2 ounce).

*A. Klipstein, New York*—50 samples of dyes (1½ ounce); 10 samples chemicals (8 ounce).

*Victor Koehl & Co., New York*—26 samples of dyes (5 ounce); collection of sample cards; 6 copies "Year Book," and 3 copies book, "The Coal Tar Colors."

*Kuttruff, Pickhardt & Co., New York*—44 samples of dyes (1½ ounce); 4 samples dyes (8 ounce); collection of sample cards.

*W. J. Matheson & Co., New York*—219 samples of dyes (1½ ounce); collection of sample cards; copy of books, "The Diamine Colors" and supplement, "Dye-stuffs, their Properties and Applications"; 16 numbers "Dye-stuffs" (monthly).

*New York and Boston Dyewood Company, New York*—6 quart samples of dyewood extracts.

*The Roessler and Hasslacher Chemical Company, New York*—5 pounds peroxid of sodium.

*Schoelkopf, Hartford and Hanna Company, Buffalo, N. Y.*—Collection of sample cards.

*St. Denis Dye-stuff and Chemical Company of Paris* (through Sykes & Street, Agents, New York)—98 samples of dyes (4 ounce); collection of sample cards; process book.

## COTTON MANUFACTURING DIVISION.

*Whitin Machine Works, Whitinsville, Mass.* (through Stuart W. Cramer, Southern Agent, Charlotte, N. C.)—Machinery: One Whitin spinning frame, 64 spindles; one Whitin twister, 48 spindles; one Whitin spooler, 40 spindles; one 40-inch Whitin loom; one Whitin railway head with coiler. Supplies: Beam No. 12 yarn, harness, reeds, strapping, shuttles, pickersticks, lease rods, loom beams, harness cams, rigging for 3, 4, and 5 shade work, spools, twister bobbins, roving bobbins, warp and filling bobbins, skewers, sliver cans, extra spinning rings, travelers, belt hooks, change gears for all machines, leather belting.

*Draper Company, Hopedale, Mass.*—One Draper spooler, 40 spindles; one Draper twister, 72 spindles, combination wind, wet and dry, three sizes spindles and rings; one Draper section warper, 400 ends; one 40-inch Northrop loom, supplies and equipment for 2, 3, 4, and 5 shade work; one 28-inch Northrop loom and supplies; warp beams, loom beam heads, filling bobbins, blue-prints of machinery.

*Saco and Pettee Machine Shops, Newton Upper Falls, Mass.* (through A. H. Washburn, Southern Agent, Charlotte, N. C.)—One 40-inch Saco and Pettee revolving flat card with coiler, 110 flats, clothing complete; one Saco and Pettee coiler drawing frame with metallic drawing rolls, four deliveries; one Saco and Pettee railway head with coiler and evener motion.

*D. A. Tompkins Company, Charlotte, N. C.*—One Tompkins reel, 50 spindles; one band machine; two drawing-in frames.

*Universal Winding Machine Company, Boston, Mass.* (through Charles W. Peirce, Southern Agent, Charlotte, N. C.)—One gang Universal winding machine, six spindles; findings for same.

*Kilburn, Lincoln & Co., Fall River, Mass.* (through O. A. Robbins, Southern Agent, Charlotte, N. C.)—One 36-inch Kilburn-Lincoln plain sheeting loom.

*Lewiston Machine Company, Lewiston, Me.*—One beaming machine.

*Alexander Bros., Philadelphia, Pa.* (through Odell Hardware Co., Southern Agents, Greensboro, N. C.)—500 feet leather belting.

*Jones & Laughlins, Pittsburg, Pa.*—Shafting, pulleys, hangers, and couplings.

*Metallic Drawing-roll Company, Indian Orchard, Mass.*—Metallic drawing-rolls for drawing frame and railway head.

*General Fire Extinguisher Company, Providence, R. I.*—Wet sprinkler system, complete.

*Charlotte Supply Company, Charlotte, N. C.*—Roving cans.

*Stanley Electric Company, Pittsfield, Mass.* (through F. C. Whitner, Southern Agent, Rock Hill, S. C.)—One 10-horse-power S. K. C. electric motor, starting box, and switch.

*Leonard & Ellis, Philadelphia, Pa., and Charlotte, N. C.*—50 gallons spindle and cylinder oils.

*DeHaven Manufacturing Company, Brooklyn, N. Y.*—Ring-travelers.

### To the Library.

*Professor D. H. Hill*—"A Hero in Homespun," by W. H. Barton.

*G. H. Whiting*—"Barnes's General History," by J. D. and Esther Steele; "Short History of the English People," by J. R. Green.

*Mrs. G. T. Winston*—"Cyrano De Bergerac," by Edmond Rostand; "God in His World," by H. M. Alden; "Homes and How to Make Them," by G. C. Garner; "Letters of Lord Chesterfield"; "The Masque of Pandora," by H. W. Longfellow; "The Nimble Dollar," by C. M. Thompson; "Pictorial Half Hours" (2 vols.); "Plain Thoughts on the Art of Living," by Washington Gladden; "Quo Vadis," by H. Sienkiewicz; "Round My House," by P. G. Hamerton.



1930-1901

CATALOGUE OF STUDENTS. 301

GRADUATES. 10

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>	<i>Major Course.</i>
LESLIE GRAHAM BERRY, B. E. 1900.	Washington,	Beaufort,	Mech. Eng.
FRANCIS MARION FOY, JR., B. S. '99.	Scott's Hill,	Pender,	Elect. Eng.
GARLAND JONES, JR., B. S. 1900.	Raleigh,	Wake,	Chemistry.
CARROLL LAMB MANN, B. S. '99.	Engelhard,	Hyde,	Civil Eng.
EDWIN BENTLY OWEN, B. S. '98.	Michael,	Davidson,	English.
IRA OBED SCHAUB, B. S. 1900.	Culler,	Stokes,	Chemistry.
NUMA REID STANSEL, B. S. '98.	Allenton,	Robeson,	Elect. Eng.
WILLIAM ANDERSON SYME, B. S. '99.	Raleigh,	Wake,	Chemistry.
SOLOMON ALEXANDER VEST, B. S. 1900.	Tobaccoville,	Forsyth,	Chemistry.
GAITHER HALL WHITING, B. S. 1900.	Raleigh,	Wake,	Chemistry.

