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COLLEGE RECORD

VOL. 14

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MARCH, 1916

WEST RALEIGH, N. C.

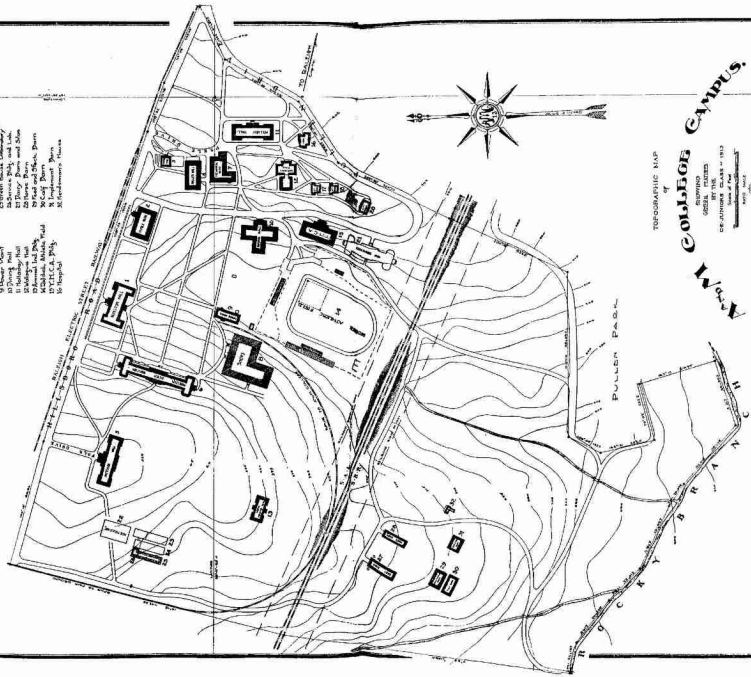
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REGISTRAR, A. AND M. COLLEGE,
West Raleigh, N. C.

KEY

- 1 Underhill Hall
- 2 Track Building
- 3 Union Hall
- 4 Union Hall
- 5 Union Hall
- 6 Shops
- 7 Physical Building
- 8 Dining Hall
- 9 Student Center
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TOPOGRAPHIC MAP
of
WACO COLLEGE CAMPUS

WACO COLLEGE CAMPUS

DESIGNED BY
WACO COLLEGE
DEPARTMENT OF ARCHITECTURE
1925

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THE
NORTH CAROLINA COLLEGE
OF
AGRICULTURE AND MECHANIC ARTS

WEST RALEIGH

1915-1916



RALEIGH
EDWARDS & BROUGHTON PRINTING COMPANY
STATE PRINTERS AND BINDERS
1916

Calendar

1916

JANUARY							APRIL							JULY							OCTOBER						
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1917

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COLLEGE CALENDAR.

1916.

Thursday, June	1. Summer Term for Teachers begins.
Thursday, July	13. Entrance examinations at each county courthouse, 10 a.m.
Wednesday, September	6. Entrance examinations at the College, 8:30 a.m.
Thursday, September	7. First Term begins; Registration Day.
Thursday, November	23. Thanksgiving Day.
Thursday, December	21. First Term ends.

1917.

Thursday, January	4. Second Term begins; Registration Day.
Tuesday, January	9. Winter Course in Agriculture begins.
Sunday, May	27. Baccalaureate Sermon.
Monday, May	28. Alumni Day. Annual Oration.
Tuesday, May	29. Commencement Day. Annual Meeting of Trustees.

BOARD OF TRUSTEES.

GOVERNOR LOCKE CRAIG, *ex officio* Chairman.

<i>Name.</i>	<i>Postoffice.</i>	<i>Term Expires.</i>
EVERETT THOMPSON.....	Elizabeth City.....	March 20, 1917.
R. H. RICKS.....	Rocky Mount.....	March 20, 1917.
O. MAX GARDNER.....	Shelby	March 20, 1917.
M. L. REED.....	Asheville	March 20, 1917.
T. T. THORNE.....	Rocky Mount	March 20, 1919.
C. W. GOLD.....	Greensboro	March 20, 1919.
T. E. VANN.....	Como	March 20, 1919.
P. S. BOYD.....	Mooreville	March 20, 1919.
W. E. DANIEL.....	Weldon	March 20, 1921.
W. H. RAGAN.....	High Point.....	March 20, 1921.
W. B. COOPER.....	Wilmington	March 20, 1921.
*J. P. MCRAE.....	Laurinburg	March 20, 1921.
M. B. STICKLEY.....	Concord	March 20, 1923.
T. T. BALLENGER.....	Tryon	March 20, 1923.
W. H. WILLIAMSON.....	Raleigh	March 20, 1923.
O. L. CLARK.....	Clarkton	March 20, 1923.

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R. H. RICKS,
M. B. STICKLEY,

O. L. CLARK,
C. W. GOLD, *Secretary.*

*Deceased.

**FACULTY OF THE NORTH CAROLINA COLLEGE OF
AGRICULTURE AND MECHANIC ARTS.**

DANIEL HARVEY HILL,
President.

A.M. 1885, Lit.D. 1905, Davidson College; LL.D., University of North Carolina.

WALLACE CARL RIDDICK,
Professor of Civil Engineering and Vice-President.

A.B. 1885, University of North Carolina; C.E. 1890, Lehigh University.

WILLIAM ALPHONSO WITHERS,
Professor of Chemistry.

A.B. 1883, A.M. 1885, Davidson College; Fellow in Chemistry, 1889-1890, Cornell University.

ROBERT E. LEE YATES,
Professor of Mathematics.

A.M. 1889, Wake Forest College.

THOMAS NELSON,
Professor of Textile Industry.
Preston (England) Technical School.

CLIFFORD LEWIS NEWMAN,
Professor of Agriculture.

B.S. 1886, M.S. 1887, Alabama Polytechnic Institute.

WILLIAM HAND BROWNE,
Professor of Physics and Electrical Engineering.

A.B. 1890, Certificate in Electrical Engineering 1892, Johns Hopkins University.

HOWARD ERNEST SATTERFIELD,
Professor of Mechanical Engineering.

B.S. 1904, M.E. 1909, Purdue University.

THOMAS PERRIN HARRISON,
Professor of English, and Dean of College.

B.S. 1886, S. C. Military Academy; Ph.D. 1891, Johns Hopkins University.

GUY ALEXANDER ROBERTS,
Professor of Veterinary Science and Physiology.

B.Agr. 1899, B.S. 1900, University of Missouri; D.V.S. 1903, Kansas City Veterinary College.

JOSHUA PLUMMER PILLSBURY,
Professor of Horticulture.

B.S. 1910, Pennsylvania State College.

FACULTY

7

MELVIN ERNEST SHERWIN,
Professor of Soils.

B.S. 1908, University of Missouri; M.S. 1909, University of California.

CARROLL LAMB MANN,
Professor of Railroad Engineering.

C.E. 1906, N. C. College of Agriculture and Mechanic Arts.

ZENO PAYNE METCALF,
Professor of Zoology and Entomology.

B.A. 1907, Ohio State University.

HORACE FLETCHER SPURGIN,
Professor of Military Science and Tactics.

Graduate U. S. Military Academy; First Lieutenant United States Army.

THOMAS EVERETT BROWNE,
Professor of Agricultural Extension.

A.B. 1902, Wake Forest College.

WILLIAM ROSWELL CAMP,
Professor of Agricultural Economics.

B.A. 1909, Leland Stanford University.

BENJAMIN FRANKLIN KAUPP,
Professor of Poultry Science.

M.S. 1909, Colorado Agricultural College; D.V.M., Kansas City Veterinary College.

DANIEL THOMAS GRAY,
Professor of Animal Industry.

A.B. and B.S. 1904, University of Missouri; M.S. 1905, University of Illinois.

FREDERICK ADOLPHUS WOLF,
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A.M., University of Nebraska; Ph.D., Cornell University.

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A.B. Wake Forest College; M.A., Columbia University.

WELDON THOMPSON ELLIS,
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B.E. 1906, M.E. 1908, N. C. College of Agriculture and Mechanic Arts.

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GEORGE SUMMEY, JR.,
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A.B. 1897, Ph.D. 1901, Southwestern Presbyterian University.

LEON FRANKLIN WILLIAMS,
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A.B. 1901, Trinity College; Ph.D. 1907, Johns Hopkins University.

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B.E. 1906, N. C. College of Agriculture and Mechanic Arts; M.E. 1911,
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B.A. 1911, University of Colorado; Graduate Student, University of Chicago.
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A.B. 1907, Elon College; M.S. 1910, University of North Carolina.

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B.E. 1908, N. C. College of Agriculture and Mechanic Arts; C.E. 1910,
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B.S.Agr. 1913, Ohio State University.

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FACULTY

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D.V.M. 1913, Alabama Polytechnic Institute; B.S. 1914, N. C. College of
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B.S. 1915, Ohio University.

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- W. F. PATE,
Agronomist in Soils.
- ALLEN G. OLIVER,
Poultry Clubs.

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E. C. BLAIR,
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16

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BUXTON WHITE,
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H. D. LAMBERT,
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J. A. AREY,
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F. R. FARNHAM,
Cheese Work.

A. L. JERDAN,
Field Agent, Beef Cattle Work.

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B. P. FOLK,
Pig Clubs.

F. D. OWEN,
Hog Cholera Work.

C. E. HASKETT,
Assistant in Marketing.

E. E. CULBRETH,
Examiner in Rural Credits.

A. F. BOWEN,
Bursar.

The Experiment Station and the Extension Service are supported and conducted jointly by the College and the State Department of Agriculture. A joint committee from the Board of Trustees of the College and the Board of Agriculture, under agreement entered into by the Boards and authorized by an act of the Legislature in 1913, have direct charge of them.

¹ In cooperation with the United States Department of Agriculture, Bureau of Plant Industry.

² In cooperation with the United States Department of Agriculture, Bureau of Soils.

³ In cooperation with the United States Department of Agriculture, Bureau of Animal Industry.

⁴ In cooperation with the United States Department of Agriculture, Office of Experiment Stations.

DEMONSTRATION AGENTS.

These agents are employed jointly by the College and the State Department of Agriculture and the United States Department of Agriculture.

<i>Name.</i>	<i>Postoffice.</i>	<i>County.</i>
C. R. HUDSON,	Raleigh,	Wake.
T. E. BROWNE,	West Raleigh,	Wake.
A. K. ROBERTSON,	West Raleigh,	Wake.
E. S. MILLSAPS,	Statesville,	Iredell.
T. D. MCLEAN,	Aberdeen,	Moore.
R. W. FREEMAN,	Wilson,	Wilson.
J. P. KERR,	Haw River,	Alamance.
E. C. TURNER,	Mebane,	Alamance.
J. W. CAMERON,	Polkton,	Anson.
R. K. CRAVEN,	Abbotsburg,	Bladen.
J. F. LATHAM,	Surry,	Beaufort.
R. T. MELVIN,	Supply,	Brunswick.
E. D. WEAVER,	Weaverville,	Buncombe.
A. J. BLANKENSHIP,	Yanceyville,	Caswell.
H. H. B. MASK,	Newton,	Catawba.
R. L. EDWARDS,	Ore Hill,	Chatham.
J. D. FLETCHER,	Fayetteville,	Cumberland.
R. M. GIDNEY,	Shelby,	Cleveland.
G. M. GOFORTH,	Lenoir,	Caldwell.
R. D. GOODMAN,	Concord,	Cabarrus.
J. J. HENDREN,	Chadbourn,	Columbus.
J. W. SEARS,	Vanceboro,	Craven.
L. C. GILSTRAP,	Murphy,	Cherokee.
E. D. BOWDITCH,	Hayesville,	Clay.
M. R. MCGIRT,	Durham,	Durham.
J. B. STEELE,	Lexington,	Davidson.
D. J. MIDDLETON,	Warsaw,	Duplin.
ZENO MOORE,	Whitakers,	Edgecombe.
JOHN A. BOONE,	Franklinton,	Franklin.
BRUCE ANDERSON,	Winston-Salem,	Forsyth.
E. H. ANDERSON,	Greensboro,	Guilford.
B. P. FOLK,	Gastonia,	Gaston.
J. A. MORRIS,	Oxford,	Granville.
J. E. MEWBORN,	Snow Hill,	Greene.
T. L. BROWN,	Waynesville,	Haywood.

DEMONSTRATION AGENTS

<i>Name.</i>	<i>Postoffice.</i>	<i>County.</i>
R. N. LOOPER,	Raeford,	Hoke.
N. B. STEVENS,	Scotland Neck,	Halifax.
J. A. PATTERSON,	Airlie,	Halifax.
W. H. TURLINGTON,	Duke,	Harnett.
E. L. PERKINS,	Hendersonville,	Henderson.
G. E. DULL,	Statesville,	Iredell.
W. C. BOONE,	Kinston,	Lenoir.
J. H. HENLEY,	Sanford,	Lee.
W. L. SMARR,	Lincolnton,	Lincoln.
M. A. BENNETT,	Jackson Springs,	Montgomery.
J. A. BOONE, JR.,	Aberdeen,	Moore.
R. C. BARRETT,	Carthage,	Moore.
J. R. SAMS,	Marshall,	Madison.
A. L. SILER,	Franklin,	Macon.
J. L. HOLLIDAY,	Williamston,	Martin.
R. W. GRAEBER,	Charlotte,	Mecklenburg.
W. R. BAILEY,	Marion,	McDowell.
J. P. HARRING,	Wilmington,	New Hanover.
E. P. JOSEY,	Nashville,	Nash.
P. C. WILLIAMS,	Chapel Hill,	Orange.
F. A. BROWN,	Roxboro,	Person.
G. H. HIGHSMITH,	Currie,	Pender.
B. T. FERGUSON,	Greenville,	Pitt.
G. W. FALLS,	Elizabeth City,	Pasquotank.
G. W. BYARS,	Hamlet,	Richmond.
L. E. BLANCHARD,	Lumberton,	Robeson.
W. B. CRUMPTON,	Salisbury,	Rowan.
I. H. FAUST,	Ashboro,	Randolph.
F. S. WALKER,	Reidsville,	Rockingham.
S. J. LENTZ,	Norwood,	Stanly.
W. P. HOLT,	Danbury,	Stokes.
J. A. TURLINGTON,	Salemberg,	Sampson.
MCDONALD DAVIS,	Clinton,	Sampson.
J. W. JOHNSON,	Mount Airy,	Surry.
T. J. W. BROOM,	Monroe,	Union.
S. R. BIVENS,	Henderson,	Vance.
F. B. NEWELL,	Warrenton,	Warren.
O. O. DUKES,	Wilson,	Wilson.
W. H. CHAMBLEE, JR.,	Zebulon,	Wake.
A. G. HENDREN,	Straw,	Wilkes.
J. C. DOBBINS,	Marler,	Yadkin.
F. E. PATTON,	Burnsville,	Yancey.

MILITARY ORGANIZATION.

Commandant of Cadets.

LIEUTENANT HORACE F. SPURGIN, United States Army.

Cadet Lieutenant Colonel.

S. G. CRATER.

Cadet Majors.

C. R. RUSSELL.

R. W. HAMILTON, Jr.

Regimental Staff.

P. A. ROBERTS, Captain and Adjutant.

S. M. CREDLE, Captain and Quartermaster.

Noncommissioned Staff.

J. H. SPEAS, Sergeant-Major.

J. A. STALLINGS, Quartermaster Sergeant and Color Sergeant.

L. J. SWINK, Signal Sergeant.

Band.

A. J. RUSSO, Captain.

W. C. DODSON, First Sergeant.

G. G. BAKER, Sergeant.

G. H. LAWRENCE, Sergeant.

R. L. LEWIS, Corporal.

K. R. LEWIS, Corporal.

Company A.

E. S. MILLSAPS, Captain.

M. M. FONTAINE, First Lieutenant.

N. W. WELDON, First Sergeant.

J. R. BAUCOM, Sergeant.

F. E. COXE, Sergeant.

F. J. HAIGHT, Sergeant.

E. H. HOLTON, Sergeant.

B. C. ALLEN, Corporal.

MILITARY ORGANIZATION

P. B. FLEMING, Corporal.
J. R. HAUSER, Corporal.
J. F. MABRY, Corporal.
N. A. McEACHERN, Corporal.
S. G. WALKER, Corporal.

Company B.

P. H. KIME, Captain.
P. R. RAND, First Lieutenant.
G. K. MIDDLETON, First Sergeant.
B. D. HODGES, Sergeant.
H. B. ROBERTSON, Sergeant.
J. H. ROGERS, Sergeant.
C. W. STANFORD, Sergeant.
E. A. ADAMS, Corporal.
L. W. BAILEY, Corporal.
J. J. JACKSON, Corporal.
G. B. MILLSAPS, Corporal.

Company C.

J. F. HARRIS, Captain.
J. S. BENNETT, First Lieutenant.
F. W. HOWARD, First Sergeant.
W. H. ELLIOT, Sergeant.
C. R. HARRIS, Sergeant.
T. J. MARTIN, Jr., Sergeant.
B. C. BAKER, Corporal.
J. J. DAVIS, Corporal.
M. M. DEW, Corporal.
S. K. JACKSON, Corporal.
W. C. JONES, Corporal.
J. A. NORTHCOTT, Jr., Corporal.