SENIOR CLASS. 26

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
FLETCHER HESS BARNHARDT,	Norwood,	Stanly.
WILLIAM OSBORNE BENNETT,	Wadesboro,	Anson.
FRED WILHELM BONITZ,	Wilmington,	New Hanover.
ZOLLY MOSBY BOWDEN,	Redland,	Davie.
BEDFORD JETHRO BROWN,	Charlotte,	Mecklenburg.
PAUL COLLINS,	Raleigh,	Wake.
WILLIAM PESCUO CRAIGE,	Marion,	McDowell.
WILLIAM LOIS CRAVEN,	Concord,	Cabarrus.
FELIX GRAY CRUTCHFIELD,	Winston-Salem,	Forsyth.
GEORGE MASLIN DAVIS,	Greensboro,	Guilford.

## CATALOGUE OF STUDENTS.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
WILLIAM DOLLISON FAUCETTE,	Halifax,	Halifax.
MARION MORGAN HARRIS,	Fairfield,	Hyde.
WILLIAM THEOPHILUS HINTON,	Greensboro,	Guilford.
BENJAMIN OLIVER HOOD,	Asheville,	Buncombe.
MARTIN KELLOGG,	Sunbury,	Gates.
JESSE JAMES LILES,	Wadesboro,	Anson.
LEWIS OMER LOUGHEE,	Raleigh,	Wake.
JOHN LUTHER MCKINNON,	Laurinburg,	Scotland.
CHARLES HARDEN MCQUEEN,	Motven,	Anson.
WILLIAM FRANKLIN PATE,	Snow Hill,	Greene.
ISAAC NEWTON SANDERS,	Swansboro,	Onslow.
EDWARD OSCAR SMITH,	Crystal Hill,	Halifax, Va.
WALTER STEPHEN STURGILL,	Sturgill,	Ashe.
BEVERLY NATHANIEL SULLIVAN,	Winston-Salem,	Forsyth.
CHARLES AUGUSTUS WATSON,	Raleigh,	Wake.
BENJAMIN VADEN WRIGHT,	Coharie,	Sampson.

## JUNIOR CLASS. 13

WILLIAM DAVID BOSEMAN,	Rocky Mount,	Nash.
OLIVER CARTER,	Garland,	Sampson.
JUNIUS SIDNEY CATES,	Sweptonville,	Alamance.
ROBERT BAXTER COCHRAN,	Statesville,	Iredell.
JAMES LUMSDEN FEREBEE,	Belcross,	Camden.
ROBERT IRVING HOWARD,	Conetoe,	Edgecombe.
LAURIE MOSLEY,	Kinston,	Lenoir.
VASSAR YOUNG MOSS,	Zacho,	Granville.
JAMES LAFAYETTE PARKER,	Cypress Creek,	Bladen.
WILLIAM BENEDICT REINHARDT,	Reinhardt,	Lincoln.
RUSSELL ELSTNER SNOWDEN,	Elizabeth City,	Pasquotank.
JOSEPH PLATT TURNER,	Norwood,	Stanly.
CLEVELAND DOUGLASS WELCH,	Waynesville,	Haywood.

## SOPHOMORE CLASS. 62

SYDNEY WOODWARD ASBURY,	Burkmont,	Burke.
WILLIAM LEWIS BARLOW, JR.,	Tarboro,	Edgecombe.
WILLIAM MORTON BOGART,	Washington,	Beaufort.
LESLIE NORWOOD BONNY,	Wallace,	Duplin.
JOHN SAMUEL PINKNEY CARPENTER,	Lincolnton,	Lincoln.
BRUCE HERBERT CATES,	Varina,	Wake.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
WALTER CLARK, JR.,	Raleigh,	Wake.
RAY CLEMENT,	Mocksville,	Davie.
JOHN ELIOT COIT,	Salisbury,	Rowan.
SUMMEY CROUSE CORNWELL,	Dallas,	Gaston.
CHARLES LESTER CREECH,	Greensboro,	Guilford.
EUGENE ENGLISH CULBRETH,	Statesville,	Iredell.
WALTER LEE DARDEN,	Goldsboro,	Wayne.
ERNEST LEONIDAS DENTON,	Ormondsville,	Greene.
JUNIUS FRANKLIN DIGGS,	Diggs,	Richmond.
THEOPHILUS THOMAS ELLIS,	Stubbs,	Cleveland.
WELDON THOMPSON ELLIS,	Bearpond,	Vance.
EDWARD EVERITT ETHERIDGE,	Windsor,	Bertie.
JOHN DANIEL FERGUSON,	Bladenboro,	Bladen.
HUGH PIERCE FOSTER,	Nance,	Rockingham.
LAMAR GIDNEY,	Shelby,	Cleveland.
JOHN HOWARD GLENN,	Crowder's Creek,	Gaston.
HARMAN EDWARD GRIMSLEY,	Snow Hill,	Greene.
EMIL GUNTER,	Pierson,	Volusia, Fla.
PERCIVAL HALL,	Winston-Salem,	Forsyth.
WILLIAM ARCHIBALD HEDRICK,	Salisbury,	Rowan.
EUGENE COLISTUS JOHNSON,	Ingold,	Sampson.
JAMES MATTHEW KENNEDY,	McClammy,	Wayne.
EDWARD LEE KNIGHT,	Mildred,	Edgecombe.
BENNETT LAND, JR.,	Elizabeth City,	Pasquotank.
JOHN THOMAS LAND,	Poplar Branch,	Currituck.
GEORGE CORPENING LOVE,	Montezuma,	Mitchell.
EDMOND SHAW LYTCH,	Laurinburg,	Scotland.
JESSE JOHN MORRIS,	Weeksville,	Pasquotank.
PAUL EUGENE MORROW,	Burlington,	Alamance.
SPRUNT NEWTON,	Xenia,	Duplin.
DAVID STARR OWEN,	Fayetteville,	Cumberland.
JOHN HARVEY PARKER,	Hillsboro,	Orange.
WILLIAM ALDERMAN PARKER,	Hillsboro,	Orange.
DUNCAN ALPHEUS PATE,	Gibson,	Scotland.
JAMES HICK PEIRCE,	Warsaw,	Duplin.
JORL POWERS,	Method,	Wake.
FREDERICK LAWTON RICH,	Seven Springs,	Wayne.
EDWARD HAYS RICKS,	Enfield,	Halifax.
EUGENE THOMAS ROBESON,	Raleigh,	Wake.
JOHN ASHBY ROBERTSON,	Burlington,	Alamance.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
GASTON WILDER ROGERS,	Raleigh,	Wake.
CHARLES BURDETTE ROSS,	Charlotte,	Mecklenburg.
BEVERLY LYNNWOOD SHARPE,	Harrellsville,	Hertford.
HOWARD SIMPSON,	Simpson Store,	Rockingham.
WILLIAM HENRY SMREAD,	Charlotte,	Mecklenburg.
EDWARD ROE STAMPS,	Raleigh,	Wake.
GEORGE YATES STRADLEY,	Asheville,	Buncombe.
CLARENCE GEORGE SUGG,	Snow Hill,	Greene.
CHARLES EDWARD TROTTER,	Franklin,	Macon.
WRIGHT ELBERT UPCHURCH,	Raleigh,	Wake.
KENNETH CLYDE WAGSTAFF,	Winstead,	Person.
ALFONZO LEWIS WALKER,	Raleigh,	Wake.
JONATHAN WINBORNE WHITE,	Greenville,	Pitt.
JAMES EDWARD WHITFIELD,	Franklinton,	Franklin.
EDWIN SEYMOUR WHITING,	Hamlet,	Richmond.
JAMES LAWSON WIDBY,	Lenior,	Caldwell.