Company D.

F. A. BAKER, Captain.
G. WHITSON, First Lieutenant.
G. G. AVANT, First Sergeant.
T. P. SIMMONS, Sergeant.
W. S. DIXON, Sergeant.
G. L. TARBOX, Sergeant.
E. C. TURNER, Sergeant.
J. L. BENBOW, Corporal.

H. P. GRIER, Jr., Corporal.
W. K. KEETER, Corporal.
W. E. LEEPER, Corporal.
H. B. OSBORNE, Corporal.

Company E.

R. L. TATUM, Captain.
D. F. SASSER, First Lieutenant.
J. F. WILLIAMS, Jr., First Sergeant.
J. W. HENDRICKS, Sergeant.
R. C. YOUNG, Sergeant.
W. P. DAVIS, Sergeant.
F. M. WEST, Sergeant.
A. J. BOYD, Corporal.
L. KISER, Corporal.
T. C. OSBORNE, Corporal.
W. Z. BETTS, Corporal.
W. Y. WHITLEY, Corporal.

Company F.

L. O. HENRY, Captain.
T. H. HOLMES, Jr., First Lieutenant.
W. E. MATTHEWS, First Sergeant.
J. W. AVERA, Sergeant.
J. E. IVEY, Sergeant.
J. LEE, Jr., Sergeant.
F. C. McNEILL, Sergeant.
L. E. WOOTEN, Sergeant.
G. A. CLUTE, Corporal.
J. T. LARKINS, Corporal.
R. P. KELLY, Corporal.
F. H. PRITCHARD, Corporal.
D. R. SAWYER, Corporal.

Company G.

E. A. HESTER, Captain.
J. F. WILLIAMS, First Lieutenant.
W. S. BRIDGES, First Sergeant.
H. CRAWFORD, Sergeant.
D. R. S. FRAZIER, Sergeant.
J. W. McNAIRY, Sergeant.
W. R. RADFORD, Sergeant.

MILITARY ORGANIZATION

W. H. CORPENING, Corporal.
J. M. G. HICKS, Corporal.
J. C. ROSE, Corporal.
W. L. TREVATHAN, Corporal.

Company H.

K. SLOAN, Captain.
J. A. ARDREY, First Lieutenant.
A. S. CLINE, First Sergeant.
J. L. GREGSON, Jr., Sergeant.
E. P. HOLMES, Sergeant.
E. McPHAUL, Sergeant.
R. B. STOTESBURY, Sergeant.
G. C. COX, Corporal.
A. E. HARSHAW, Corporal.
J. W. McARVER, Corporal.
E. D. WALDIN, Corporal.

GENERAL INFORMATION.

During the years in which North Carolina was emerging from the economic havoc wrought by Civil War and Reconstruction, some farsighted men began to see the necessity of rearing industrially equipped men. They felt keenly the need of competent men to build and direct new industries, and to restore the land which had been impoverished partly by slave labor. They recognized that men capable of doing what was needed would have to be educated in industrial schools and technical colleges.

The first organized body to take steps for the establishment of a State industrial institution in North Carolina was the Watauga Club. This club, composed of bright young men, explained its mission by declaring that it was "an association in the city of Raleigh designed to find out and make known information on practical subjects that will be of public use." In 1885 this club presented to the Legislature a memorial urging that body "to establish an industrial school in North Carolina which shall be a training place for young men who wish to acquire skill in the wealth-producing arts and sciences."

This memorial quickened general interest in the proposed school, and several bills looking to its foundation were introduced in the Legislature of 1885. On March 7th, one of these bills, introduced by Hon. Augustus Leazar, of Iredell County, became a law. This law provided that the Board of Agriculture should seek proposals from the cities and towns of the State, and that the school should be placed in the town offering the most inducements. The Board of Agriculture finally accepted an offer from the city of Raleigh.

Meantime, the ideas of the advocates of the school had been somewhat broadened as to the character of the proposed institution.

These men saw that Congress was about to supplement the original land grant by an additional appropriation for agricultural and mechanical colleges in each State. The originators of the conception then sought the aid of progressive farmers in order to change the school into an Agricultural and Mechanical College. Col. L. L. Polk, the editor of the newly-established Progressive Farmer, threw the weight of his paper heartily into the idea. Meetings were held in various places, and two very large meetings in Raleigh considered the proposition. As a result, the school already provided for was by action of the Legislature of 1887

changed into an Agricultural and Mechanical College, and the Congressional Land Scrip Fund was given the newly formed institution. In addition, the law directed that any surplus from the Department of Agriculture should go into the treasury of the college. Mr. R. Stanhope Pullen, one of Raleigh's most broad-minded citizens, gave the institution eighty-three acres of land in a beautiful suburb of Raleigh. Additional funds were afterwards provided by the Supplemental Morrill Bill passed by Congress in 1890, by the Nelson Bill of 1907, and by State appropriations. The first building was completed in 1889, and the doors of the College were opened for students in October, 1889. Seventy-two students, representing thirty-seven counties, were enrolled the first year. The faculty consisted of six full professors and two assistants. From this small beginning in 1889, the College has grown steadily from year to year.

The College is beautifully located on the extension of Hillsboro Street in the western suburbs of Raleigh, a mile and a quarter from the State Capitol. The site is suitable in all respects.

There is an abundant supply of water from the city mains and from twelve deep wells on the College grounds. The water is analyzed, both chemically and bacteriologically, at regular periods.

The College now owns four hundred and eighty-six acres of land. Fifteen hundred young trees and nine hundred and forty vines are growing in an orchard of twenty-five acres. Seven acres are devoted to truck growing. The campus consists of about thirty acres of rolling land, which is being improved as rapidly as circumstances permit.

BUILDINGS.

The buildings, numbering twenty-seven in all, are grouped as follows: the academic buildings; the social life buildings; and the farm buildings.

I. The academic buildings are as follows:

1. **Holladay Hall.**—This, the administration building of the College, is of brick with brownstone trimmings. It is 170 feet long by 64 feet deep; part of the building is four stories and the remainder two. The first floor is devoted to the lecture-rooms and laboratories of the Physics Department. The second floor contains the offices of the President, the Dean of the Faculty, the Commandant, Registrar, and the Bursar. In addition, six lecture-rooms are located on this floor. The upper stories are used by students.

2. **Patterson Hall.**—This is the largest of the Agricultural buildings. It is a three-story buff press-brick structure, with granite

trimmings, and is 204 feet long by 74 deep. The basement floor contains a very commodious dairy with wash-rooms and sterilization chamber. It also contains mailing rooms for bulletins. The second floor provides room for the offices of the Experiment Station, for offices, lecture-rooms, and laboratories for the departments of Agronomy, Horticulture, Soils, and Agricultural Extension. On the third floor are the rooms devoted to the offices, lecture-rooms, and laboratories of the departments of Botany and Plant Pathology, and of Physiology and Veterinary Medicine. This building contains excellently equipped laboratories, and is well lighted and ventilated. Each section of the building was designed for its specific function, and hence admirably meets the requirements of these departments.

3. Animal Husbandry Building.—This new building is a three-story brick structure, and has white brick and cement trimmings. One-half of the first floor is given to the Poultry Department. The other half is devoted to a stock-judging room. The offices, lecture-rooms, and laboratories of the Animal Husbandry Department take up all the second floor. The third floor is assigned to the Department of Entomology and Zoology. In addition to offices and laboratories, this floor contains a photographic room and a museum.

4. Winston Hall.—This is the Civil and Electrical Engineering building. It is built of brick, with reinforced concrete floors, three stories high, including the basement. It consists of a main section, 104 by 58 feet, with two wings, each 91 by 32 feet. The basement contains the laboratories and instrument rooms of the departments of Electrical and Civil Engineering. The main floor has the lecture, recitation, and drafting rooms, and the offices of the same two departments. The second floor contains the lecture and recitation rooms and the laboratories and offices of the Department of Chemistry and the Chemical Department of the State Experiment Station.

5. Mechanical Engineering Building.—A plain substantial two-story brick building furnishes room for the drawing rooms, recitation rooms, and offices of a portion of the force in the Mechanical Engineering Department.

6. Textile Building.—This is a two-story brick building, 125 by 75 feet, with a basement. Its construction is similar to that of a cotton mill, and is an illustration of standard construction in this class of buildings. The basement contains the dyeing department, the first floor the looms and warp preparation machinery, and the second floor the carding and spinning machinery.

7. Primrose Hall.—Built originally for the Horticultural Department, this building, one-story and a basement, is now used for classrooms.

8. Central Power Plant.—Heat, light, and power for all the College buildings are furnished from this central station. The boiler plant consists of two 75-horsepower Babcock and Wilcox boilers and two 100-horsepower Atlas Water-tube boilers, with a working steam pressure of 150 pounds. The engine plant embraces a 100-horsepower Skinner engine and a Crocker-Wheeler generator attached; a 100 k. w. DeLaval turbine generator set with exciter; and steam and vacuum pumps for feeding the boilers and maintaining circulation in steam-heating apparatus. The buildings are equipped with Warren-Webster system of heating.

9. Shop and Laboratory Building.—All of the shop work, which includes practice in wood working, forging, machine shop and foundry, is given in the new shop building. The Mechanical Engineering laboratory is also in this building. It is a one-story and part basement structure of brick, with steel roof trusses and asbestos shingle roof. Steel sash are used throughout, and an unusual amount of light is provided. Part of the basement will be used for a portion of the Mechanical Engineering laboratory and a part for storage of materials of various kinds. The main floor consists of a machine shop 47 by 100 feet, a laboratory room 45 by 100 feet, a wood shop, 50 by 120 feet, a foundry, 35 by 75, and a forge shop, 35 by 75 feet. Provision is also made for demonstration rooms, offices and tool rooms. A wide entrance hall provides space for the exhibition of work done by students and exhibitions showing the different processes in the manufacture of many well known articles. The building is L-shaped, one dimension being 170 feet and the other 195 feet.

10. A greenhouse, with a small service building attached, serves in part as a place for instruction in cultivating plants under glass.

The Fire Protection of the College consists of the following equipment: A standpipe and reservoir, hose and hose reels. Hydrants are conveniently located about the grounds, with attached hose nozzles, etc. The buildings are supplied with chemical extinguishers.

II. The social life buildings are as follows:

1. Pullen Hall.—The basement of this large three-story colonial brick building is used as an armory. The first floor gives quarters for a splendidly-lighted reading-room and library and two lecture-rooms. The second story serves as the College auditorium, and seats about one thousand people.

2. Dining Hall.—This building, which will seat seven hundred and fifty students, is 144 by 54 feet. It is trimmed with Indiana limestone and white brick. Attached to this dining hall is a large kitchen, which is supplied with a complete modern outfit of kitchen conveniences and utensils. Serving rooms, storerooms, preparation rooms, and every needful adjunct have been provided.

3. The Y. M. C. A. Building.—The Young Men's Christian Association Building, which was opened January 31, 1913, is a three-story red brick building with Indiana limestone trimming. This building is the home of all the voluntary student activities, and is under the supervision of the Young Men's Christian Association. The basement floor contains a small gymnasium, bowling alleys, a locker-room, shower baths, toilets, and athletic rooms. The main floor contains a large lobby, a reading-room well equipped with daily papers and magazines, a game room, an auditorium, a banquet hall with pantry and kitchen attached, a committee room, a library, a kodak dark-room, four bedrooms for visitors, offices for the College weekly, monthly, and annual publications, and offices of the Association. The third floor contains two large literary society halls, a cabinet room, a Bible study and a Mission study room. The building is handsomely equipped with mission furniture throughout.

4. Infirmary.—The College hospital is a two-story brick building, to which two wards have just been added. In addition to these wards there are four separate rooms, three bathrooms, an office for the College physician, and rooms for the head nurse, and a kitchen. The rooms are well ventilated, carefully lighted, and heated by steam. The furniture and equipment are modern and sanitary.

5. Watauga Dormitory.—Rooms for one hundred and twenty students are provided by this three-story brick dormitory. A large bathroom is located in the basement of this building.

6. Nineteen-Eleven Dormitory.—This is the largest and most complete dormitory on the grounds. It is divided into sections by fireproof walls, and each section is practically a separate house. It furnishes rooms for two hundred and forty students. Large and convenient bathrooms are located in the basement of the building.

7. First Dormitory.—This two-story brick dormitory has ten rooms and affords accommodations for twenty students.

8. Second Dormitory.—Built on the same plan as the First Dormitory, this building affords a college home for twenty students.

9. Third Dormitory.—Twenty students also find rooms in this small dormitory.

10. Fourth Dormitory.—This is a three-story mansard-roofed brick structure, and furnishes rooms for forty-eight students.

11. The Legislature of 1915 appropriated twenty thousand dollars for buildings. With this amount one wing of a handsome brick dormitory was completed. This wing furnishes rooms for forty-eight students.

Temporary Wooden Dormitories for Some Students.—In the summer of 1913, the College found itself confronted by a serious dilemma. All the rooms in its permanent dormitories were engaged. No appropriation for building a new dormitory was available. Many deserving young men who wanted to fit themselves to do an educated man's work in the industrial world were asking for admittance. Rather than close its doors to these young men whom the State is needing for its material development, the trustees of the College decided to build some cheap wooden dormitories for such earnest young men as were willing to live in them rather than miss their opportunity for a technical education. These buildings are furnished just as the other dormitories are, and are lighted by electricity. While unsightly, they are sanitary and comfortable.

III. The farm buildings constitute the third group of College buildings. These are as follows:

1. A large sanitary dairy barn.—This barn has stalls and feed-rooms for fifty cows. This barn is abundantly aired and lighted, is equipped with James sanitary fixtures, and has cement floors.

2. A barn for the work stock.—Stalls for most of the work animals and some overhead storage are supplied by this barn.

3. A storage barn.—This barn gives storage for feedstuffs for the dairy, and is also equipped with stalls for the Percheron horses.

4. A fertilizer and implement barn.—A commodious barn, which provides room for instruction in mixing fertilizers and storage for the farm implements and machines.

5. The Experiment Station barn.—This convenient building is located on the College farm and houses the work stock of the Station.

6. A calf barn.—The young stock of the College are provided with separate stalls and feeding rooms in a comfortable building on the farm site.

7. The foreman's home.—A cottage near the barns is occupied by the foreman of the College farm and by the herdsmen.

8. **The Horticulturist's home.**—In order that he may be near his work, the Horticulturist is provided with a home in the center of the orchard.

9. **The Poultry Plant.**—The plant for the poultry department consists of the home of the instructor in charge, incubator and brooding house, and pens for all the fowls, and is situated just opposite the Horticultural farm, on Hillsboro Road.

THE AGRICULTURAL EXPERIMENT STATION.

The North Carolina Agricultural Experiment Station was established originally as a division of the State Department of Agriculture, in accordance with an act of the General Assembly, ratified March 12, 1877. Its work was greatly promoted by act of Congress of March 2, 1887, known as the Hatch Act, which made a donation to each State for the purpose of investigations in agriculture, and for publishing the same. The funds of the Experiment Station were further supplemented by the act of Congress of March 16, 1906, known as the Adams Act. Under the requirements of the Hatch Act, the Station became a department of the College and was conducted jointly by the College and the Department of Agriculture from 1889 to 1907, with the exception of three years. Under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture in January, 1912, and authorized by act of the Legislature of 1913, the work of the Experiment Station, which covers all of the experimental work in agriculture in the State, is jointly conducted and supported by the College and State Department of Agriculture.

The experimental work in the field in agriculture, horticulture, stock and poultry raising, dairying, etc., is conducted on the College farm and on the test farms of the Department of Agriculture in different parts of the State, and the laboratory investigations are conducted in the laboratories of the two institutions.

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

Bulletins relating to general farm matters, embodying the results of the experiments, are sent free to all citizens of the State who request them. A request addressed to the Agricultural Experiment Station, West Raleigh, will bring these publications. The Station is glad also to answer letters of inquiry.

AGRICULTURAL EXTENSION SERVICE.

Yearly increasing amounts of Extension work have been done by the North Carolina Department of Agriculture, the College of Agriculture and Mechanic Arts, and the Experiment Station since their organization. At first this took the form of analyses of fertilizers, marls, phosphates, composts, and various agricultural products, and advice on these several matters. Farmers' Institutes were started at a later date and are continued at the present, and other forms of Extension service have been conducted along a number of lines. In 1906 Farm Demonstration work, through county agents and special workers, was begun, and Boys' and Girls' Clubs were soon made a part of it.

This division conducts the Corn Clubs, Poultry Clubs, Pig Clubs, and Crop Rotation Clubs for the boys and girls of the State, and the Canning Clubs for the girls. The active membership of these clubs is confined to young people between the ages of ten and eighteen years, but adults are permitted to join the Pig, Poultry, and Rotation clubs, and get all instructions sent the active members. In these clubs the young people are taught to grow crops or animals upon their own farms according to the teachings of modern science, and are shown the wonderful possibilities of farming in accordance with a few fundamental scientific laws.

In addition to the instruction through monthly letters, bulletins, and visits of the Extension workers, club schools are held at the farm-life schools and at county-seats during the summer, at which the members are given two or three days of technical instruction.

There is also held at the Agricultural and Mechanical College during each August a one-week Short Course for members of all the clubs conducted by the Extension Division.

In January, 1912, under an agreement entered into between the Board of Trustees of the College and the Board of Agriculture, and authorized by an act of the Legislature in 1913 (chapter 68, Public Laws of 1913), all of the Extension and Demonstration work in the State was brought together and conducted jointly by the two institutions, in cooperation with the United States Department of Agriculture.

The Congressional Smith-Lever Act of May 8, 1914, has made possible a larger development of the Extension Service. The Extension Service has for its main object the carrying of new facts and good practices obtained in experimental work and in good farming to the farmers and farm women of the State, through county men and

women agents and workers in special lines. These workers spend most of their time in the field in efforts to bring about better farming, better homes, coöperation among farmers, marketing farm products, etc.

The Extension forces at headquarters are housed in the buildings of the College of Agriculture and Mechanic Arts and of the State Department of Agriculture, offices and conveniences for work having been supplied by these two institutions, and in the main equipped.

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 many lines of industry in which training and skill are requisite to success. It is intended to train farmers, mechanics, engineers, architects, draughtsmen, machinists, electricians, miners, metallurgists, chemists, dyers, mill workers, manufacturers, stock raisers, fruit growers, truckers, and dairymen, by giving them not only a liberal, but also a special education, with such manual and technical training as will qualify them for their future work.

It offers practical and technical education in Agriculture, Horticulture, Animal Industry, Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemistry, Dyeing, Textile Industry, and Agriculture. It also offers practical training in Carpentry, Woodturning, Blacksmithing, Machinist's work, Mill work, Boiler tending, Engine tending, Dynamo tending and Installation, Electric-light Wiring, Armature Winding, and other subjects relating to practical electricity.

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

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

WHAT THE COLLEGE EXPECTS OF ITS STUDENTS.

The College does not have many rules. It expects that its students will live rightly for their own sakes and for the sake of

the State that is educating them. The fundamental law of the College is this: Always and everywhere, be a gentleman.

A record is kept of every student. If it is apparent from this record that a student is not studying or that his conduct is not meeting the requirements of the College, such student will be required to withdraw. Scandalous, vicious, or immoral conduct will necessitate an immediate dismissal.

Students attend this College, of course, to fit themselves for a technical business life. They are therefore expected to be business-like in their habits; to be prompt in their attendance and regular at chapel, classes, shops, drills, inspections, and all other duties. To prepare themselves for their daily work, students are expected to observe in their own rooms the regular morning and evening hours of study, and to be absent from College only at the regularly specified periods. These periods are as follows: For Juniors, Friday, Saturday, and Sunday nights; for Sophomores, Saturday and Sunday nights; for Freshmen, Sunday nights. Saturday and Sunday afternoons are liberty afternoons.

Students are expected to keep their rooms neat and sanitary; to refrain from disturbing one another by noise in the buildings or on the grounds—in short, to conduct themselves in their College home with the same courtesy, self-respect, and propriety that they do in their own homes.

Visiting poolrooms, leaving College after 11 o'clock at night, continued cigarette smoking, wilful destruction of College property, drinking, immorality, gambling in all forms, hazing of any kind, disrespect to members of the Faculty or officers of the College, any conduct unbecoming a gentleman—these offenses it is expected that a student's self-respect will lead him to abstain from, and should any student be found guilty of them he will be excluded from College.

REPORTS AND SCHOLARSHIP.

Regular reports of scholarship and conduct are sent to parents and guardians at the end of each term. Special reports are made whenever necessary. Whenever a student fails on a subject during a month, such failure is reported to his parents. 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 nor to the College.

RELIGIOUS INFLUENCES.

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

Each student is expected to attend religious service in Raleigh on Sunday morning at the church of his choice. The students are always welcomed in the Sabbath schools of Raleigh, and a large number of them attend these services.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION.

The Young Men's Christian Association is a voluntary organization among the students for the purpose of centralizing and directing the moral and religious life of the student body. The work is under the direction of a General Secretary, who is employed to give his entire time to the work, and of the following student officers: president, vice-president, corresponding and recording secretaries, and treasurer. Active assistance is also given by an Advisory Committee, which includes three members of the Faculty and six prominent business men in Raleigh. The president and treasurer of the Association are *ex officio* members of this committee.

Membership is open to all College students of good moral character. Only members of evangelical churches may become active members.

A hand-book, giving general information about the College, is published each spring and sent to prospective students, with a personal letter of welcome from the officers of the Association.

A large number of men are trained each year in active Christian service through membership on the following standing committees, all of which are trained by the General Secretary in their particular work: Bible Study Committee, which has charge of the organization of voluntary Bible Study classes among the students, and in this way seeks to reach all of the non-Christian element of the student body; Religious Meetings Committee, which provides speakers and arranges programs for the weekly meetings of the Association; Mission Study Committee, which provides for Mission Study among the students; Membership Committee, which seeks to enlist students as members of the Young Men's Christian Association; Social Committee, which provides means of social entertainment and diversion; and Finance Committee. Each committee is held responsible for its part of the Association activities.

The Association is supported by gifts from the Board of Trustees, the Faculty, and citizens of the State, and by its regular membership fees. Although membership is voluntary, it is desired that all students should apply for membership, and thereby align themselves with an organization which will assist them in leading an upright life while in college.

The Association occupies its own building on the campus, which was erected at a cost of \$41,000.

Parents or students wishing to obtain further information about the work of the Association may do so by addressing the General Secretary, West Raleigh, N. C.

ATHLETICS.

The Athletic Association is organized by the student body to promote physical health and manly spirit through athletic sports. Under the direction of the Athletic Committee of the Faculty it promotes practice in baseball, basketball, football, track athletics, etc. The Association employs a director who devotes all of his time to the interests of this department. The athletic park is situated in the center of the College campus. It is provided with a grandstand and uncovered seats and meets the needs of the various athletic teams.

It is the aim of the College to encourage participation in athletic sports by all students as far as possible. In order to promote interest in athletics the College teams are allowed to play a limited number of games with the teams of other colleges. While all students are allowed and encouraged to take part in intramural games, the College recognizes that college athletics are promoted for the benefit of its bona-fide students, and in order to prevent abuses the following regulations in regard to intercollegiate games are in force:

Eligibility Rules of the North Carolina College of Agriculture and Mechanic Arts.

Any student of good and regular standing shall be eligible to represent this College in athletic contests, subject to the following conditions:

1. Before any student can become a member of any athletic team in the College and take part in any intercollegiate contest, he must apply to the Faculty Committee on Athletics and secure its approval of his application. It shall be the duty of the Faculty Committee on Athletics to see that the said student is properly enrolled in the College.

2. It shall be the duty of the Athletic Committee to inquire into and make record of the athletic experience of the applicant, and it shall be the duty of the applicant to appear before the committee and answer on his honor such questions as the committee may see fit to ask.

3. No student shall take part in any contest who has taken part in intercollegiate contests for four academic years, either at this College or at any other college or university.

4. No student shall participate who is receiving, has received, or has been promised, directly or indirectly, any money or financial concessions as compensation for, or prior consideration to his playing.

5. No student shall participate in athletic sports who does not matriculate within thirty (30) days of the opening date of the current session.

6. No student shall participate who has played baseball on any league team belonging to the National Association, or to any league recognized by the National Baseball Commission as an "outlaw league"; or who has missed any time from College work in order to play on any organized so-called "summer baseball team."

7. No student who is recognized by the Athletic Council as a member of any team shall be eligible the following session, unless he has remained as a resident student two-thirds of the preceding session, and can give satisfactory reason for not remaining the whole session.

8. No graduate student who is not a bona-fide applicant for a degree conferred by this College shall be allowed to participate.

9. No person whose name appears in the Catalogue list of officers of instruction or administration of the College and who receives remuneration therefor shall be a member of any athletic team representing the College.

10. No undergraduate student shall take part in any athletic contest who is not pursuing one of the regular prescribed courses of instruction or its equivalent, nor will he be allowed to participate if his class work be unsatisfactory.

11. No student shall be allowed to represent the College in any intercollegiate contest during any month if he has been reported deficient on a majority of his work for the preceding month.

12. No student who has been a member or a substitute member of the football or baseball team of another college or university during the preceding year shall be permitted to become a member of either team at this College during his first session. In no case shall such student be eligible for these teams at this College unless he shall have been a student here for at least one-half of the preceding ses-

sion; and no student who is unable to pass examination on two-thirds of the work required for admission to the Freshman class shall be allowed to participate until he has been in College one term.

13. The object of these rules is to allow only bona-fide students to take part in athletic contests, and if it shall appear to the Faculty and Athletic Committee that any student is, or has ever been, a professional athlete, or that he is in college for the purpose of taking part in athletics and not of getting an education, such student shall not be allowed to represent the College in any athletic contest.

Note 1.—The term substitute is interpreted to mean any student who has taken part in two or more intercollegiate contests.

Note 2.—The term college is interpreted to mean any college named in the latest report of the Commissioner of Education which has as many as one hundred and fifty male students of collegiate grade recorded in its catalogue for the preceding year.

Note 3.—The term session is interpreted to mean a college year of two terms.

LIBRARY AND READING-ROOM.

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

The Olivia Raney Library in Raleigh is free to students, and they have the privilege of borrowing books from it.

Students are also allowed to consult books in the State Library.

STATE MUSEUM.

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

COLLEGE SOCIETIES.

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

The Blag Society is composed of those students who have made the best record in biological and agricultural subjects. The mem-

bership is limited to twelve. The society meets monthly for the discussion of biological and agricultural questions.

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

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

The Biological Club meets semimonthly for the discussion of biological subjects in their relation to practical agriculture. Students here present results of their own investigations and observations and reviews of the more important current publications, particularly those from the United States Department of Agriculture and the State Experiment Stations.

The Tompkins Textile Society.—The purpose of this society is to discuss textile problems and other subjects in connection with the textile industry. Meetings are held fortnightly, and great interest is taken in them by the textile students.

The Mechanical Engineering Society meets every week for the discussion of engineering subjects. The society is composed of Seniors and Juniors taking the Mechanical Engineering Course. Its work has proved very beneficial to its members.

Electrical Engineering Society.—A student branch of the American Institute of Electrical Engineers was organized at the College several years ago. It holds weekly meetings for the reading and discussion of papers. At convenient intervals the society makes trips for inspecting interesting electrical installations. From time to time addresses are made by visiting engineers.

Berzelius Society meets fortnightly for discussion of chemical topics, and for reports upon the leading articles in the chemical journals.

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

The Alumni Association meets each year on the Monday preceding Commencement Day, transacts its annual business, hears the

Alumni oration, and attends the annual Alumni banquet. This association purposes raising funds to erect an Alumni building at the College.

The Poultry Science Society is a society for the promotion of the interests of poultry study. Weekly meetings are held, at which programs on poultry topics are carried out. Membership is open to all students interested in the study of poultry subjects.

REQUISITES FOR ADMISSION.

Each applicant for admission must be at least sixteen years of age and must bring a certificate of good moral character from the school last attended.

To the Four-year Courses.

Admission to the Freshman Class of all four-year courses is by the unit system. A unit is defined as a subject pursued in schools of approved grade for five periods a week throughout the year, each period being at least forty-five minutes in length. Each applicant, selecting from the subjects named in the lists below, must, on examination, make eight units, the credit on any one subject not to exceed the value indicated. Of these eight units the following are required for all four-year courses:

Required Units.

SUBJECTS.	Units.
Algebra.....	1½
English.....	2
United States History.....	1
Total units in required subjects.....	4½
Geometry (Engineering Courses and Chemistry).....	½

The 1½ units required in Algebra must cover the subject to quadratic equations.

Of the 2 units required in English, 1 unit must be in grammar and composition and 1 unit in literature.

Additional Units.

In addition to the four and one-half units in required subjects given in above list, applicants wishing to take the Agricultural Course, the Veterinary Course, or the Textile Course must offer

three and a half units selected from the list below. Applicants wishing to enter an Engineering course or the Chemical course must offer, in addition to the above required units, $\frac{1}{2}$ unit in geometry and three units selected from the list below. The $\frac{1}{2}$ unit in geometry must include the first three books of Plane Geometry.

Elective Units.

SUBJECTS.	Units.
Agriculture or Farm Practice.....	1
Botany.....	$\frac{1}{2}$ or 1
Bookkeeping.....	$\frac{1}{2}$
Chemistry.....	$\frac{1}{2}$ or 1
Civics.....	$\frac{1}{2}$
Drawing (Freehand or Mechanical).....	$\frac{1}{2}$
English History.....	1
Mediæval and Modern History.....	1
French, German or Spanish.....	1
Latin.....	2
Manual Training.....	$\frac{1}{2}$
Mill Practice.....	$\frac{1}{2}$
Physics.....	$\frac{1}{2}$ or 1
Physiology.....	$\frac{1}{2}$
Zoology.....	$\frac{1}{2}$ or 1

A full unit will be allowed for any one science only when the subject has been given with laboratory practice.

Admission on Certificate.—Applicants for admission to the Freshman Class, who present certified statements from principals of high schools or academies of approved standing that the applicant has satisfactorily completed the eight units required by the College, will be admitted without further examination. These certificates must be submitted to the Dean of the College for approval.

To the Two-year Courses.—Applicants for admission to the two-year courses in Agriculture, Mechanic Arts, and Textile Industry will be examined on Arithmetic complete and Algebra through fractions, English Grammar and Composition, and American History.

To the One-year Course in Agriculture.—Applicants for admission to the One-year Course in Agriculture will be required to pass

on Arithmetic through decimal fractions, on English Grammar, and on United States History.

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

REQUISITES FOR ADMISSION IN 1917.

In 1917 and until notice of further change is given, eleven units will be required for unconditional admission to the Freshman Class of all four-year courses. Of these eleven units, eight and a half are in specified subjects; two and a half are elective.

Specified Subjects.

SUBJECTS.	Units.
English.....	3
History.....	2
Mathematics.....	2½
Science.....	1
	8½

The explanation of the requirements is given below.

Elective Subjects.

In addition to these eight and a half specified units, two and a half elective units must be offered from the list of subjects given on page 39.

Explanation of Requirements.

ENGLISH:	Units.
(a) Grammar and Composition.....	1
(b) Reading and Practice.....	1
(c) Study and Practice.....	1

(a) Grammar and Composition.—English grammar should be carefully reviewed during the high-school course, with special emphasis on correct terminology, the functions of the parts of speech, and the analysis of sentences. The study of composition is given system and unity by the use of a good text-book, but this should be accompanied

with frequent written and oral exercises. Without constant practice the study of the principles of composition is futile. It is suggested that the exercises be generally short, one page being sufficient, on subjects chosen from the student's personal experiences and observations, not exclusively from literature. The fundamentals in composition—correct spelling, punctuation, and grammar—should be insisted upon.

(b) **Reading and Practice.**—The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of its best specimens. He should read the books carefully, but his attention should not be so fixed upon details that he fails to appreciate the main purpose and charm of what he reads. With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from each of which at least two selections are to be made, except as otherwise provided under Group 1:

GROUP 1—Classics in Translation; two to be selected: The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther. Homer's *Odyssey*, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII. Homer's *Iliad*, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI. Vergil's *Æneid*. The *Odyssey*, the *Iliad*, and the *Æneid* should be read in English translations of recognized literary excellence. For any selection from this group a selection from any other group may be substituted.

GROUP 2—Shakespeare; two to be selected: Shakespeare's *Midsummer Night's Dream*, *Merchant of Venice*, *As You Like It*, *Twelfth Night*, *The Tempest*, *Romeo and Juliet*, *King John*, *Richard II*, *Richard III*, *Henry V*, *Coriolanus*, *Julius Caesar*, *Macbeth*, *Hamlet*. (The last three only, if not chosen for study.)

GROUP 3—Prose Fiction; two to be selected: Malory's *Morte d'Arthur* (about 100 pages). Bunyan's *Pilgrim's Progress*, Part I. Swift's *Gulliver's Travels* (Voyages to Lilliput and to Brobdingnag). Defoe's *Robinson Crusoe*, Part I. Goldsmith's *Vicar of Wakefield*. Frances Burney's *Evelina*. Scott's novels: any one. Jane Austen's novels: any one. Maria Edgeworth's *Castle Rackrent*, or *The Absentee*. Dickens' novels: any one. Thackeray's novels: any one. George Eliot's novels: any one. Mrs. Gaskell's *Cranford*. Kingsley's *Westward Ho!* or *Hereward the Wake*. Reade's *The Cloister and the Hearth*. Blackmore's *Lorna Doone*. Hughes's *Tom Brown's School Days*. Stevenson's *Treasure Island*, or *Kidnapped*, or *The Master of Ballantrae*. Cooper's novels: any one. Poe's *Tales*. Haw-

thorne's *The House of the Seven Gables*, or *Twice Told Tales*, or *Mosses from an Old Manse*. A collection of short stories by various standard writers.