### FRESHMAN CLASS. 70

✓ NELSON ADAMS, ✓	McColl,	Marlboro, S.C.
✓ HAYWOOD LEWIS ALDERMAN,	Greensboro,	Guilford.
✓ THOMAS JACKSON ARNOLD, JR.,	Beverley,	Randolph, W.Va.
✓ EDWARD PARR BAILEY, JR.,	Wilmington,	New Hanover.
✓ JAMES CLAUDIUS BARBER,	Barber,	Rowan.
✓ WILLIAM WALTON BARBER,	Barber,	Rowan.
✓ WILLIAM ALEXANDER BARRETT,	White Store,	Anson.
WILLIAM L. BELL,	Southport,	Brunswick.
BENNETT BUSEY BOSTIC,	Asheville,	Buncombe.
✓ SHEERWOOD BATTLE BROCKWELL,	Raleigh,	Wake.
FRANK HAMILTON BROWN,	Culowhee,	Jackson.
DAVID RANIE BURTON,	Winston-Salem	Forsyth.
HARLAN GRAVES CARR,	Xenia,	Duplin.
RALPH ADELBERT CARRIER,	West Asheville,	Buncombe.
ARTHUR SANDERS CHESSON,	Plymouth,	Washington.
EDISON BLACK COUNCIL,	Council Station,	Bladen.
EARLE KENNEDY DUNLAP,	Paris,	Anson.
ERNEST WILLIAM FARMER,	Wilson,	Wilson.
✓ WILLIAM WALTER FINLEY,	North Wilkesboro,	Wilkes.
DAN RUSSELL FOSTER,	Wilmington,	New Hanover.
✓ GEORGE WASHINGTON FOSHEE,	Greensboro,	Guilford.
✓ EDGAR WILLIAM GAITHER,	Wilmington,	New Hanover.

CATALOGUE OF STUDENTS.

69

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
✓ JOSEPH BRANNER GILMER,	Raleigh,	Wake.
✓ PAUL STIREWALT GRIERSON,	Mooreville,	Iredell.
JOHN ALEXANDER GRIFFIN,	Rippetoe,	Caldwell.
WILLIAM LAWRENCE GRIMES,	Lexington,	Davidson.
✓ JOSEPH FERRIN GULLEY,	Raleigh,	Wake.
WM. LUNSFORD LONG HALL, JR.,	Scotland Neck,	Halifax.
✓ JAMES BENJAMIN HARDING,	Greenville,	Pitt.
FINLEY GWYN HARPER,	Patterson,	Caldwell.
JOHN YOUNG HEDRICK,	Salisbury,	Rowan.
✓ GEORGE HERBERT HODGES,	Kinston,	Lenior.
SOLOMON WALLACE HOFFMAN,	Statesville,	Iredell.
✓ BRANTON FAISON HUGGINS,	Goldsboro,	Wayne.
✓ HILL McIVER HUNTER,	Greensboro,	Guilford.
✓ WILLIAM KERR,	Bryson City,	Swain.
ROBERT ROY KING,	Danbury,	Stokes.
✓ LUTHER HILL KIRBY,	Elkville,	Wilkes.
✓ ERNEST EDWIN LINCOLN,	Kinston,	Lenior.
SEBOR SMEDES LOCKHART,	Wadesboro,	Anson.
WALTER BENTON McCOLL,	McColl,	Marlboro, S.C.
✓ JOHN FAIRLY McINTYRE,	Laurinburg,	Scotland.
✓ JAMES McKIMMON,	Raleigh,	Wake.
MATTHIAS EVANS MANLY,	New Bern,	Craven.
LYMAN MARVIN MARSH,	Progress,	Randolph.
LAWRENCE K. MEARS,	Canton,	Haywood.
JOSEPH ALFRED MILLER,	Brevard,	Transylvania.
LEON ANDREWS NEAL,	Marion,	McDowell.
✓ WILLIAM WATTS NEAL,	Belews Creek,	Forsyth.
✓ ST. CLAIR NEWBERN,	Powell's Point,	Currituck.
FRED CALVIN PARSONS,	Morven,	Anson.
✓ WILLIAM JOEL PATTON,	Brevard,	Transylvania.
✓ FREDERICK COLWELL PHELPS,	Raleigh,	Wake.
✓ ROBERT OWEN PRIMROSE,	Raleigh,	Wake.
✓ WILLIAM RICHARDSON, JR.,	Selma,	Johnston.
✓ CHARLES THOMAS ROGERS,	Newport,	Carteret.
✓ JAMES PICKETT ROSE,	Statesville,	Iredell.
GILBERT ELLIOTT SMITH,	Scotland Neck,	Halifax.
WILLIAM LEWIS SPEIGHT,	Tarboro,	Edgecombe.
ISAAC ANDERSON SUGG,	Greenville,	Pitt.
✓ JAMES CLARENCE TEMPLE,	Sanford,	Moore.
✓ JAMES HENDRICKS THOMPSON,	Connor,	Wilson.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
JOHN SANFORD THOMPSON,	Raleigh,	Wake.
MOORE THOMPSON,	Abbottsburg,	Bladen.
HIRAM ELDRIDGE THROWER,	Henderson,	Vance.
EUGENE TROY,	Greensboro,	Guilford.
PAUL LEE VINSON,	New Bern,	Craven.
MARION EMERSON WEEKS,	Scotland Neck,	Halifax.
DONALD WITHERSPOON,	Newton,	Catawba.
WALTER ALEXANDER WOOD,	Brevard,	Transylvania.