GROUP 4—Essays, Biography, etc.; two to be selected: *The Sir Roger de Coverley Papers*, or selections from the *Tatler* and the *Spectator* (about 200 pages). Boswell's *Life of Johnson* (about 200 pages). Franklin's *Autobiography*. Irving's *Sketch Book* (about 200 pages), or *Life of Goldsmith*. Southey's *Life of Nelson*. Selections from Lamb's *Essays of Elia* (about 100 pages). Lockhart's *Life of Scott* (about 200 pages). Thackeray's *Lectures on Swift, Addison, and Steele*, in *English Humorists*. Macaulay, one of the following essays: *Lord Clive*, *Warren Hastings*, *Milton*, *Addison*, *Goldsmith*, *Frederic the Great*, or *Madame d'Arblay*. Trevelyan's *Life of Macaulay* (about 200 pages). Ruskin's *Sesame and Lilies*, or selections (about 150 pages). Dana's *Two Years Before the Mast*. Lincoln: two Inaugurals, and the speeches in Independence Hall and at Gettysburg, the Last Public Address, and Letter to Horace Greeley, together with a brief memoir or estimate of Lincoln. Parkman's *The Oregon Trail*. Thoreau's *Walden*. Selected essays of Lowell (about 150 pages). Holmes's *The Autocrat of the Breakfast Table*. Stevenson's *Inland Voyage*, and *Travels with a Donkey*. Huxley's *Autobiography* and selections from *Lay Sermons*, including the addresses on *Improving Natural Knowledge*, *A Liberal Education*, and *A Piece of Chalk*. A collection of essays by Bacon, Lamb, De Quincey, Hazlitt, Emerson, and later writers. A collection of Letters by various standard writers.

GROUP 5—Poetry; two to be selected: Palgrave's *Golden Treasury* (first series), Books II and III, with special attention to Dryden, Collins, Gray, Cowper, and Burns. Palgrave's *Golden Treasury* (first series), Book IV, with special attention to Wordsworth, Keats, and Shelley (if not chosen for study). Goldsmith's *The Traveller* and *The Deserted Village*. Pope's *The Rape of the Lock*. A collection of English and Scottish Ballads, as, for example, some Robin Hood Ballads, *The Battle of Otterburn*, *King Estmere*, *Young Beichan*, *Bewick* and *Grahame*, *Sir Patrick Spens*, and selections of later ballads. Coleridge's *The Ancient Mariner*, *Christabel*, and *Kubla Khan*. Byron's *Childe Harold*, Canto III or IV, and *The Prisoner of Chillon*. Scott's *The Lady of the Lake* or *Marmion*. Macaulay's *The Lays of Ancient Rome*, *The Battle of Naseby*. *The Armada*, *Ivry*. Tennyson's *The Princess*, or *Garth and Lynette*, *Launcelot and Elaine*, and *The Passing of Arthur*. Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of*

the French Camp, Hervé Riel, Pheidippides, My Last Duchess, Up at a Villa—Down in the City, The Italian in England, The Patriot, "De Gustibus," The Pied Piper, Instans Tyrannus. Arnold's *Sohrab and Rustum* and *The Forsaken Merman*. Selections from American poetry, with special attention to Poe, Lowell, Longfellow, and Whittier.

(c) **Study and Practice.**—This part of the requirement is intended as a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. The books provided for study are arranged in four groups, from each of which one selection is to be made.

GROUP 1—Drama; one to be selected: Shakespeare's *Julius Caesar, Macbeth, Hamlet*.

GROUP 2—Poetry; one to be selected: Milton's *L'Allegro, Il Penseroso*, and either *Comus* or *Lycidas*. Tennyson's *The Coming of Arthur, The Holy Grail, and The Passing of Arthur*. The selections from Wordsworth, Keats, and Shelley in Book IV of Palgrave's *Golden Treasury* (first series).

GROUP 3—Oratory; one to be selected: Burke's *Speech on Conciliation with America*. Macaulay's *Speeches on Copyright*, and Lincoln's *Speech at Cooper Union*. Washington's *Farewell Address*, and Webster's *First Bunker Hill Oration*.

GROUP 4—Essays; one to be selected: Carlyle's *Essay on Burns*, with a selection from Burns's poems. Macaulay's *Life of Johnson*. Emerson's *Essay on Manners*.

Examination.

However accurate in subject-matter, no paper will be considered satisfactory if seriously defective in punctuation, spelling, or other essential of good usage.

The examination will be divided into two parts, one of which will be on grammar and composition and the other on literature.

In grammar and composition the candidate may be asked specific questions upon the practical essentials of these studies, such as the relation of the various parts of a sentence to one another, the construction of individual words in a sentence of reasonable difficulty, and those good usages of modern English which one should know in distinction from current errors. The main test in composition will consist of one or more essays, developing a theme through several paragraphs. The subjects will be drawn from the books read, from the candidate's other studies, and from his personal

knowledge and experience quite apart from reading. For the purpose the examiner will provide several subjects, perhaps eight or ten, from which the candidate may make his own selections. He will not be expected to write more than four hundred words an hour.

The examination in literature will include:

(a) General questions designed to test such knowledge and appreciation of literature as may be gained by fulfilling the requirements defined under "(a) Reading," above. The candidate will be required to submit a list of books read in preparation for the examination, certified by the principal of the school in which he was prepared; but this list will not be made the basis of detailed questions.

(b) A test on the books prescribed for study, which will consist of questions upon their content, form, and structure, and upon the meaning of such words, phrases, and allusions as may be necessary to an understanding of the works and an appreciation of their salient qualities of style. General questions may also be asked concerning the lives of the authors, their other works, and the periods of literary history to which they belong.

HISTORY:	Units.
(a) American.....	1
(b) English History.....	1
(c) Ancient History.....	1
(d) General Medieval and Modern History.....	1

American history must be offered for one of the units in history, and any one of the others named for the second. Standard textbooks of high-school grade should be studied.

MATHEMATICS:	Units.
(a) Algebra (high-school text-book)— To Quadratics.....	1
Quadratics through Progression.....	1
(b) Plane Geometry (complete).....	1

SCIENCE AND VOCATIONAL SUBJECTS:	Units.
(a) Botany.....	$\frac{1}{2}$ or 1
Chemistry.....	$\frac{1}{2}$ or 1
Physics.....	$\frac{1}{2}$ or 1
Physiology.....	$\frac{1}{2}$ or 1
Zoology.....	$\frac{1}{2}$ or 1
(b) Agriculture.....	$\frac{1}{2}$ or 1
Bookkeeping.....	$\frac{1}{2}$
Civics.....	$\frac{1}{2}$
Drawing (frechand or mechanical).....	$\frac{1}{2}$
Manual Arts.....	$\frac{1}{2}$ or 1
Mill Practice.....	$\frac{1}{2}$
Physical Geography.....	$\frac{1}{2}$ or 1

The specified science (see page 40) must be chosen from group a; any other than that chosen as the specified science from group a or any one from group b may be offered as an elective subject.

In drawing the stress should be placed on accurate observation and definite and truthful representation. It is recommended that the pupils be taught to draw from the object itself. Elementary rules of perspective, light, and shade should be given, and the drawing of the simpler geometrical plane and solid figures and of simple pieces of machinery.

As the work is as yet scarcely begun in the schools of the State, no definite requirements can be indicated for high-school instruction in Manual Arts. The following branches are suggested as pointing the direction in which the work should be developed: joinery, forging, machine and sheet-metal work, molding, and pattern making.

One unit is allowed for a science when work in the text-book is supplemented with laboratory practice; only a half unit is allowed for the study of the text-book without laboratory. If full credit is asked, the applicant for admission must present a satisfactory notebook indicating the amount and the character of the laboratory work done, and certified by the teacher, the principal, or the superintendent of his school.

FOREIGN LANGUAGES:		Units.
French—	(a) Grammar and Composition.....	½
	(b) Translation (250 pages of prose).....	½
German—	(a) Grammar and Composition.....	½
	(b) Translation (200 pages of prose).....	½
Latin—	(a) Grammar and Composition.....	1
	(b) Cæsar (Books I-IV of the Gallic War).....	1
	(c) Vergil (Books I-VI of the Æneid).....	1
Spanish—	(a) Grammar and Composition.....	½
	(b) Translation (250 pages of prose).....	½

The faculty of the College reserves the right to pass upon the adequacy of an applicant's preparation in any subject to fulfil the requirements of admission.

ENTRANCE EXAMINATIONS AT COUNTY-SEAT AND AT COLLEGE.

Entrance examinations will be held by the County Superintendents of Instruction in each courthouse in the State at 10 o'clock a. m. the second Thursday in July of each year. The date for 1916 is July 13. These examinations will save the expense of a trip to Raleigh in case the candidate should fail or in case there should not be room enough for him in the College. Entrance examinations will be held also at the College at 8:30 o'clock a. m. on the Wednesday preceding the opening day. The examinations begin with English at 8:30 a. m., in Room 18, Holladay Hall, followed by Mathematics at 10, and History at 2, in the same room. The date for 1916 is September 6.

ADMISSION WITHOUT EXAMINATION.

The following persons will be admitted without examination:

1. Applicants for admission to winter courses, if over eighteen years of age.
2. School teachers, holding teachers' certificates, if the holders are sufficiently familiar with Algebra and Geometry.
3. Graduates of those high schools and academies whose certificates are accepted by the Faculty of this College.

ADVANCED CREDIT.

Students who have attended colleges of approved standing will be allowed credit for work done upon the presentation of proper

certificates to the Dean, who, with the heads of the departments concerned, will determine their value.

SESSION.

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

EXPENSE.

The total average college expense of a Freshman student is \$235.

The total average college expense of a Freshman student having a scholarship is \$190.

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

Allowance for clothing, spending money, and contingencies should be kept within reasonable bounds. The allowances which parents make their sons for contingencies and spending money, it is suggested, should be kept small; for small allowances frequently take away temptation to unwise living.

DETAILED INFORMATION.

The largest payment is made in September. On entrance, a Freshman student will need \$85 to meet all of his various payments for the first month. But of this amount a payment of \$22.50 for tuition may be deferred, if desired, to the first of November. This will reduce the first, or entrance, payment to \$62.50. This amount includes payment to the College of \$45 (this may vary one or two dollars according to the course of instruction); a deposit of \$5 with the dealer for uniform and cap, and \$12.50 for the purchase of books and incidentals. In the case of day students, or students rooming and boarding out of College, tuition will be paid on entrance.

Board is \$11 per month, payable in advance on the first day of each calendar month from September through to May. Board for less time than one month is charged for at the rate of 40 cents a day. Refunds for board will be made on the basis of these charges.

Students withdrawing from College within two weeks from date of entrance will be refunded all money paid by them to the College Bursar except charges for board and lodging during the time they are in College. In special cases the right is reserved to modify or entirely revoke this rule.

Refunds to students withdrawing later than two weeks from date of entrance will be made in proportion to the length of time they are in college. The right in special cases to modify or to revoke this rule is reserved.

EXPENSE BY MONTHS.

On entrance a Freshman student will need about \$85 to meet his various expenses. Of this sum, as the table below specifies, \$67.50 is paid to the College for regular College dues. About \$12.50 will be needed for books and incidentals, and \$5 must be deposited with the contractor when the regulation uniform is ordered. Of the amount paid to the College the tuition, \$22.50, may be deferred, if necessary, to November 1st.

SEPTEMBER: Room rent, fuel and lights, \$15; incidental fee, \$2; medical and hospital fee, \$3; lecture fee, \$1; library fee, \$1; furniture fee, \$1; physical culture fee, \$3; military equipment deposit, \$5; mechanical and physical laboratory fees, \$3; board for September, \$11; a total of \$45 to be paid to the College. Tuition for one-half session, \$22.50, may be paid at this time, which will make a total of \$67.50 to be paid to the College. In addition, there is required by the merchant a deposit of \$5 for uniform and cap when the measure of the student is taken; and about \$10 to \$15 is required to buy books and drawing instruments, and for incidentals.

Fees and deposits for Agricultural, Chemical, Textile, and Engineering Freshmen vary as shown in the table of fees and deposits.

OCTOBER: Board, \$11, and balance to merchant for uniform and cap, \$15.

NOVEMBER: Board, \$11; tuition, if it was not paid in September, \$22.50.

DECEMBER: Board, \$11.

JANUARY: Tuition, \$22.50; lodging and fuel and lights, \$15; medical and hospital fee, \$3; furniture fee, \$1; physical culture fee, \$3; board, \$11. A total of \$55.50.

FEBRUARY: Board, \$11.

MARCH: Board, \$11.

APRIL: Board, \$11.

MAY: Board, \$11.

The amount of the September or entrance payment for students varies with the class, the course, and the division. This variation is caused by the additional collection of fees and deposits for laboratory work and for supplies. The amount of these fees and deposits is given in the table below, for all classes and courses.

FEEES AND DEPOSITS FOR AGRICULTURAL STUDENTS.

	SENIOR	JUNIOR	SOPHOMORE	FRESHMAN
AGRONOMY.....	Chemistry.....\$2	Soils.....\$3	Plant Propagation.....\$1	Botany.....\$1
	Entomology... 1	Chemistry..... 2	Dairying..... 2	Chemical Lab.. 2
	Bacteriology... 3	Poultry..... 1	Chemical Lab.. 4	Woodwork and Drawing..... 1
		Pruning..... 1	Zoology..... 2	
		Agronomy..... 1	Plant Physiology..... 1	
		Animal Physiology..... 1		
	6	8	11	4
ANIMAL HUSBANDRY.....	Chemistry.....\$2	Soils.....\$3		
	Entomology... 1	Poultry..... 1	Same as Agronomy	Same as Agronomy
	Bacteriology... 3	Chemistry..... 2		
		Agronomy..... 1		
		6	7	
HORTICULTURE..	Entomology...\$1	Soils.....\$3		
	Bacteriology... 3	Chemistry..... 2	Same as Agronomy	Same as Agronomy
		Pruning..... 1		
		Entomology... 1		
		Agronomy..... 1		
	4	8		
NORMAL.....	Chemistry.....\$2	Soils.....\$3		
	Bacteriology... 3	Poultry..... 1	Same as Agronomy	Same as Agronomy
	Plant Diseases. 1	Chemistry..... 2		
	Agronomy..... 1	Pruning..... 1		
	Entomology... 1	Agronomy..... 1		
	8	8		
VETERINARY....	Anatomy.....\$2	Agronomy.....\$1		
	Materia Medica 1	Poultry..... 1	Same as Agronomy	Same as Agronomy
	Pathology..... 1	Histology..... 1		
	Chemistry..... 2	Anatomy..... 2		
	Zoology..... 2	Chemistry..... 2		
	Bacteriology... 3			
	11	7		
POULTRY.....	Chemistry.....\$2	Chemistry.....\$2		
	Poultry..... 1	Pruning..... 1	Same as Agronomy	Same as Agronomy
	Poultry (51).... 2	Soils..... 3		
		Poultry (51).... 1		
		Poultry (52).... 1		
	5	8		

FEES AND DEPOSITS FOR ENGINEERING STUDENTS.

	SENIOR	JUNIOR	SOPHOMORE	FRESHMAN
CIVIL ENGINEERING.....	Drawing.....\$1 1	Drawing.....\$1 1	Drawing.....\$1 Physical Lab... 1 Chemical Lab.. 3 5	Physical Lab...\$1 Shop and Drawing..... 2 3
MECHANICAL ENGINEERING.....	Shop and Drawing.....\$2 M. E. Lab..... 1 3	E. E. Lab.....\$1 Shop and Drawing... 2.50 3.50	Physical Lab...\$1 Chemical Lab.. 3 Shop and Drawing..... 2 6	Same as C. E.
ELECTRICAL ENGINEERING.....	E. E. Lab.....\$2 M. E. Lab..... 1 3	Direct Current Lab.....\$2 Shop and Drawing..... 2 4	Same as M. E.	Same as C. E.
CHEMISTRY.....	Chemistry.....\$8 Chemistry..... 2 Chemistry..... 2 12	Chemistry.....\$4 Chemistry..... 3 7	Physical Lab...\$1 Chemical Lab.. 4 Physics..... 1 6	Physical Lab...\$1 Chemical Lab.. 2 Botany..... 1 4
TEXTILE INDUSTRY.....	Design.....\$3 Dyeing..... 3 Machine Shop 1 7	Design.....\$3 Dyeing..... 3 6	Design.....\$4 Chemical Lab.. 4 Drawing..... 1 9	Chemical Lab..\$2 Shop and Drawing..... 2 4
TEXTILE DYEING.....	Chemistry.....\$8 Dyeing..... 3 11	Chemistry.....\$4 Chemistry..... 3 Dyeing..... 3 10	Chemical Lab..\$4 Drawing..... 1 8	Chemical Lab..\$2 Shop and Drawing..... 2 4

FEES AND DEPOSITS FOR SHORT COURSES.

Two-Year Course in Agriculture.

FIRST YEAR:	
Shop.....	\$ 1.00
Physics.....	1.00
	2.00
SECOND YEAR:	
Dairying.....	2.00
Soils and Fertilizers.....	1.00
Entomology.....	1.00
Agronomy.....	1.00
Chemistry.....	1.00
Poultry.....	1.00
Vegetable Gardening.....	.50
	7.50

One-Year Course in Agriculture.

Dairying.....	\$ 2.00
Shop.....	1.00
Chemistry.....	1.00
Soils and Fertilizers.....	1.00
Entomology.....	1.00
Agronomy.....	1.00
Poultry.....	1.00
Vegetable Gardening.....	.50
	8.50

Two-Year Course in Mechanic Arts.

FIRST YEAR:	
Shop and Drawing.....	\$ 2.00
SECOND YEAR:	
Shop and Drawing.....	2.00

Two-Year Course in Textile Industry.

FIRST YEAR:		
Designing.....	\$	4.00
Drawing.....		1.00
		5.00
SECOND YEAR:		
Designing.....		3.00
Dyeing.....		3.00
Shop.....		1.00
		7.00

NOTE.—The College Bursar is forbidden by the Trustees to give credit.

All unused deposits are refunded to the student at the end of the session or upon his withdrawal from College. If he has overdrafted his deposit he is required to pay the amount of the overdraft.

If the student has a scholarship, he does not pay tuition.

Students entering after September will pay on entrance all the items enumerated under "September," less a credit in part for tuition and room rent.

WHAT A STUDENT NEEDS FOR HIS ROOM.

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

SCHOLARSHIPS CARRYING FREE TUITION.

1. Regular Scholarships.—When the College was chartered the Legislature required the Trustees to admit, free of tuition, one hundred and twenty young men. The only conditions attached to these scholarships are that they shall go to young men (1) who are unable to pay for all their education, and (2) who are of excellent moral character. As far as possible these appointments are distributed among the different counties. Appointments are made by the President of the College, after inquiries as to the needs and character of applicants and after a written recommendation from a member of the Legislature from the applicant's county. Certificates of inability to pay have to be made by the applicant and his parents. Blanks are furnished for this purpose.

2. Agricultural Scholarships.—The Legislature of 1913 authorized the College Trustees to give a limited number of agricultural

scholarships to students who agree to teach for two years in an agricultural school, or to serve in an agricultural experiment station, or to farm in the State for two years after graduation. The same conditions as to financial inability and moral worth go with these scholarships as go with the regular ones.

3. Norfolk Southern Railway Scholarships.—Two scholarships, each valued at \$75, are given by the Norfolk Southern Railway to deserving young men who reside in counties on the lines of this railway. These are awarded only to agricultural students.

4. Mr. R. M. Miller, of Charlotte, offers a scholarship to one student in the Textile School. This scholarship covers the tuition of the holder.

5. Finley Loan Fund.—As a memorial foundation to William Wil-son Finley, President of the Southern Railway Company at the time of his death, that company has established a Finley Loan Fund for needy students of agriculture. The fund consists of \$1,000. This will be lent to students who are making their way through college, and returned by them to the fund after they have finished college and gone to work. It will be administered by the Faculty of the College and all appointments will be made by the College.

SELF-HELP.

Some students who are alert and energetic frequently earn part of their expenses in College. Some of the agricultural students find work at odd hours on the farm, in the orchard, in the barn, in the dairy. Some students act as agents for laundries, for furnishing-houses, for pressing clubs. The College employs a few students for the dining-room and for other purposes. A student's ability to help himself will depend largely on his own power to find work and to hold it after he finds it. It must, however, be remembered that the duties of the classroom take most of a student's time. College duties begin at 8 a. m. and do not end until 4 p. m., and then drill comes from 4 p. m. to 5 p. m.; hence hours for remunerative work are very limited.

STUDENT LOAN FUND.

The Alumni Association of the College established in the year 1900 a small fund to be lent to needy students of talent and character. This has been augmented from various sources and now amounts to \$6,435.28. The loans are made at 6 per cent, and good security is required. Sufficient time for repayment is given to enable the student to earn the money himself. The amount lent to each student is limited. The purpose is to help young men who are

willing to help themselves and who cannot find sufficient employment while in college to meet all their necessary expenses.

Contributions are solicited for this fund from students, alumni, and friends of education generally. The fund is administered by the College Bursar, under the direction of the President.

TIME OF REGISTRATION.

All students are required to register within twenty-four hours after reaching Raleigh. A failure to comply with this rule may lead the Faculty to decline to allow an applicant to register. A registration fee of \$5 will be charged to students failing to register on the day appointed.

BOARD AND LODGING.

All students are required to board in the College dining hall or in approved boarding-houses near the College, and to room in the College dormitories. An abundant supply of plain, nourishing food, with as large a variety as possible, is furnished absolutely at cost. The charge at present is \$11 per month, payable in advance.

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

REGULATIONS FOR ASSIGNING ROOMS.

Old students are assigned rooms in April for the coming year, according to rules in previous use. These rules provide: first, that any student has the privilege of keeping the room which he has occupied during the year; second, that assignments are to be made in the order of class seniority.

Rooms will be assigned to new students when they have filed their certificates of admission and when these have been accepted by the College Entrance Committee.

Every student, in order to retain his assignment, is required to comply with the following regulations:

The student will by August 1st pay to the College Registrar a \$5 deposit on his room rent, unless the room is assigned later. If the assignment is made later, the deposit is due at the time the room is assigned.

If this deposit is not paid by August 1st, the student's claim on the room is forfeited.

If the deposit is paid by August 1st, the College will hold the room or part of room until the close of Registration Day at 6 p. m.

The student shall notify the College Registrar if he decides not to return or not to enter, and may be remitted his deposit up to August 25th. Those who fail to give notice by August 25th forfeit their payment to the College.

No assignment is transferable.

DRILL.

In return for the Morrill Fund of the United States Government, the College is under contract to require its students to drill at least three times each week, and an Army officer is detailed to conduct the drills. No student will be excused from drill unless the College Physician, after examination, deems him unfit for military duty.

UNIFORM.

The College uniform must be worn by all students when they are on military duty. It must be bought at the College from the regular contractor. All new students must have new uniforms, as the purchase of second-hand uniforms is positively forbidden. The uniform—cap, blouse, and trousers—costs about \$14. When the student has his measure taken for his uniform he is required to deposit \$5 in part payment, and the remainder when the contractor delivers the uniform and the same has been accepted by the Commandant.

No uniform overcoat is required, but every student should bring a comfortable overcoat with him.

CARE OF THE SICK.

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

Each student has a regular routine of daily life, including abundant physical exercise in the shops and on the drill grounds.

In case of sickness, a student is taken immediately to the College Infirmary, where he receives medical attention and careful nursing.

The College Physician visits the Infirmary daily at 3 o'clock p. m., and in cases of serious illness as frequently as may be required.

A trained nurse has charge of the Infirmary at all times. The payment of the medical fee entitles a student to all the privileges of the Infirmary; and this includes the regular visits of the College physician for all ordinary sickness. However, if a special nurse is

needed in case of serious contagious disease or in case of other serious illness, parents are of course expected to pay such nurse or nurses. The medical fee does not cover special surgical operations or the attention of any medical specialist.

VACCINATION.

By direction of the Trustees, no young man will be registered unless he has been successfully vaccinated within the past two years. The College greatly prefers that all applicants for admission should be vaccinated at home, and that a certificate of successful vaccination within the past two years be brought from the family physician. In case this cannot be done, the College Physician will vaccinate applicants before they are registered at the College. A blank form to be filled by the home physician will be mailed on application. It will save a great deal of time and trouble, therefore, to be vaccinated before applying for registration. In this way applicants will avoid the inconvenience and discomfort resulting from vaccination while at College. The size of scar resulting from a previous vaccination is not proof that revaccination is not needed.

TYPHOID INOCULATION.

Believing that students may be safeguarded from typhoid fever by inoculation against this disease, to which young people are peculiarly susceptible, the College offers this preventive free of charge, and urges, but does not require, all of its new students to take the treatment. Parents are requested to join the College in recommending that their sons be inoculated here or to have them inoculated at home.

COURSES OF INSTRUCTION.

The College offers courses of instruction in the following subjects:

I. Agriculture.

a-f. Four-year Courses, including Agronomy, Soils, and Drainage, and Agricultural Chemistry; Animal Husbandry, Dairying, and Poultry Husbandry; Horticulture and Botany; Veterinary Science; Normal Course.

g. Two-year Course in Agriculture.

h. One-year Course in Agriculture.

l. Work Course in Agriculture.

j. Four-weeks Course in Agriculture and Dairying, beginning at the opening of college in January.

These courses are described on pages 59-116.

II. Engineering, Mechanic Arts, and Chemistry.

a. Four-year Course in Civil Engineering. Pages 118-123.

b. Four-year Course in Mechanical Engineering. Pages 124-138.

c. Two-year Course in Mechanic Arts. Pages 139-143.

d. Four-year Course in Electrical Engineering. Pages 144-151.

e. Four-year Course in Chemistry. Pages 152-163.

III. Textile Industry.

a. Four-year Textile Course. Pages 164-183.

b. Four-year Dyeing Course. Pages 173-183.

c. Two-year Textile Course. Pages 184-188.

IV. Normal Courses for the training of teachers in industrial subjects.

a. Two-year Course in Agriculture. Page 190.

b. One-year Course in Agriculture. Page 191.

c. Summer Term for Teachers. A four-weeks course in the sciences underlying modern agriculture, and in their practical application. See page 192.

V. Graduate Courses.

Extending over one or more years and leading to advanced degrees. These are intended for students who have completed the

four-year course and who desire further instruction and training in special subjects. For information regarding the graduate degrees, see page 193.

VI. Degrees.

The four-year courses offer a combination of practice and theoretical work, about half the time being devoted to lectures and recitations and the other half to work in the shops, laboratories, drawing-rooms, greenhouses, dairies, poultry yards, fields, and mills. They are intended to furnish both technical and liberal education. The degree of Bachelor of Science is conferred upon a graduate of the four-year courses in Agriculture, in Chemistry, and in Dyeing; and the degree of Bachelor of Engineering is conferred upon a graduate of the four-year Engineering course, or the four-year Textile course.

The short courses include nearly all of the practical work of the four-year courses with less theoretical instruction. They are intended for students who desire chiefly manual training. They do not lead to a degree.

I. AGRICULTURAL COURSES.

- a. Four-year Course in Agronomy.
- b. Four-year Course in Animal Husbandry.
- c. Four-year Course in Horticulture.
- d. Four-year Course in General Agriculture for prospective secondary agricultural school teachers.
- e. Four-year Course in Poultry Science.
- f. Four-year Course in Veterinary Science.
- g. Two-year Course in General Agriculture.
- h. One-year Course in General Agriculture.
- i. Work Course in General Agriculture.
- j. Four-weeks Winter Course for Farmers.

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

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

a, b, c, d, e, and f. The Four-year Courses are designed to give a thoroughly practical as well as scientific training in the several divisions of Agriculture. The strictly technical portion constitutes about one-third of the work. Of the remaining two-thirds of the course, more than half is prescribed in the sciences. This is done for the training and information they give, and as preparation for the technical work of the course. Because of this, and because the subject-matter and the methods of the technical portion lie so fully within the domain of science, these courses are essentially scientific rather than literary. Yet the College is mindful of the fundamental character of such studies as Mathematics, English Literature, Physics, etc., and they are not neglected in this course. **Full description of the Four-year Courses begins on page 61.**

g. The Two-year Course in Agriculture is offered to meet the necessities of young men who wish to prepare themselves in the art rather than in the science and art of agriculture. This course does not lead to graduation, but is designed to help young men better fit themselves by a year or two of practical work for their chosen sphere of industrial activity in the garden or orchard, on the farm, and in the production of animals and animal products. **The Two-year Course is described on page 93.**

h. The One-year Course in Agriculture is designed to meet the needs of young men who are ambitious to excel in the vocation of farming, and who feel the need of better preparation for their life-work. The time which can be devoted to study is often limited; hence the topics in this course have been arranged in such a manner that the student is enabled to get the greatest amount of practical information in the time at his disposal.

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

The College has numerous calls for young men to manage farms and estates. It is able to fill only a limited number of them. Young men who have any talent along this line can fit themselves for this work by taking this course. **The One-year Course is described on page 99.**

i. The Work Course in Agriculture.—Practically the same work as that offered in the One-year Course in Agriculture, but extended over two years. Work Course students devote only half of their time to classes, being employed on the College farm for the other half. In this way they are able to earn their living while in school. **The Work Course in Agriculture is described on page 102.**

j. The Four-weeks Winter Course in Agriculture is established to meet the needs of those who can spend only the winter at the College. The important and practical subjects of Agriculture and Horticulture and Stock-raising receive principal attention. **The Four-weeks Course is described on page 107.**

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

The equipment for the technical work of the Agricultural course is rapidly increasing. The Dairy Department is equipped with a modern creamery for pasteurizing, separating, creaming, and churning, and for investigation in dairy bacteriology.

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

DEPARTMENT OF AGRICULTURE.

I (a). Four-year Course in Agriculture.

This course leads to the degree of Bachelor of Science.

Freshman Year.

COURSES AND NUMBERS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Botany, 30.....	3	3
Chemistry, 90.....	2	2
Chemistry, 91.....	1	1
Drawing, 152.....	2	0
Drill, 153.....	3	3
English, 120, 121.....	3	3
Mathematics, 110, 111.....	5	5
Woodworking, 150.....	0	2
Zoology, 80.....	3	3
Totals.....	22	22

Sophomore Year.

Agronomy, Farm Equipment, 2.....	2	0
Animal Husbandry, Dairying, 41.....	0	3
Botany, 31.....	3	2
Chemistry, 92.....	3	3
Drill, 153.....	3	3
English, 122, 123.....	3	3
Geology, 97.....	0	2
Horticulture, Plant Propagation, 20.....	3	0
Physics, 100.....	3	3
Physiology, Comparative, 60.....	3	2
Tactics, 154.....	1	1
Zoology, 81.....	0	2
Totals.....	24	24

Junior Year.

COURSES AND NUMBERS.	DIVISIONS.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, 3.....	3-3	3-3	3-3	3-3	3-3	3-3
Anatomy, 64.....						3-3
Animal Husbandry, Breeds, 42.....	3-0	3-0		3-0		3-0
Animal Husbandry, Feeds, 43.....	0-3	0-3	0-3	0-3	0-3	0-3
Chemistry, 93, 94.....	3-3	3-3	3-3	3-3	3-3	3-3
Drill, 153.....	3-3	3-3	3-3	3-3	3-3	3-3
English, 124.....	3-3	3-3	3-3	3-3	3-3	3-3
Entomology, 84.....			3-0			
Histology, 63.....						3-3
Horticulture, Practical Pomology, 21..	3-0		3-0	3-0	3-0	
Horticulture, Pruning and Orchard Protection, 22.	0-3		0-3	0-3		
Horticulture, Vegetable Gardening, 23..	0-3	0-3	0-3	0-3	0-3	
Materia Medica, 65.....						0-3
Poultry, 51.....	3-0	3-0	3-0	3-0	3-0	3-0
Poultry, 53, 52.....					3-3	
Soils, 10.....	3-3	3-3	3-3	3-3	3-3	
Veterinary Medicine, 61, a and b.....		3-3				
Totals.....	24	24	24	24	24	24

Senior Year—Required Studies.

COURSES AND NUMBERS.	DIVISIONS.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, 5.....	3-3	0-3	0-3	3-3	-----	0-3
Agronomy, 6.....	3-3	-----	-----	-----	-----	-----
Agronomy, 7.....	3-0	3-0	-----	3-0	3-0	-----
Animal Husbandry, Breeding, 44.....	3-0	3-0	3-0	3-0	3-0	3-0
Animal Husbandry, 45.....	-----	0-3	-----	-----	-----	-----
Animal Husbandry, 46, 47.....	-----	3-3	-----	-----	0-3	0-3
Animal Husbandry, 48, 49.....	-----	3-3	-----	-----	3-3	-----
Anatomy, 66.....	-----	-----	-----	-----	-----	3-3
Botany, Bacteriology, 33.....	-----	0-3	0-3	0-3	0-3	0-3
Botany, Plant Diseases, 32.....	-----	-----	3-0	3-0	-----	-----
Chemistry, 95.....	3-3	3-3	-----	3-3	3-3	3-0
Diagnosis, 71.....	-----	-----	-----	-----	-----	0-3
English, 125.....	-----	3-0	-----	-----	3-0	-----
Electives ¹	3-3	3-0	3-3	-----	3-3	3-3
Economics, 130, 131.....	3-3	3-3	3-3	3-3	3-3	-----
Elementary Psychology, 160.....	-----	-----	-----	3-3	-----	-----
Horticulture, Greenhouse Management, 24.....	-----	-----	3-0	-----	-----	-----
Horticulture, Systematic Pomology, 25.....	-----	-----	3-0	-----	-----	-----
Horticulture, Plant Breeding, 26.....	0-3	-----	0-3	0-3	-----	-----
Horticulture, Landscape Gardening, 27.....	-----	-----	3-0	-----	-----	-----
Horticulture, Elective, 28.....	-----	-----	0-3	-----	-----	-----
Poultry, 55, 54.....	-----	-----	-----	-----	3-3	-----
Poultry, 56.....	-----	-----	-----	-----	0-3	-----
Poultry, 57.....	-----	-----	-----	-----	0-3	-----
Physiology, 67.....	-----	-----	-----	-----	-----	3-3
Pathology, 70.....	-----	-----	-----	-----	-----	3-3
Pharmacy, 69.....	-----	-----	-----	-----	-----	3-0
Soils, Fertilisers, 11.....	0-3	-----	0-3	0-3	-----	-----
Soils, Drainage, 12.....	3-0	-----	3-0	3-0	-----	-----
Zoology, 82 (Embryology).....	-----	-----	-----	-----	-----	3-0
Zoology, Entomology, 85.....	0-3	-----	-----	0-3	-----	-----
Zoology, Entomology, 86.....	-----	0-3	-----	-----	-----	-----
Zoology, Entomology, 87.....	-----	-----	0-3	-----	-----	-----
Totals.....	24	24	24	24	24	24

¹To be chosen from following table of Senior Electives.