## SHORT COURSE STUDENTS.

## Second Year.

EDWIN LYTCH,	Lytch,	Richmond.
WILLIAM FREDERICK McCANLESS,	Salisbury,	Rowan,
DANIEL ALLEN POOL,	Roseland,	Moore.

First Year. <sup>64</sup>

GEORGE WASHINGTON ALLEN,	Dillsboro,	Jackson.
SYDNEY GUYPONZO ALLEN,	Wake Forest,	Wake.
WILLIAM LITTLE BAKER,	Dancy,	Pickens, Ala.
GEORGE LEANDER BRALL, ✓	Greensboro,	Guilford.
SOLOMON LUDLOW BIRDSONG,	Raleigh,	Wake.
ARTHUR LESLIE BLACKWELL,	Darlington,	Darlington, S. C.
MASON HAMPLETON BRAWLEY,	Mooresville,	Iredell.
GEORGE THOMAS BUCHAN,	Henderson,	Vance.
ELIAS CARR CARRAWAY,	Kinston,	Lenoir.
HENRY BROZIER CARTWRIGHT,	Elizabeth City,	Pasquotank.
SAMUEL L. COLVERT,	Statesville,	Iredell.
DWIGHT HERT COOK,	Jonesville,	Yadkin.
FRANK E. COVINGTON,	Morven,	Anson.
DAVID LEWIS CROMARTIE,	Cypress Creek,	Bladen.
DICKSON SLOAN CROMARTIE,	Garland,	Sampson.
WILLIAM FLETCHER DAILEY,	Burlington,	Alamance.
ROBERT ISAAC DALTON,	Winston-Salem,	Forsyth.
WILLIAM NICK DALTON,	Winston-Salem,	Forsyth.
WILLIAM EDWARD DUNN,	Scotland Neck,	Halifax.
BENJAMIN BALLARD EGERTON,	Ingleside,	Franklin.
HENRY DAVIS FARRIOR,	Kenansville,	Duplin.
ARCHIBALD STUART HALL,	Scotland Neck,	Halifax.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
WILLIAM WELDON HARDGROVE,	Raleigh,	Wake.
RICHARD HUGH HARPER,	Patterson,	Caldwell.
CHARLES WILLARD HARRELL,	Sunbury,	Gates.
GORDON HARRIS,	Raleigh,	Wake.
JOHN ERAL HEATH,	Waxhaw,	Union.
JOHN HILDRETH HENDERSON,	Hampstead,	Pender.
PAUL HOLBERT HILL,	Germanton,	Stokes.
EDWARD SOLON HOGGARD,	Drew,	Bertie.
AUGUSTUS PRITCHARD HOWARD,	Salemburg,	Sampson.
LEROY ISLER,	Goldsboro,	Wayne.
LEONIDAS JOYNER,	Bunyon,	Beaufort.
GROVER McCLAMMY KING,	Raleigh,	Wake.
JOSEPH MARSHALL LILES,	Wadesboro,	Anson.
WILLIAM CLYDE LYON,	Greensboro,	Guilford.
JOHN KENNETH McFADYEN,	Cameron,	Moore.
WILLIAM McNEIL McKINNON,	Maxton,	Robeson.
FRANK JOSEPH McMURRAY,	Wadesboro,	Anson.
JAMES OSCAR MORGAN,	Etowah,	Henderson.
GARLAND PERRY MYATT,	Raleigh,	Wake.
WALTER CLINTON OWENS,	Colerain,	Bertie.
JOHN ALSEY PARK,	Raleigh,	Wake.
LINUS MARCELLUS PARKER,	Raleigh,	Wake.
OSCAR NATHANIEL PETREE,	Germanton,	Stokes.
ERNEST SPRINGS PHARR,	Charlotte,	Mecklenburg.
PLEASANT HENDERSON POINDEXTER,	Donnoha,	Forsyth.
CLINTON Mc. POWELL,	Asheville,	Buncombe.
JAMES MAXWELL RAMSEY,	Statesville,	Iredell.
GARLAND ATKINSON RICKS,	Nashville,	Nash.
HAL MARCHAND SHAW,	Shawboro,	Currituck.
FRED. WOODWARD SHELLEM,	Raleigh,	Wake.
JULIUS MARION SPEAS,	Boonville,	Yadkin.
GEORGE WIMBERLY SPEIGHT,	Wrendale,	Edgecombe.
SIDNEY SIMS STEVENSON,	Shawboro,	Currituck.
RAY SUMMEY,	Dallas,	Gaston.
DANIEL CHARLES SWINDELL,	Raleigh,	Wake.
GEORGE DUNN TAYLOR,	Jacksonville,	Onslow.
JAMES RODOLPH TAYLOR,	Grifton,	Pitt.
JAMES EUDY THIBB,	Raleigh,	Wake.
ANGELO BENTON TILLINGHAST,	Fayetteville,	Cumberland.
DAVID JAMES TURLINGTON,	Clinton,	Sampson.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
ATLAS THOMAS UZZELL, JR.,	Seven Springs,	Wayne.
STEPHEN DOCKERY WALL,	Rockingham,	Richmond.
CHARLES MANLY WALTON,	Morganton,	Burke.
RALPH OURAY WALTON,	Morganton,	Burke.
WAYNE BRADSHAW WEAVER,	Weaverville,	Buncombe.
ALBERT CLINTON WHARTON,	Clemmons ville,	Forsyth.

### Irregular Students. *32*

WILLIAM DUNN BRIGGS,	Raleigh.	Wake.
ALEXANDER LILLINGTON CLARK,	Weldon,	Halifax.
RALPH IRVIN COUNCIL,	Populi,	Bladen.
JOHN HALSEY CROSS, ✓	Burdette,	Mecklenburg.
WILLIAM BENNETT DUNLAP,	Wadesboro,	Anson.
JOHN LAFAYETTE ENGLISH,	Spruce Pine,	Mitchell.
PAUL HARRIS ELKINS, ✓	Winston-Salem,	Forsyth.
EDWIN FEREBEE FENNER,	Halifax,	Halifax.
JOSEPH EDGAR FULP, ✓	Fulp,	Stokes.
WALTER LINDSEY FULP, ✓	Fulp,	Stokes.
OLIVER MAX GARDNER, ✓	Shelby,	Cleveland.
JOSEPH NELSON GARREN,	Limestone,	Buncombe.
JOHN PERCY GRIMES,	Lexington,	Davidson,
JESSE McRAE HOWARD, ✓	Wadesboro,	Anson.
GEORGE MEYERS McDONALD, ✓	Rockingham,	Richmond.
JAMES LESLIE McNAIR, ✓	Cedar,	Bladen.
CALVIN EGBERT MITCHELL,	Hartsville,	Wake.
CHARLES ARTHUR NICHOLS, ✓	Barnard,	Madison.
JOHN HENRY OSBORNE, ✓	Cleveland Mills,	Cleveland.
BARNIE LEE PARKER, ✓	Hunting Creek,	Wilkes.
JESSE EDGAR PARKER, ✓	Selma,	Johnston.
REA BLACKWELL PARKER,	Como,	Hertford.
JOHN ELLIS PEARSON,	Motor,	Polk.
EUGENE JEFFERSON RANDOLPH,	Colleen,	Nelson, Va.
CHARLES MERCER REEVES,	Mt. Airy,	Surry.
CLAY ERNEST RUTLEDGE,	Long Shoal,	Lincoln.
JOHN HOUSTON SHUFORD,	Sandifer,	Mecklenburg.
CHARLES ALDEN SPAINHOUR,	Lenoir,	Caldwell.
JOSEPH DANIEL SWAIN,	Skinnerville,	Washington.
LLOYD WASH WHITTED, ✓	Tar Heel,	Bladen.
EDWARD YONGE WOOTEN,	Wilmington,	New Hanover.
CHARLES VANCE YORK,	Winston-Salem,	Forsyth.



## Special Students. 17

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
ARTHUR FINN BOWEN;	Raleigh,	Wake.
MARGARET CLEMENT BURKE,	Mocksville,	Davie.
DARO PRNDER BYERS,	Shelby,	Cleveland.
WALTER CLIFFORD CROWELL,	Monroe,	Union.
LLOYD McNEELY FLOWE,	Davidson,	Mecklenburg,
BENJAMIN CECIL JOYNER,	Greenville,	Pitt.
HARLAN MEASE KERSCHNER,	Lexington,	Davidson.
FRANK WOODWARD LAWRENCE,	Murfreesboro,	Hertford.
HENRY BRADLEY PEARCE, JR.,	Selma,	Johnston.
BENJAMIN EDGAR ROGERS,	Clayton,	Johnston.
MILTON NORMAND TADLOCK,	Windsor,	Bertie.
JOHN WALTER UZZELL,	LaGrange,	Lenoir,
LARKIN DOUGLASS WATSON, JR.,	Raleigh,	Wake.
JAMES AUSTIN WHITESETT,	Greensboro,	Guilford.
WILLIAM WALLACE WHITTINGTON,	Greensboro,	Guilford.
PERCY WORTH,	Guilford College,	Guilford.
WILLIAM HENRY WYNNE,	Grindool,	Pitt.

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 14 2  
 44 3

# ELEVENTH ANNUAL COMMENCEMENT.

May 30, 1900.

DEGREES CONFERRED:

## BACHELOR OF SCIENCE.

### In Agriculture.

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>	
ROBERT LINN BERNHARDT,	Salisbury,	Rowan.	2
Thesis: A Study of the Law of Variations in Animal Life.			
JOHN WADE SHORE,	Boonville,	Yadkin.	
Thesis: The Dairy Industry in North Carolina.			

### In Science.

SAMUEL MERRILL HANFF,	Raleigh,	Wake.	7
Thesis: Fermentation.			
GEORGE ROWLAND HARBRELL,	Kelford,	Bertie.	
Thesis: Orchard Technique.			
HENRY ALLEN HUGGINS,	Wilmington,	New Hanover.	
Thesis: A Study of the Water Supply of Raleigh for Industrial Purposes.			
GARLAND JONES, JR.,	Raleigh,	Wake.	
Thesis: Nitrification.			
IRA OBED SCHAUR,	Culler,	Stokes.	
Thesis: The Chemical Analysis of <i>Pachyma Cocos</i> (Indian Bread), (with Vest).			
SOLOMON ALEXANDER VEST,	Tobaccoville,	Forsyth.	
Thesis: The Chemical Analysis of <i>Pachyma Cocos</i> (Indian Bread), (with Schaub).			
GAITHER HALL WHITING,	Raleigh,	Wake.	
Thesis: A Study of some of the Foods Supplied by the Raleigh Market.			

## BACHELOR OF ENGINEERING.

KEMP ALEXANDER,	Harrisburg,	Cabarrus.	2
Thesis: Design of Electric Light Plant for this College (with Mann and Ross).			
LESLIE LYLE ALLEN,	Louisburg,	Franklin.	
Thesis: A Study of the Raleigh Electric Light and Power Plant.			