Senior Electives.

COURSES AND NUMBERS.	DIVISIONS.					
	Agron.	A. H.	Hort.	Norm.	Poultry	Vet.
Agronomy, Farm Management, 7.....			3-0		3-0	
Animal Husbandry, 40, a, b, c, d, e, f.....		3-3				
Animal Husbandry, 45, 46, 47, and 40b.....					0-3	
Botany, Plant Diseases, 32.....	3-0					
Botany, Bacteriology, 33.....	0-3					
Chemistry, Organic, 95.....			3-3			0-3
Drill.....	3-3	3-3	3-3	3-3	3-3	3-3
Economics, 132, 133.....	3-3	3-3	3-3	3-3	3-3	3-3
English, 125, 126.....	3-3	0-3	3-3	3-3	0-3	3-3
Horticulture, Landscape Gardening, 27.....				3-0		
Modern Languages, 141, 144.....	3-3	3-3	3-3	3-3	3-3	3-3
Physiology, Experimental, 68.....	3-3		3-3		3-3	
Poultry, 51 or 56.....		3-3	0-3	0-3		
Soils, Advanced, 13.....	3-3			3-3		
Veterinary Medicine, 62 a ¹ , b ¹		3-3		3-3	3-3	
Zoology, 82.....					3-0	
Zoology, 83.....				3-3		

¹May be taken either term.

AGRICULTURAL EQUIPMENT.

In addition to Patterson Hall and the Animal Husbandry Building, with their classrooms, laboratories, dairy, stock-judging room and offices, the College possesses the following equipment for instruction in Agriculture:

The farm includes four hundred and eighty-five acres, with two hundred and sixty acres under cultivation; a two-story sixteen-stall horse and storage barn; a fifty-stall dairy barn; a large combination horse, implement, and storage barn; a large implement, fertilizer and grain barn, and a calf barn; silos with capacity for four hundred tons of silage; a No. 17 Ohio feed and ensilage cutter operated by an electric motor, and implements and machinery necessary for up-to-date farming.

The livestock consists of the necessary Percheron mares and mules, a Percheron stallion, a herd of dairy cattle, and pure-bred swine. Breeding stock is sold as a part of the farm products.

The poultry plant has a number of breeding pens with necessary yards, the houses being of two different types well suited to poultry-keeping in North Carolina; an incubator room with three makes of incubators; a brooder house partially heated by hot water, and several makes of indoor brooders. Ten or fifteen varieties of poultry are kept, and eggs and breeding fowls are sold to the public.

The horticultural equipment consists of about thirty acres in tree fruit, nuts, vineyard, berries, and vegetables, in appropriate assortment of classes and varieties for demonstration and instruction. These afford means for work in seed selection, bud studies, propagation, budding, grafting, transplanting, pruning, spraying, and variety study.

The dairy equipment is complete and thoroughly modern. The laboratory occupies about four thousand feet of floor space in Patterson Hall, and is equipped for instruction in farm dairying, retailing milk, creamery practice, cheese and butter making, milk testing and pasteurizing.

The North Carolina Experiment Station is a department of the College, and its close association with the School of Agriculture gives exceptional opportunities to the Agricultural students for instruction and observation, covering experiments and research in agronomy, chemistry, horticulture, vegetable pathology, plant diseases, bacteriology, dairy and animal husbandry, poultry husbandry, veterinary science, and entomology.

AGRONOMY.

Equipment.

The classrooms, laboratory, offices, storage, and supply rooms are in Patterson Hall. The Department has the necessary accessories for present-day instruction in Agronomy, and additions are made as needed. The Department operates the College farm of about one hundred and forty acres. A large horse barn, with corn bins, harness rooms, and hay-mows, accommodates a dozen mules, and Percheron mares and colts. Another large three-story barn is for seeds, supplies, tools, implements and machinery for operating the farm and for giving practical farm work and instruction to students. A portion of the farm is set aside for the exclusive use of students in securing practical farm experience with very nearly all of the farm crops of the State. This practice work includes soil preparation, mixing and applying fertilizers, cultivating and harvesting, crop

breeding, and laboratory study of the crops grown by the students. The field, laboratory, and class instruction are the three parts of the student's work which together make up the course of instruction in Agronomy.

Subjects of Instruction.

2. Farm Equipment.—Selecting, laying out, and equipping farms; locating, planning, and constructing farm buildings; fences, gates, bridges, roads; tools, implements and machinery; miscellaneous appliances; farm power, water supply, and sanitation. Two periods, first term. Required of Sophomores. Professor NEWMAN.

3. Agronomy: Grains, Grasses, and Legumes.—The history, production, uses, and improvement of these crops; a study of varieties and their adaptation; seeding, culture, and harvest. A portion of the College farm is set aside for the growing of various farm crops by students, that they may become familiar with these crops and the methods of their culture by working with them in the classroom, in the laboratory, and in the field. Each student keeps a complete record of all operations, including date and manner of seeding, amount of seed, preparation of the soil, fertilization, cultivation, seed selection, and all other operations involved in crop production and uses. Fee, \$1. Required of Juniors. Mr. HOBSON.

5. Agronomy: Farm Crops.—A continuation of Agronomy, course 3, including, in addition, cotton, tobacco, sweet potatoes, peanuts, hay, forage, pastures, and silage production. The first term is devoted to cotton and tobacco, the second term to crops associated with animal production. Three periods through the year. Required in Agronomy Division. The second term is required in all other divisions except Poultry. Professor NEWMAN.

6. Agronomy: Crop Production and Experiments.—A continuation of the class, laboratory, and field work in Agronomy 3. The fall term is devoted to a detailed study of the crops harvested in the fall on the College and Experiment Station farms, the work having begun in the spring term of the Junior year. The spring term is partly devoted to projects carried individually by members of the class. Three periods through the year. Prerequisite, Agronomy 3. Required of Seniors in Agronomy. Professor NEWMAN and Mr. HOBSON.

7. Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital, and land values; operating expenses, systems of land tenure, farm organization, size of farms; location and arrangement of buildings, roadways, fences, water supply, orchard, garden, etc.; factors governing kind

and amount of equipment; financial accounts; farm records; relation of animal and plant production to maintenance of fertility; standard of living; schools and churches. Three periods, first term. Required of Seniors in Agronomy, Animal Husbandry, Normal, and Poultry divisions. Professor NEWMAN.

8. Agronomy.—These courses are arranged for students taking graduate work in Agronomy. Two periods per week may be taken in each of the following courses: (a) Corn, (b) Small Grain, (c) Cotton, (d) Tobacco, (e) Grasses, including Forage Crops, Meadows and Pastures, (f) Legumes, (g) Rotation, Green Manuring, and Cover Crops, (h) Crop Breeding, (i) Field Crop Experiments, (k) Farm Management. Two periods. Professor NEWMAN and Mr. HODSON.

SOILS.

Equipment.

The Soils Department has a large new laboratory in Patterson Hall furnished with solid oak desks and lockers so arranged as to accommodate a large number of students in general soils work and to allow individual locker space with plenty of working room for each student. These desks and lockers, with other tables and soil chests, were designed and made to order for this laboratory, and hence are arranged to give the greatest convenience and the most complete use of the room that is possible.

The apparatus is all of the latest and most approved models, giving greater utility and accuracy, combined with simplicity, than would be possible with any other.

In addition to the laboratory facilities, the department makes use of the College farm for its practical work in drainage, terracing, fertilization, cultivation, and study of soil types.

Subjects of Instruction.

10. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the

United States, and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of all Juniors, except Veterinary Division. Deposit, \$3. Prerequisites, Chemistry 90 and 91, and Physics 100. Professor SHERWIN and Mr. JOSLYN.

11. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers as shown by their productive capacity. Three periods, second term. Required of Seniors in Agronomy, Horticultural, and Normal divisions. Prerequisite, Soils 10. Professor SHERWIN.

12. Farm Drainage.—This includes both principles and practice of drainage. The student becomes familiar with the use of various drainage instruments and implements, as the course involves considerable field work in laying out systems of under-drains. Different methods of leveling and determining grade are discussed and practiced.

Determination of size of tile needed, depth and method of laying, influence of depth of tile and distance apart of drains on withdrawal of water from the soil, and all of these as influenced by texture and character of the soil, are considered. Drainage by means of open ditches and surface drainage by means of terraces will also be given attention. Three periods a week, first term. Required of Seniors in Agronomy, Horticultural and Normal divisions. Prerequisite, Soils 10. Professor SHERWIN and Mr. JOSLYN.

13. Advanced Soils.—In this course the student will be guided in the study of any line of Soils work he may choose, along either practical or scientific lines. Laboratory and field work will be given. Considerable reference will be made to Experiment Station literature with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. This course will be of special help to men who are to engage in Farm-Life School work and Demonstration work, as well as to those primarily interested in Soils. Three periods a week throughout the year. Elective for Seniors. Prerequisite, Soils 10. Professor SHERWIN.

HORTICULTURE.

Equipment.

The Department of Horticulture is provided with facilities for instruction which are singularly efficient in many respects, and additions which are now being made, together with others which are expected in the near future, will equip it with unexcelled means of teaching horticulture in all its branches. At present the offices and classrooms are located in Patterson Hall. New laboratory space has been provided by the erection of a forty-one foot section of a brick and slate structure known as the Service Building, and one attached iron-frame greenhouse covering a space thirty by one hundred feet. The Service Building, which is twenty-five feet wide, will eventually be lengthened to seventy feet, and to it will be attached another greenhouse of the same size as the one just built. The Department is also charged with the management of about twenty-five acres of land devoted to fruits and vegetables of all kinds, and of the College campus, covering about fifty-five acres, which is in the process of development in accordance with artistic and scientific principles of landscape design.

The laboratory space is constantly in use as a workroom for classes in all subjects, and is well supplied with tools and necessary pieces of apparatus. The greenhouse, hotbeds, and cold-frames provide room and facilities not only for growing early vegetables and flowering plants, but also for the forcing of both vegetables and flowers under glass. Here the student is allotted a definite space and is required to put into practice the knowledge gained in the classroom by growing the crops there treated. Practice work is an essential adjunct of every course. Student work under competent supervision is employed in all parts of the grounds.

The Horticultural Grounds, which contain about twenty-five acres, provide exceptional facilities for additional training in vegetable gardening, and for instruction in pomology and plant breeding. Here are located the "Student" vegetable gardens, which the students are required to plan, plant, and manage. Here, also, are to be found an orchard each of apples, pears, pecans, and figs; a vineyard each of "bunch" and muscadine grapes; and smaller plantings of plums, persimmons, quinces, cherries, raspberries, blackberries, dewberries, strawberries. The remaining and intermediate spaces are used for growing vegetables on a larger scale; for the maintenance of a nursery for fruit and ornamental plants; and for

ornamental planting about the residence situated near the middle of the grounds. The grounds as a whole are designed to serve as a model of a small fruit farm economically and tastefully arranged.

Subjects of Instruction.

20. Plant Propagation.—A course in the multiplication of plants. Seedage, separation and division, cuttage, layerage, and graftage are considered in turn. The most commonly used methods of propagating vegetables, fruit and ornamental plants are emphasized. Three periods, first term; recitation, two hours; practice, two hours per week. Fee, \$1. Required of Sophomores. Mr. HAYDEN.

21. Practical Pomology.—A general course in fruit growing. Among the subjects considered are the choice of locations, the selection of sites and soils; the choice of varieties; the preparation of the land; the planning, planting, fertilization, and management of orchards; and the harvesting, storing and marketing of fruits. Practice consists in the inspection and examination of sites and soils, the making of orchard plans; laying out orchards; handling and planting trees; and the exercise of modern methods of grading, packing, and marketing fruits. Three periods, first term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural, Normal, Poultry, and Agronomy divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

22. Pruning and Orchard Protection.—A course in the training of fruit plants and their protection from insect pests and fungous diseases. Treatment of special diseases and methods of protection from frost are also considered. A continuation of Practical Pomology. Three periods, second term; recitation two hours, practice two hours per week. Fee, \$1. Required of Juniors in Horticultural, Normal, and Agronomy divisions. Prerequisite, Practical Pomology 21. Professor PILLSBURY.

23. Vegetable Gardening.—A course dealing with the principles of vegetable growing and the methods employed in the home, truck, and market gardening areas. Special attention is given to the home garden, and the trucking industry in North Carolina. Consideration is given to sites, soils, manures and fertilizers, seed sowing, transplanting, and the culture, harvesting, storing, and marketing of all important vegetables. Three periods, second term; recitation two hours, practice two hours per week. Fee, 50 cents. Required of Juniors. Prerequisite, Plant Propagation 20. Mr. HAYDEN.

24. Greenhouse Management.—A course which treats of the principles and practice of growing plants under glass. It includes the forcing of both vegetable and flowering plants. A given area is assigned to each student and he is required to plan, plant, and manage it to a successful conclusion. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Vegetable Gardening 23. Mr. HAYDEN.

25. Systematic Pomology.—A course which combines both a study of the origin and evolution of our native fruits, and practice in description, identification, classification, and judging of varieties. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Practical Pomology 21. Professor PILLSBURY.

26. Plant Breeding.—A course in the study of the principles of plant breeding, and practice of the most approved methods of pollination, crossing, and selection for the origination and improvement of varieties of plants. Mendelism and biometrical measurements constitute an important part of the course. Three periods, second term; recitation two hours, practice two hours per week. Required of Juniors in Horticultural, Normal, and Agronomy divisions. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

27. Landscape Gardening.—A course in the study of the principles of the art of design, and their application to the design of landscapes. The principal styles of composition are considered and compared as to history, development, and adaptation. Practice consists of a study of landscape materials, in mapping, designing plans and specifications, and in the execution of important parts of the practical work of improving grounds. Three periods, first term; recitation two hours, practice two hours per week. Required of Seniors in Horticultural Division. Prerequisite, Plant Propagation 20. Professor PILLSBURY.

28. Horticulture, Elective.—A course designed to give the student an opportunity to elect and pursue the study of some special line of horticultural investigation. Three periods, second term; hours to be arranged. Open to Seniors in Horticulture only. Professor PILLSBURY.

BOTANY.

Equipment.

Three commodious laboratories and a large recitation and lecture room are used for Botanical instruction. There are also offices for the teaching staff, a storeroom, a dark room, an incubator room, a

greenhouse, and a research room. All rooms are provided with electricity, gas, and hot and cold water; and the bacteriological laboratory is, in addition, provided with steam under pressure for use in sterilization. The laboratories are supplied with wall cases, shelves, herbarium cases, sterilizers, incubators, microtomes, glassware, and other materials and utensils needed in the prosecution of the work. The incubator room is fireproof, and is provided with a Weisnegg regulator capable of keeping the temperature of the room practically invariable. The excellent herbarium has been mounted, and is now accessible for class use. The most important plant diseases are represented by herbarium and alcoholic specimens. The library contains the more important botanical books for reference and receives current journals and bulletins dealing with these subjects.

Subjects of Instruction.

30. General Botany.—This course is planned to give a general knowledge of the elementary facts and fundamental principles of botany. It aims to supply the foundation upon which subsequent courses in this division are built, as well as the basic facts upon which rest certain phases of applied botany, such as horticulture and agronomy. The first term will be devoted to the general morphology of the seed plants. Attention will be given to the anatomical features of seeds, flowers, leaves, fruits, stems, roots, cells, tissues, and tissue systems, and to the correlation of anatomical structures with their physiological functions. The second term will be devoted to the general morphology of algæ, fungi, mosses, and ferns, using selected representatives as types in both the lecture and laboratory work. Special emphasis will be laid upon nutrition, reproduction, life history, and evolution of sex of those forms which are of both scientific and economic importance. Fee, \$1. Three periods throughout the year. Required of Freshmen. Professor WOLF, Mr. COOPER, Mr. LEHMAN.