<i>Name.</i>	<i>Post-office.</i>	<i>County.</i>
LESLIE GRAHAM BERRY, Thesis: Design of a Transmission Dynamometer.	Washington,	Beaufort.
JAMES HARRY BUNN, Thesis: Design of a Coal Trestle and Chute for Agricultural and Mechanical College (with Smith).	Henderson,	Vance.
LOUIS HENRY MANN, Thesis: Design of Electric Light Plant for this College (with Alexander and Ross).	Middleton,	Hyde.
ROBERT HALL MORRISON, Thesis: Design of Electric Light Plant for Mariposa Cotton Mill.	Mariposa,	Lincoln.
WILLIAM MONTGOMERY PERSON, Thesis: Design and Estimate of Cost of a System of Sewers for North Carolina College of Agriculture and Mechanic Arts, and West Raleigh District (with Rose and Porter).	Kittrell,	Vance,
JUNIUS EDWARD PORTER, Thesis: Design and Estimate of Cost of a System of Sewers for North Carolina College of Agriculture and Mechanic Arts, and West Raleigh District (with Person and Rose).	Emerson,	Bladen.
ROGER FRANCIS RICHARDSON, Thesis: Design of Electric Light Plant for Selma Cotton-seed Oil Mills.	Selma,	Johnston.
WILLIAM EDWIN ROSE, Thesis: Design and Estimate of Cost of a System of Sewers for North Carolina College of Agriculture and Mechanic Arts, and West Raleigh District (with Person and Porter).	Statesville,	Iredell.
FLOYD DE ROSS, Thesis: Design of Electric Light Plant for this College (with Alexander and Mann).	Charlotte,	Mecklenburg.
WILLIAM TURNER SMITH, Thesis: Design of a Coal Trestle and Chute for Agricultural and Mechanical College (with Bunn).	Godwin,	Cumberland.
ROSCOE MARVIN WAGSTAFF, Thesis: Construction of an Instrument for Testing the Springs of Steam-engine Indicators.	Olive Hill,	Person.

**MECHANICAL ENGINEER.**

BENJAMIN CARY FENNELL, Thesis: Design of an Apparatus for Testing Transmitting Power of Belts.	Raleigh,	Wake.
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**MASTER OF SCIENCE.**

JAMES ADRIAN BIZZELL, Thesis: A Study of the Adulteration of Vinegar and Baking Powders.	Dunn,	Harnett.
HUGH WILLIAMS PRIMROSE, Thesis: A Study of the Preservatives Used in Canned Goods.	Raleigh,	Wake.

**HONORS IN SCHOLARSHIP.**

FLETCHER HESS BARNHARDT,	Stanly County.
WILLIAM DOLLISON FAUCETTE,	Halifax County.
WALTER STEPHEN STURGILL,	Ashe County.

**HONORS FOR PUNCTUALITY.**

WILEY NATHANIEL KREGER,	Stokes County.
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**PRIZES FOR WORK IN AGRICULTURE.****First Prize.**

PAUL JONES GILLAM,	Bertie County.
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**Second Prize.**

PAUL HARRIS ELKINS,	Forsyth County.
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## REGISTER OF ALUMNI.

### CLASS OF 1893.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT WILSON ALLEN, Prof. Mathematics, Preston Normal School.	B. E.,	Ridgeway, Md.
SAMUEL ERSON ASBURY, M. S. 1896. Assistant Chemist State Agricultural Department.	B. S.,	Raleigh, N. C.
HENRY EMIL BONITZ, Architect and Superintendent.	B. E.,	Wilmington, N. C.
FRANK FULLER FLOYD, Superintendent Linotype Machines for <i>Knoxville Sentinel</i> .	B. E.,	Knoxville, Tenn.
CHARLES DUFFY FRANCKS, Farmer and Merchant.	B. E.,	Richlands, N. C.
EDWARD MOORE GIBBON, Machinist U. S. Government Dock-yard.	B. E.,	Port Royal, S. C.
GEORGE PENDER GRAY, Farm Manager.	B. S.,	Silver Lake, Fla.
CHARLES BOLLING HOLLADAY, With John L. Williams & Sons.	B. E.,	Richmond, Va.
WILLIAM MCNRELL LYTCH, Locomotive Engineer.	B. E.,	Phoenix, Fla.
WALTER JEROME MATHews, Engineer for the Eastern N. C. Asylum for the Insane.	B. E.,	Goldsboro, N. C.
JAMES WILLIAM MCKOY, Civil Engineer and Merchant.	B. E.,	Black Mountain, N. C.
FRANK THEOPHILUS MEACHAM, M. S. 1894. Farm Superintendent State School for Deaf and Dumb.	B. S.,	Morganton, N. C.
CARL DEWITT SELLAERS, Engineer for Altamaha Cotton Mills.	B. E.,	Altamaha, N. C.
CHARLES EDGAR SEYMOUR, Farmer and Superintendent of Public Roads.	B. S.,	Louisburg, N. C.
BUXTON WILLIAMS THORNE, Corporation Clerk.	B. E.,	Water Valley, Miss.
WILLIAM HARRISON TURNER, Superintendent Wachovia Mills (F. & H. Fries).	B. E.,	Salem, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CHARLES BURGESS WILLIAMS, M. S. 1896. Assistant Chemist State Agricultural Department.	B. S.,	Raleigh, N. C.
LOUIS THOMAS YARBROUGH, With Southern Bell Telephone Co.	B. E.,	Raleigh, N. C.
SAMUEL MARVIN YOUNG, Of S. M. & W. J. Young.	B. E.,	Raleigh, N. C.

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**CLASS OF 1894.**

CHARLES EDWARD CORPENING, Farmer.	B. E.,	Lenoir, N. C.
DAVID COX, JR., Architect and County Surveyor.	B. E.,	Hertford, N. C.
ROBERT DONNELL PATTERSON, JR., M. S. 1898. With American Tobacco Co.	B. S.,	Durham, N. C.
CHARLES PEARSON, Architect.	B. E.,	Raleigh, N. C.
ZREBBIE GEORGE ROGERS, Secretary and Treasurer.	B. E.,	Danville, Va.
JOHN HYER SANDERS, Locomotive Engineer for Lumber Co.	B. E.,	Chocowinity, N. C.
BENJAMIN FRANKLIN WALTON, Farmer.	B. S.,	Neuse, N. C.
JOHN McCAMY WILSON, Superintendent Cotton Mill.	B. E.,	Spartanburg, S. C.

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**CLASS OF 1895.**

THOMAS MARTIN ASHE, Deceased.	B. E.,	Raleigh, N. C.
JAMES ADRIAN BIZZELL, M. S. 1900. Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
JOHN ISHAM BLOUNT, C. E. 1897, M. E. Cornell University.	B. E.,	Ensley, Ala.
JAMES WASHINGTON BRAWLEY, Traveling Salesman.	B. S.,	Mooresville, N. C.
WALTER AUSTIN BULLOCK, Superintendent Tobacco Farm.	B. S.,	Bainbridge, Ga.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DAVID CLARK (M. E. Cornell Univ.), M. E. 1896. C. E. 1897. General Manager and Treasurer Ada Cotton Mills.	B. E.,	Charlotte, N. C.
GEO. WASHINGTON CORBETT, JR., Machinist American Tobacco Company.	B. E.,	Durham, N. C.
EDWIN SPEIGHT DARDEN, With Banner Tobacco Warehouse.	B. S.,	Wilson, N. C.
WILLIAM KEARNEY DAVIS, JR., Superintendent Southside Manufacturing Co.	B. E.,	Salem, N. C.
JOSEPH CHARLES DEY, With Williams Bros.	B. S.,	Norfolk, Va.
LEE BORDEN ENNETT, Farmer.	B. S.,	Cedar Point, N. C.
ISAAC HENRY FOUST, Farmer.	B. E.,	Farmer, N. C.
CHARLES WYLLIS GOLD, Business Manager <i>Wilson Times</i> , Editor <i>Dixie Farmer</i> .	B. S.,	Wilson, N. C.
WILLIAM HENRY HARRIS, M. E. 1896. Editor <i>Textile Excelsior</i> .	B. E.,	Charlotte, N. C.
CHRISTOPHER MILLER HUGHES, B. S. 1899. With Commercial and Farmers Bank.	B. E.,	Raleigh, N. C.
MALCOLM BEALL HUNTER, Textile Designer.	B. E.,	Philadelphia, Pa.
SAMUEL CHRISTOPHER MCKEOWN, Superintendent Machine Shops.	B. E.,	Cornwell, S. C.
MANN CABE PATTERSON, With Richmond Locomotive and Machine Works.	B. E.,	Richmond, Va.
ABRAM HINMAN PRINCE, U. S. Soil Survey.	B. S.,	Washington, D. C.
VICTOR VASHTI PRIVOTT, Construction Engineer.	B. E.,	Pittsburg, Pa.
HOWARD WISWALL, JR., Inspector United States Engineers.	B. E.,	Norfolk, Va.
CHARLES GARRETT YARBROUGH, With Westinghouse Electric Company.	B. E.,	Pittsburg, Pa.
CHARLES MARCELLUS PRITCHETT, C. E. 1896. With D. A. Tompkins Co.	M. E.,	Charlotte, N. C.

## CLASS OF 1896.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
DANIEL ALLEN,	B. S.,	Raleigh, N. C.
	Daniel Allen & Co.	
GEORGE STRONACH FRAFS,	B. S.,	Raleigh, N. C.
	Ph. D. Johns Hopkins University; Assistant Professor of Chemistry N. C. College of Agriculture and Mechanic Arts.	
MARION JACKSON GREEN,	B. S.,	Charlotte, N. C.
	Foreman Cole Manufacturing Co.	
JOHN HOWARD,	B. S.,	Tarboro, N. C.
	Civil Engineer.	
WILLIAM COLBERT JACKSON,	B. S.,	Ayden, N. C.
	With J. R. Smith & Bro.	
ROBERT GRAHAM NEWBORNE,	B. S.,	Louisville, Ky.
	Chemist Kentucky Tobacco Co.	
LEVI ROMULUS WHITTED,	B. S.,	Norfolk, Va.
	C. E. 1897. Draughtsman in Navy-yard.	
HENRY LLOYD WILLIAMS,	B. S.,	Merchant Mills, N. C.
	Merchant.	

## CLASS OF 1897.

JOSPH SAMUEL BUFFALO, E,	B. S.,	Garner, N. C.
	Physician.	
JOHN WILLIAM CARROLL,	B. S.,	Richmond, Va.
	Student Medical College of Virginia.	
CHARLES EDWARD CLARK,	B. S.,	Charlotte, N. C.
	Truck Farmer.	
WM. ALEXANDER GRAHAM CLARK,	B. S.,	Goldville, S. C.
	M. E. Cornell Univ. With Goldville Cotton Mill.	
NICHOLAS LOUIS GIBBON,	B. S.,	Charlotte, N. C.
	With Stuart Cramer Machine Co.	
CEBURN DODD HARRIS,	B. S.,	Raleigh, N. C.
	Assistant Chemist N. C. Department of Agriculture.	
JERE EUSTIS HIGHSMITH,	B. S.,	Parkersburg, N. C.
	Farmer.	
CLYDE BENNETT KENDALL,	B. S.,	Columbia, S. C.
	Civil Engineer Baltimore & Ohio R. R.	



REGISTER OF ALUMNI.

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<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
SYDNEY GUSTAVUS KENNEDY, With Newport News Ship Building Co.	B. S.,	Newport News, Va.
JOSEPH LAWRENCE KNIGHT, Turpentine Business.	B. S.,	Jacksonville, Fla.
WALTER JONES McLENDON, JR., Superintendent Wadesboro Cotton Mill.	B. S.,	Wadesboro, N. C.
REPTON HALL MERRITT, Book-keeper Cotton Mill.	B. S.,	McAdenville, N. C.
ALBERT HICKS OLIVER, Dairyman and Farm Superintendent.	B. S.,	New Orleans, La.
HUGH WILLIAMS PRIMROSE, M. S. 1900. Chief Chemist Alabama Steel and Wire Co.	B. S.,	Birmingham, Ala.
WILLIAM HUNTER SANDERS, Assistant Engineer Raleigh Electric Co.	B. S.,	Raleigh, N. C.
THOMAS JERU SMITHWICK, Electrical Engineer Navy-yard.	B. S.,	Port Royal, S. C.
LEA WATSON, Chief Draughtsman D. A. Tompkins Co.	B. S.,	Charlotte, N. C.
BRADLEY JEWETT WOOTTEN, Lieutenant U. S. Army.	B. S.,	Wilmington, N. C.