31. Plant Physiology and Systematic Botany.—This course deals with the physical and chemical phenomena in plant activities. Among the subjects covered will be osmosis, with reference to permeability and the protoplasmic membrane, absorption of water, the water content of soil in relation to plant growth, removal of water from soil by plants, mineral nutrients of the soil in relation to growth processes, mineral requirements of plants, acid and alkali soils, causes and methods of dealing with these conditions, soil infertility, with a discussion of the theories of depletion, accumulation of toxins, and occurrence of microflora, transpiration, move-

ment of water in plants, photosynthesis, including the elaboration, translocation and storage of carbohydrates, fats, and proteins, enzymic activity, respiration, fermentation, and a biological explanation of variation and heredity. A portion of the spring term will be given over to a study of the classification of plants in order to aid students in identifying the more common forms. Fee, \$1. Three periods, first term; two periods, second term. Required of Sophomores. Professor WOLF and Mr. LEHMAN.

32. Plant Diseases.—Consideration will be given to those diseases of farm, garden, and truck crops of parasitic and nonparasitic origin which are of greatest economic importance. The lectures will consist of a review and discussion of the more important publications dealing with the symptoms, life histories, and methods of control of plant diseases. Some attention will be given to the morphology and methods of identification of fungi, emphasizing types of the orders concerned in the production of diseases. The laboratory work is designed to acquaint the student with field and laboratory methods of diagnosis of plant diseases, with laboratory technique involving the isolation of causal organisms and the making of inoculations, and with the preparation of fungicides and disinfectants. Each student will be required to collect and diagnose a considerable number of pathogenic fungi. Fee, 50 cents. Three periods, first term. Open only to students who have completed courses 30 and 31. Professor WOLF, Mr. COOPER.

33. Agricultural Bacteriology.—The subject-matter of this course includes an introduction to the principles of bacteriology, and is designed to serve as a basis for students contemplating specialization in applied phases of the subject, such as bacteria in relation to plant diseases, to human diseases, and to the diseases of domestic animals; soil bacteriology; dairy bacteriology; sanitation with reference to sewage disposal and water supplies; and the consideration of bacterially produced processes in the industries. The student becomes familiar through laboratory practice with methods employed in the culture and study of bacteria. Fee, \$3. Three periods, second term. Open to all students who have completed courses 30 and 31. Professor WOLF, Mr. COOPER.

34. Bacteriology (Advanced).—Those who desire to specialize in any of the fields of bacteriology may elect this course. It is designed that the course be made to fit the needs of those students electing it. Three periods. Credit for either or both terms. Prerequisite, Botany 33. Professor WOLF, Mr. COOPER.

35. Mycology.—This course concerns itself with the classificatory characters of fungi. The lectures will deal with the phylogeny, mor-

phology, and development of representative genera of fungi. The laboratory work is designed to acquaint the student with these fungi, with keys, monographs, and other publications, whether written in English or in foreign languages. Open only to graduate students after consultation with the head of this department. Professor WOLF.

36. Dairy Bacteriology.—A lecture, text-book and laboratory course covering the more important facts in the relation of bacteria to dairying. The laboratory course consists in demonstrating and supplementing the lecture course. Three periods, first term. Required of Seniors in Animal Husbandry and Veterinary divisions. Prerequisite, Botany 33. Professor FULTON and Mr. COOPER.

ANIMAL HUSBANDRY AND DAIRYING.

The Animal Husbandry and Dairy Division occupies the Animal Husbandry Building, which was completed during the summer of 1912, and part of the Main Agricultural Building, Patterson Hall. Some of the offices, with classrooms, a record room, and a stock-judging pavilion, are in the Animal Husbandry Building. The other offices, the dairy laboratory, and the creamery, are in Patterson Hall.

The livestock equipment has been added to materially during the last year because the Station and College herds and flocks have been brought under one management. The instructors and students now have an opportunity to judge and inspect the herds, studs, and flocks which are used in the investigational work on the Station. The dairy herd consists of seventy-five animals, of which about forty are cows in milk. Three leading dairy breeds are represented, consisting of twelve high-grade Holstein-Friesian cows and a registered bull, two pure-bred Ayrshire cows, twenty pure-bred Jersey cows and a bull. The flock of sheep consists of about seventy head. The flock is made up of representative Shropshires, Rambouillets, Barbados, and grades. The leading breeds of hogs are also represented on the College and Station farms. The Division owns a sufficient number of Duroc-Jerseys, Chester Whites, and Berkshires to give the students an opportunity to study breed characteristics. At the present time the stud consists of one pure-bred Percheron stallion, two high-grade Percheron mares, and about twelve grade Percheron mares owned by the Agronomy Division.

The dairy laboratory occupies the basement of the west wing of Patterson Hall. The main room of the dairy laboratory is 36 by 57 feet and is fitted with equipment suited to give up-to-date instruction in farm dairying. The equipment for the farm dairying consists, in the main, of De Laval, Sharples, Empire, International, United

States, and Simplex hand separators. Swing and barrel churns will soon be added. The laboratory is well equipped with Babcock testers, sterilizers, and other machinery for teaching the students farm dairying.

Two rooms adjoining the dairy laboratory have recently been equipped with modern creamery machinery, such as a 400-gallon churn, a 300-gallon combined ripener and pasteurizer, a refrigerator, a hydraulic butter cutter, and a Babcock tester. The creamery is maintained as a commercial enterprise, securing cream from farmers who live within shipping distance of Raleigh. The creamery is used in the regular class work, being of very great value to dairy students.

A fourth room in the basement of Patterson Hall is now fully equipped for instructional work in cheese and cheese manufacturing. This room is equipped with two vats, two different types of presses, a special curing refrigerator, and other small machinery.

Subjects of Instruction.

40. (a) Farm and Creamery Butter-Making and Creamery Management.—This is a text-book and lecture course covering the ripening of cream, the preparation and use of starters, churning and handling butter under farm and creamery conditions. Special attention will be given to creamery management and the coöperative creamery. In the laboratory practical work is given in sampling, weighing, and testing cream, scoring and grading cream, preparing starters, pasteurizing cream for butter-making, operating hand and power churns, and working and packing butter. Scoring and grading butter will also receive attention. First term, three periods. Elective for Senior Animal Industry students. Mr. REED.

40. (b) Farm Meats and Live-stock Farm Management.—The first half of the term is devoted to questions relative to farm butchering, curing, and care of meats. A smokehouse is available, so that the studies can be made practical. The second half of the term is devoted to a study of successful methods of operating farms devoted chiefly to livestock production. A study is made of the best systems applied to North Carolina conditions. Second term, three periods. Elective for Senior Animal Industry students. Mr. CURTIS.

40. (c) Cheese-Making.—In this course the subject of cheese-making in general is covered, proper attention being given to the composition and characteristics of common American and European cheese. The students are given practice in making American, Cheddar, Gouda, and some forms of soft cheese. Second term, three hours. Elective for Animal Industry Seniors. Mr. REED.

40. (d) Dairy Bacteriology.—See Botany.

40. (e) Advanced Stock Judging.—In this course consideration is given to animal conformation, quality, and condition with reference to market and show-yard requirements; to the selection of horses, beef cattle, dairy cattle, sheep, and swine for the feed lot, the market, and for exhibition, and to judging at live-stock shows. First term, three periods. Elective for Senior Animal Industry students. Mr. GRAY and other members of the Division.

40. (f) Pedigree Livestock Production.—This course consists of a history of breeds and prominent families of livestock, pedigrees of prominent individuals, and the fundamentals of management of pure-bred herds, with emphasis placed on production and marketing. The course will consist of text-book readings, reference readings, lectures, quizzes, and examinations. First term, three periods. Elective for Senior Animal Industry students. Mr. CURTIS and Mr. DRAIN.

41. Elements of Dairying.—This course consists of the discussion of the fundamental principles of dairying. Lectures are given on the secretion and composition of milk, the testing of milk and cream for butter fat, the care of milk and cream, the construction, operation, and care of the cream separator. Butter-making and cheese-making will be discussed briefly. In the laboratory practical work is given in the testing of milk and cream, in the operation of cream separators, and in farm butter-making. Second term, three periods. Required of Sophomores. Laboratory fee, \$2. Mr. DRAIN.

42. Breeds of Livestock and Fundamentals of Livestock Judging.—In this course the student will be made familiar with the names and location of the external parts of the various kinds of livestock, the use of the score card, comparative judging as a method, breeds and breed identification, and types of farm animals. First term, three periods. Required of all Juniors. Mr. DRAIN.

43. Principles of Feeding.—This course consists of lectures, recitations, and quizzes on the principles of feeding, including function of food, physiology of digestion, and feeding for different purposes. When possible, practice will be given in compounding rations and mixing feeds. Second term, three periods. Required of Juniors. Professor GRAY.

44. Principles of Breeding.—This course consists of lectures and recitations on heredity, variation, correlation, and selection as applied to stock breeding. Inbreeding, cross-breeding, and grading will be studied and discussed. First term, three periods. Required of Seniors. Professor GRAY.

45. The Production of Beef Cattle.—This course consists of practical methods of handling the beef cattle herd, emphasizing production, maintenance, finishing, and marketing. Pastures will be given

prominent consideration in the discussions. In considering the subject the breeder, feeder, and butcher or consumer will be given close consideration. All work will be based on the breeds of beef cattle adapted to Southern conditions. Work will consist of lectures, judging breed and market types, assigned readings, quizzes, and examinations. First term, three periods. This course is optional with course 49 for Seniors. Mr. CURTIS.

46. Sheep Production.—This course consists of practical methods of handling the flock, breeding, feeding, maintenance, housing, and shepherding. Special emphasis is placed on practical methods of combating sheep parasites, and on the production of early market lambs. Rotations for grazing ewes and lambs are emphasized. Close consideration is given to the breeder, feeder, and consumer. Work consists of lectures, reference readings, quizzes, and examinations. Second term, three periods. Required of Animal Industry Seniors. Mr. CURTIS.

47. Horse and Mule Production.—This course consists of practical methods of producing, feeding, and handling horses and mules, and the care and management of stallions, mares, foals, and work animals. The breeds are discussed according to their importance in the South. The breeding, production, maintenance, feeding of work horses, and finishing of horses for market are thoroughly discussed. Work consists of lectures, text-book readings, assigned readings, quizzes, and examinations. Second term, three periods. Required of Animal Industry Seniors. Mr. DRAIN.

48. The Production of Swine.—This course deals with the practical questions of raising, feeding, marketing, and sheltering swine, special emphasis being given to the use of suitable grazing crops. If possible, some time will be devoted to discussion of breeds, types, characteristics, and adaptability. First term, three periods. Required of Animal Industry Seniors. Professor GRAY and Mr. DRAIN.

49. Dairy Cattle and Milk Production.—In this course careful attention is given to a study and discussion of the feeding and care of dairy cattle and dairy calves, and to practical problems of dairy management. The last part of the course consists in drawing plans of dairy barns, milk houses, and refrigerators, and providing for their equipment. Systems of dairying, as suited to different conditions, are also considered. The laboratory work consists in computing rations for dairy cattle and dairy calves, and in practice in dairy management in connection with the College herd. Second term, three periods. Optional with course 45 for Animal Industry Seniors. Mr. REED.

Courses for Graduates.

Students entering graduate work in Animal Industry should have a thorough training in the fundamental principles of the subject. The following graduate courses are offered for the year 1916-1917:

Animal Nutrition.—In this course there will be a study of recent scientific publications on the chemistry and physiology of the nutrition of animals and the chemical and physiological changes and processes involved in the activities of animal life. The student will be expected to follow out courses in assigned reading, hold conferences with the instructor, and submit regular reports on the progress of his studies.

Investigational Work.—The Animal Industry Division has many investigational projects under way. The graduate student will be expected to select one of the subjects below and devote half of his time to assisting in carrying the investigation forward: (a) Effect of various feeds upon the bodies of swine; (b) The removal of onion flavors from milk and butter; (c) Effect of high and low rations of cotton-seed meal on the finishing quality, economy of feeding, and health of beef cattle; (d) Effect of light and heavy maintenance rations on grazing qualities of steers the following summer; (e) Cotton-seed meal as a feed for swine; (f) Effect of high and low feeding of lambs in preventing or retarding effect of sheep parasites; (g) Effect of cotton-seed meal, when fed under varying conditions, upon the health and generative qualities of calves and heifers; (h) The effects of various rations upon egg production; (i) The effects of various rations upon body development of poultry; (j) The methods of feeding, handling, and control of chick mortality; (k) The effects of feeds upon the quality of eggs; (l) The effect of feeds upon the quality of flesh of table fowls; (m) The effect of cotton-seed meal upon poultry breeding stock, egg production, development of the young, and upon constitutional vigor; (n) The relative value of various animal proteins for feeding fowls; (o) Mendelian studies. Students who select poultry subjects for major and investigational work will be classified in the Poultry Science Division. Students selecting other livestock investigational problems will be classified in the Animal Husbandry and Dairy Division.

POULTRY HUSBANDRY.

Equipment.

The Poultry Science Department is provided with a plant containing a number of breeding pens for a study of types, with necessary yards. The houses are of types well suited to poultry keeping

in North Carolina. They contain an incubator room with three different makes of incubators; and a brooder house, which can be heated by hot water when necessary. Indoor brooders of several different kinds are used, including fireless and heated types, an egg-storage compartment and grain-sprouting room, feed and mixing room, feed cutters, grinders, and other necessary equipment. The equipment also includes:

A teaching laboratory in which classes in egg candling, market egg grading, fattening tests, dressing and scoring, caponizing, insect powder preparation, dissection and autopsy and poultry judging are held.

A demonstration laboratory containing models of plants, samples of feeds, samples and grades of feathers, poultry feeders, water fountains, brooders, incubators, egg crates and containers, coops and crates, trap nests, models of buildings, building materials and innumerable other poultry appliances as well as specimens of disease tissue and parasites.

The research laboratories in this course furnish excellent material for the classroom, and students profit by all the work done in the Department.

Subjects of Instruction.

50. Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, principles of feeding, and a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain-mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry, and how to prevent or control them, will be considered. This course is open to First- and Second-Year Work Course students for three periods a week during the second term, and to the One-Year and the second year of the Two-Year Agricultural Course. Fee, \$1. Doctor KAUFF, Mr. MCCOY.

51. General Course.—This will be divided as follows: Four weeks will be devoted to a discussion of the various phases of the poultry industry and to an elementary study of breeds and breeding. Four weeks will be occupied with a study of the principles of ventilation, sanitation, and poultry-house construction. Four weeks are assigned to the elementary study of parasites and diseases of fowls. Six weeks will be devoted to the anatomy of the digestive tract and the physiology of digestion and to a study of the principles of feeding. Work in the poultry laboratory and at the poultry plant will be a

part of this course, and will be an application of the principles taught. This course is for all regular students who are taking poultry for the first time. *Poultry Culture, Sanitation, and Hygiene* will be used as text. Three periods, first term, Junior year. Fee, \$1. DOCTOR KAUPP, Mr. WHITE, Mr. MCCOY.

52. Advanced General Course.—The time in this course will be assigned as follows: four weeks to a study of balancing rations and feeding; four weeks to commercial plant construction and plant management; four weeks to the study of market grades of eggs and practical market methods; six weeks to (1) the study of market grades of poultry and the proper methods of dressing, handling, grading, refrigerating, packing, and shipping same; (2) a study of the methods of saving feathers, grading, storing, packing, curing and shipping same; (3) a study of the methods of collecting, preserving and handling the poultry manure. Three periods, Junior year, second term. Fee, \$1. DOCTOR KAUPP, Mr. WHITE.

53. Specialized Marketing.—First, a six-weeks detailed study of grading, handling, preserving, refrigerating, storing, packing, and shipping eggs. This will be followed by a detailed study of at least three large markets and of ten North Carolina markets, noting fluctuations in market prices and the changes in the feed markets for the same periods. Six weeks will be devoted to finishing, sticking, picking, trussing, scoring, grading, refrigerating, shaping, packing, and shipping dressed poultry. A study of the market grades in detail and the fluctuations of the market prices, together with a study of the fluctuations of the prices of feeds, will be given for the same length of time. This will include the cost of production. Six weeks are devoted to live fowls, finishing, grading, handling, shipping, and a similar study of the live poultry markets as above. Actual shipping experience will be given. Three periods, Junior year, first term. Fee, \$1. DOCTOR KAUPP, Mr. MCCOY.

54. Breeding and Judging.—This is a detailed study of the origin of each breed, of the types and varieties, and of mating birds for the best results. Students taking the poultry course will have the opportunity to mate a pen of birds of any of the twenty breeds on the College and Station plant and care for them for a year and note the results in the progeny. To aid in this study there are colored plates, also cards mounted with typical feathers from all breeds. A study of the twenty breeds on the College and Station farm. *The American Standard of Perfection* will be used as a text. Three periods a week, second term, Senior year. DOCTOR KAUPP.

55. Anatomy and Physiology.—A complete course in the anatomy and physiology of the domestic fowl will be given. This includes a

study of the bony structure, muscles, ligaments and tendons, digestive structure, genito-urinary apparatus, the circulatory system, the nerves, and the special senses. Complete dissections will be made. This course prepares the student for the detailed study of diseases. Three periods a week, first term, Senior year. Fee, \$1. Doctor KAUFF.