CLASS OF 1898.

DORSEY FROST ASBURY, Draughtsman New England Ship Building Co.	B. S.,	New London, Conn.
SIDNEY HAMILTON BECK, Draughtsman Newport News Ship-yards.	B. S.,	Newport News, Va.
ANSON ELIKEM COHOON, With Forestry Division Department of Agriculture.	B. S.,	Washington, D. C.
HUGH McCULLOM CURRAN, With Forestry Division Department of Agriculture.	B. S.,	Washington, D. C.
BENJAMIN CAREY FENNELL, M. E., 1900. Draughtsman D. A. Tompkins Co.	B. S.,	Charlotte, N. C.
ALPHEUS ROUNTREE KENNEDY, Draughtsman Newport News Ship-yards.	B. S.,	Newport News, Va.
FREDERICK CREECY LAMB, Student Johns Hopkins University.	B. S.,	Baltimore, Md.
EDWIN BENTLEY OWEN, Librarian N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
MOORE PARKER,	B. S.,	Lowell, Mass. Student Lowell Textile School.
NUMA REID STANSEL,	B. S.,	Raleigh, N. C. Instructor in Physics and Electrical Engineering N. C. College of Agriculture and Mechanic Arts.
TEISAKU SUGISHITA,	B. S.,	Tokyo, Japan. Engineer, Imperial Railway of Japan.
GEORGE FREDERICK SYME,	B. S.,	Raleigh, N. C. Acting City Engineer.

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**CLASS OF 1899.**

WM. DAVIDSON ALEXANDER, JR.,	B. S.,	Charlotte, N. C. Acting Superintendent Mecklenburg Iron Works.
IRA WILSON BARBER,	B. S.,	Port Royal, S. C. Engineer, Naval Station.
JOHN HENDERSON BIRDSONG,	B. S.,	Raleigh, N. C. Proprietor Steam Laundry.
FRANCIS MARION FOY,	B. S.,	Raleigh, N. C. Post-graduate Electrical Engineering and Instructor N. C. College of Agriculture and Mechanic Arts.
ALBERT SIDNEY LYON,	B. S.,	Weldon, N. C. Electrician Weldon Electric Lighting Co.
CARROLL LAMB MANN,	B. S.,	Raleigh, N. C. Instructor Mathematics N. C. College of Agriculture and Mechanic Arts.
O'KELLY WILLIAMS MYERS,	B. S.,	Camden, S. C. Civil Engineer, with S. A. L.
EUGENE LEROY PARKER,	B. S.,	Richmond, Va. Assistant Chemist Virginia-Carolina Chemical Co.
EUGENE GRAY PERSON,	B. S.,	Concord, N. C. With Odell Cotton Mill.
FREDERICK ERASTUS SLOAN,	B. S.,	Weldon, N. C. Secretary and Treasurer Weldon Milling Co.
X ANDREW THOMAS SMITH,	B. S.,	Raleigh, N. C. Assistant in Shop N. C. College of Agriculture and Mechanic Arts.
X ALEXIS PRESTON STERLE,	B. S.,	Statesville, N. C. Of J. C. Steele & Son's Brick Machinery Co.
WILLIAM ANDERSON SYME,	B. S.,	Raleigh, N. C. Instructor in Chemistry N. C. College of Agriculture and Mechanic Arts.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HUGH WARE,	B. S.,	King's Mountain, N. C.
	Farmer.	
CLAUD BURGESS WILLIAMS,	B. S.,	Richmond, Va.
	Student	University College of Medicine.

## CLASS OF 1900.

KEMP ALEXANDER,	B. E.,	Albemarle, N. C.
	With	Windemere Knitting Mill.
LESLIE LYLE ALLEN,	B. E.,	Newport News, Va.
	Draughtsman	Newport News Ship Building Co.
ROBERT LINN BERNHARDT,	B. S.,	Salisbury, N. C.
	With	Salisbury Hardware and Furniture Co.
LESLIE GRAHAM BERRY,	B. E.,	Wilmington, Del.
	With	American Bridge Co.
JAMES HARRY BUNN,	B. E.,	Henderson, N. C.
	Architect and	Contractor.
SAMUEL MERRILL HANFF,	B. S.,	Raleigh, N. C.
	Instructor	Morson's Academy.
GEORGE ROLAND HARRELL,	B. S.,	South Strafford, Vt.
	Chemist	Elizabeth Mining Co.
HENRY ALLEN HUGGINS,	B. S.,	Wilmington, N. C.
	With	Imperial Fine Product Co.
GARLAND JONES, JR.,	B. S.,	Raleigh, N. C.
	Clerk	Department of Agriculture.
LOUIS HENRY MANN,	B. E.,	Baltimore, Md.
	Student	Dental College, University of Maryland.
ROBERT HALL MORRISON,	B. E.,	Mariposa, N. C.
	Assistant Superintendent	Cotton Mill.
WILLIAM MONTGOMERY PERSON,	B. E.,	Bethlehem, Pa.
	Student	Lehigh University.
JUNIUS EDWARD POSTER,	B. E.,	Jacksonville, Fla.
	Timber Inspector	S. A. L.
ROGER FRANCIS RICHARDSON,	B. E.,	Newport News, Va.
	Draughtsman	Newport News Ship Building Co.
WILLIAM EDWIN ROSE,	B. E.,	Wilmington, N. C.
	With	Wilmington Iron Works.
FLOYD DE ROSS,	B. E.,	Charlotte, N. C.
	Electrician.	

## REGISTER OF ALUMNI.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
IRA OBED SCHAUB, Student in Chemistry Johns Hopkins University.	B. S.,	Baltimore, Md.
JOHN WADE SHORE, Farmer.	B. S.,	Boonville, N. C.
WILLIAM TURNER SMITH, With Wilmington Iron Works.	B. E.,	Wilmington, N. C.
SOLOMON ALEXANDER VEST, Post-graduate Student in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.
ROSCOE MARVIN WAGSTAFF, With Newport News Ship Building Co.	B. E.,	Newport News, Va.
GAITHER HALL WHITING, Post-graduate Student in Chemistry N. C. College of Agriculture and Mechanic Arts.	B. S.,	Raleigh, N. C.