56. Diseases.—In this course the time will be divided as follows: Four weeks to a detailed study of medical parasitology, giving the habits of the parasites affecting the domestic fowls, effects upon their host, and methods of their eradication; six weeks to noncontagious diseases and their treatment; eight weeks to contagious diseases, prevention or control, and treatment. Laboratory work will be given to accompany each division. Museum specimens as well as autopsies and clinical cases from the research laboratory will be used. *Diseases of Poultry and Their Treatment* will be used as a text. Three periods a week, second term, Senior year. Doctor KAUFF.

57. Incubation, Breeding, and Flock Management.—This course will be divided as follows: Four weeks to the running of an incubator. Each student operates his own incubator. Eight weeks to lectures and practice work in operating a brooder. Each student operates his own brooder, taking the chicks he hatches in the incubator. Six weeks to broiler feeding and caponizing and capon production work. During the entire course the student has charge of a plant flock, caring for the birds and summing up at the end of the month the various details of the accounting. Fee, \$2. Three periods a week, second term, Senior year. Doctor KAUFF, Mr. WHITE.

VETERINARY SCIENCE.

Equipment.

For instruction in the above subjects, the department is provided with offices, lecture-rooms, laboratories, pharmacy-room (for drugs and surgical instruments), and dissecting-room.

The offices contain the usual office fixtures, besides a library of most of the standard works on veterinary medicine in English.

For use in classroom and laboratory, the department is supplied with mounted skeletons of man and of the horse and cow; also numerous specimens of tumors, tuberculous organs, bony lesions of spavins, splints, ring bones, and side bones. Besides the collection illustrating diseased tissues, the department has a large collection of parasites which infest domestic animals.

The laboratories are provided with wall cases, work tables and desks, washing sinks, hot and cold water, gas burners, and electric lights. The laboratory for special work has microtome (for cutting sections of tissue for study with microscope), glass slides, stains, and the various materials required for making temporary and permanent mounts of healthy and diseased tissues. The larger laboratory is supplied with the necessary equipment for conducting exercises in physiology.

In the pharmacy-room are samples of a large number of drugs used in comparative medicine, and a more or less complete set of surgical instruments, including an operating table for small animals, and casting harness and slings for larger animals.

Subjects of Instruction.

60. Comparative Physiology.—This course, which combines elementary anatomy and physiology both of man and of domestic animals, is especially designed to teach the student the structures, uses, and phenomena of the human mechanism; and as these are common and analogous to those of domestic animals, attention will be given to a comparison of the fundamentals of all systems in each class. The subject of anatomy will be taught by use of mounted skeletons of man, horse, cow, and hog; by dissection of small animals; and from collections of fresh specimens of the various organs and prepared material in the laboratory. This will be followed by a comparative study of the functions of the various systems and organs of the body, such as the skeleton, muscles, nerves, digestion, reproduction, etc. The subject will be covered by text-book, lecture, recitation, demonstrations, and laboratory exercises. Three periods, first term; two periods, second term. Required of Sophomores. Fee, \$1. DOCTOR HANDLEY.

61. (a) Anatomy and Physiology of Domestic Animals.—No one will be qualified to make a comprehensive study of livestock or be able to closely differentiate between normal and abnormal structures and functions of the various parts of the animal body unless he is familiar with the fundamentals of anatomy and physiology. Having had an insight into the subject previously in course 60, the student now goes more into detail. The subject-matter is given by the use of text-book, supplemented by lecture, and illustrated by charts, models, skeletons, sketches, and dissections. Special attention will be given to the systems and organs of digestion, reproduction, locomotion, respiration, and circulation. Three periods, first term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor HANDLEY.

61. (b) Hygiene, Sanitation, and Diseases of Animals.—Preventive medicine is the goal of the physician, the veterinarian, and the sanitarian. In order to be a livestock sanitarian the animal husbandman must, therefore, have a rather comprehensive knowledge of hygiene and sanitation. Considerable time will be devoted to a study of the causes of disease and the means of avoiding them through hygienic and sanitary measures. Three periods, second term. Required of Juniors in Animal Husbandry Division. Professor ROBERTS and Doctor HANDLEY.

62. (a) Veterinary Science: Advanced Physiology.—Appreciating the value of many of the interesting phenomena in physiology, opportunity is given to consider those especially applicable for the animal husbandman and the teacher. Three periods, first or second term. Elective for Seniors in Animal Husbandry, Poultry, and Normal divisions. Professor ROBERTS and Doctor HANDLEY.

62. (b) Veterinary Science: Infectious Diseases.—This course, while correlating with the Junior work and Senior physiology, will not require these courses as prerequisites. Attention will be given to those infectious diseases that are common in the South, and especially those that occur in both men and animals. Three periods, first or second term. Elective for Seniors in Animal Husbandry and Normal divisions. Professor ROBERTS and Doctor HANDLEY.

63. Histology.—A microscopical study of the tissues of the body, treating of the cell as the unit of structure, and of its functions; also of tissues, their classification, and their relation to the structure of organs. From dissections, clinics, and proximity to slaughter-house, abundance of histological material of various animals is obtainable. Three periods. Required of Juniors in Veterinary Division. Fee, \$1. Doctor HANDLEY.

64. Veterinary Anatomy.—This subject will deal with the study of the skeleton, including bones and joints, and of the muscles. A complete dissection of the muscles of the horse will be made. Three periods. Required of Juniors in the Veterinary Division. Fee, \$2. Professor ROBERTS.

65. Materia Medica.—This study of the drugs used in comparative medicine will treat of their classification, composition, physiological actions, and doses. Three periods, second term. Required of Juniors in Veterinary Division. Professor ROBERTS.

66. Veterinary Anatomy.—A continuation of Course 64. A study of the digestive, respiratory, circulatory, urinary, reproductive, and nervous systems will be made, with dissections of each in the horse. Three periods. Required of Seniors in Veterinary Division. Fee, \$2. Professor ROBERTS.

67. Veterinary Physiology.—A comparative study of the bodily functions of the various domestic animals is made, with special reference to digestion, respiration, circulation, reproduction, and secretion. Three periods. Required of Seniors in Veterinary Division. Doctor HANDLEY.

68. Experimental Physiology.—Appreciating the value of many of the interesting phenomena in physiology recently discovered, opportunity is here given to consider those especially applicable to the animal husbandman, the teacher, and the research student. The course will cover investigations dealing with various phases of reproduction and milk secretion; of internal secretions; and of those phenomena of the circulation resulting from infections, pregnancy, etc., such as hemolysis, bacteriolysis, and agglutination. First or second term. Elective for Seniors. Professor ROBERTS and Doctor HANDLEY.

69. Materia Medica and Pharmacy.—Course 65, as described above, will be continued. The Pharmacy Course will include prescription writing and laboratory work in the preparation, compounding, and preserving of medicines. Three periods, first term. Fee, \$1. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor HANDLEY.

70. General Pathology.—As contrasted with special or systematic pathology, this course will treat of general causes of disease, congenital, postnatal, infectious, and noninfectious; of morbid and reactive tissue processes, congestion, inflammation, fever, immunity, etc.; of progressive tissue changes, regeneration, tumors, etc.; of regressive tissue changes, degeneration, necrosis, death, etc. A large number of specimens of diseased organs and tissues already present in the museum, and opportunity for collecting others from clinics and abattoir, insure plenty of material to demonstrate various macroscopical and microscopical tissue changes. Two periods. Required of Seniors in Veterinary Division. Fee, \$1. Doctor HANDLEY.

71. Diagnosis and Clinics.—Diagnosis is taught for the purpose of studying the methods of examining animals to detect disease in them and to determine the location, character, and cause for same. The subject will be discussed largely from a clinical standpoint, but the autopsy, lesions, and laboratory means of diagnosis will likewise be considered. Clinics will be held regularly at a veterinary hospital and practical demonstrations of diagnosis will be made. Three periods, second term. Required of Seniors in Veterinary Division. Professor ROBERTS and Doctor KOONCE.

Agricultural students wishing to pursue a veterinary course will be given opportunity during their Junior and Senior years to elect subjects required in the Freshman and Sophomore years of such a course. This arrangement will permit one to complete two four-year courses in six years time. With the close correlation between agriculture, especially along live-stock lines, and veterinary medicine, this makes a most satisfactory arrangement.

ZOOLOGY AND ENTOMOLOGY.

Equipment.

The Department of Zoology and Entomology occupies the second floor of the Animal Husbandry Building. This provides ample space for offices, laboratories, classroom, museum, library, and photographic room.

The students' laboratory is a large, exceptionally well lighted room which is provided with the usual accessories of a zoological laboratory. The laboratory tables are furnished with "Kewaunee" and "Albarene" tops, and provide ample working space and individual lockers for each student.

The classroom is furnished with a Leitz projection apparatus and with a large series of charts illustrating the principal classes of animals.

The museum contains a rapidly growing synoptic collection illustrating the principal groups of animals found in North Carolina.

The library contains some of the more important books on zoological and entomological subjects and receives the current periodicals dealing with these subjects.

Subjects of Instruction.

80. Elementary Zoology.—An elementary study of all forms of animals, with special reference to the more important economic groups, is given by text-book, library, laboratory and field work, with supplementary lectures. This course is designed to give the student a general knowledge of the animal kingdom, and to lay the foundation for the special work which follows. Three periods, first and second terms. Required of Freshmen. Prerequisite for all other courses in the Department. Fee, \$2. Professor METCALF, Mr. SPENCER, Mr. WARE.

81. Zoology.—This is a course in the study of the cell. Cell division, maturation, the morphology of the spermatozoon and the egg, fertilization, and cleavage are studied in detail. The student is required to collect and prepare his own material as far as prac-

ticable. Two periods, second term. Required of Sophomores. Fee, \$2. Professor METCALF, Mr. SPENCER.

82. Vertebrate Zoology.—This course will cover the comparative embryology of the principal groups of vertebrates, together with a discussion of the comparative anatomy of the vertebrates. Three periods, first term. Required of Seniors in Veterinary Division. Fee, \$2. Professor METCALF.

83. Zoology—Elective.—A course designed especially for students who wish to review the fundamental principles of zoology, either as a basis for teaching or for investigational work. Two or three periods, first and second terms. Elective in Normal Division. Professor METCALF.

84. Elementary Entomology.—The elements of insect anatomy, classification, and development as a foundation for economic entomology is covered by text-book, lectures, and laboratory work. Three periods, first term. Required of Juniors in Horticultural Division. Fee, \$1. Professor METCALF, Mr. SPENCER.

85. Elementary Economic Entomology.—Injurious insects of field and truck crops, garden, orchard, barn and household are studied from the standpoint of their life histories and control. Text-book, laboratory, and field work. Three periods, second term. Required of Seniors in Agronomy and Normal divisions. Fee, \$1. Professor METCALF, Mr. SPENCER.

86. Economic Entomology.—The insect enemies of domestic animals, grains and forage crops are studied from the standpoint of structure, development, and control. Lecture, laboratory, and field work. Three periods, second term. Required of Seniors in Animal Husbandry Division. Fee, \$1. Professor METCALF, Mr. SPENCER.

87. Horticultural Entomology.—Systematic study of the injurious insects of orchard, shade, and ornamental plants, together with a study of the insect enemies of the principal truck and garden crops from the standpoint of their life histories and control. Three periods, second term. Required of Seniors in Horticultural Division. Fee, \$1. Professor METCALF.

88. Graduate Zoology.—This course is designed to fit the student for research or teaching in either Zoology or Entomology. The student may elect from the following groups: (1) Invertebrate Morphology, (2) Comparative Anatomy, (3) Vertebrate Embryology, (4) Invertebrate Embryology, (5) Ecology, (6) Animal Micrology, (7) Cytology, (8) Systematic Entomology, (9) Medical and Veterinary Entomology, (10) Parasitology, (11) Economic Entomology of fruit trees, shade trees, greenhouse, corn, cotton, or tobacco. Four or eight periods. Professor METCALF.

CHEMISTRY.

90. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with some of the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

91. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, \$2. Doctor FREDERICK.

92. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores. Fee, \$4. Doctor MILLER.

93. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis. Special attention is given to the determination of elements in fertilizers, feedstuffs, and other substances of special interest to agricultural students. Three periods, one term. Required of Juniors in Agriculture. Fee, \$2. Doctor WILLIAMS.

94. Agricultural Chemistry.—Stoddart's *Chemistry of Agriculture*. A study of plants and animals, their nutrition and products from a chemical standpoint. Three periods, one term. Required of Juniors in Agriculture. Fee, \$1. Professor WITHERS.

95. Organic Chemistry.—Moore's *Outlines of Organic Chemistry*. A study of the fundamental principles of organic chemistry and of the most important organic compounds, together with laboratory work. Three periods. Required of Seniors in Agronomy, Animal Husbandry, Normal, and Poultry divisions. Doctor DOBBINS.

PHYSICS.

100. Agricultural Physics.—Physics is the study that treats of the action of all forces wherever found, whether in an engine or in the soil, in the atmosphere causing a change in weather or in a seed causing it to swell. Agricultural students must, therefore, study

Physics to get a proper understanding of the cause and method of action of the mechanical and life forces that they meet in their other studies. The course in Physics required of Agricultural students is made thorough, and the subject-matter taken up is made to bear on the practical problems of agriculture. The course embraces lectures, recitations on text-book, and demonstrations and measurements in the laboratory. The lectures are given with demonstrations and measurements of forces actually operating in machines and instruments as nearly as possible like those the student will meet in after life. The lectures also emphasize the historical development of the science for the purpose of giving the student an impulse toward continued development and study. They include a short course in the study of weather, and during the months of January and February weather maps and local observations are followed so as to give the students practical experience in forecasting. Two periods class work and one period demonstration or laboratory throughout the year. Required of Sophomores. Associate Professor HECK.

GEOLOGY.

97. *Geology*.—Introductory course in Geology. Pirsson and Schuchert's *Text-book of Geology, Part I*. A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, second term. Required of Sophomores. Doctor WILLIAMS and Mr. MULLEN.

MATHEMATICS.

110. *Algebra*.—Wells' *New Higher Algebra*. This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

111. *Plane and Solid Geometry*.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 50 per cent or more on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

ENGLISH.

120. Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

121. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

122. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first term, and second term to March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

123. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

124. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods, two terms. Required of Juniors. Professor HARRISON, Associate Professor SUMMEY.

125. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

126. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are

studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

130. Market Distribution.—This course is designed to give the student an understanding of the present system of grading, packing, storing, selling, transporting, financing the sale of and collecting payments for farm products. The cost of the existing agencies will be considered from the point of view of the farmer, middleman, and consumer. A brief survey will be given of the methods of large-scale business organizations as efficient instruments for the distribution of products. Three periods, first term. Required of all Seniors in Agriculture, except Veterinary and Normal students. Required of Normal students in Junior year. Professor CAMP.

131. Organization for Marketing and Credit.—A survey will be made of the methods of operation of successful marketing and credit organizations in Europe and the United States. The kind of organization needed for marketing North Carolina products will be considered. The necessity for credit on the farm and the method of meeting the need by commercial banks, by coöperative banks in Europe and the United States, and by loan agencies generally will be considered in relation to the production, storage, and sale of farm products. Three periods, second term. Required of all students of Agriculture in the Senior year, except Veterinary and Normal students. Normal students must take this course in the Junior year. Professor CAMP.

132. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment of farm products and the location and development of industries generally. Designed to meet the needs of students in Engineering, Textile Industry, and Agriculture. Three periods, first term. Elective for Seniors. Professor CAMP.

133. Trusts, Pools, and Combinations.—A study of the conditions which have led to the development of large business combinations; a description of the methods of organization of typical industries; an analysis of the advantages and disadvantages to be derived from large-scale business organization; and a consideration of the different policies of Government regulation. Three periods, second term. Elective for Seniors. Professor CAMP.

134. Cotton Grading.—A course in cotton grading will be arranged if a sufficient number wish to take it.

MODERN LANGUAGES.

The purpose of the work in this Department is to enable the student to read and become acquainted with German, French and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years' work in German is required of students taking the Chemical course, and it is recommended that students in this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

140. Beginner's German.—Grammar, composition, and translation. Bacon's *German Grammar*. Reader to be selected. Elective for Juniors. Both terms, three hours. Assistant Professor HINKLE.

141. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre*. Elective for Seniors. Both terms, three hours. Assistant Professor HINKLE.

143. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method*. Bowen's *First Scientific French Reader*. Junior elective. Both terms, three hours. Assistant Professor HINKLE.

144. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garennes' *Introduccion a la Lengua Castellana*, first term. Ramsey's *Elementary Spanish Reader*, second term. Senior elective. Three hours a week, both terms. Assistant Professor HINKLE.

145. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had not less than one year's work in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

SHOP AND DRAWING.*

150. Wood Shop.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As

*For description of equipment see page 127.

much time as possible is spent in making models of small buildings, gates, etc. Required of Freshmen. Two periods, second term. Mr. WHEELER.

152. Drawing.—Elementary drawing, elementary projection, free-hand sketching and lettering. Geometrical problems. Freehand drawing. Two periods, first term. Required of Freshmen. Mr. RICHARDSON.

MILITARY SCIENCE.

153. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

154. Tactics.—Theoretical instruction in Infantry Drill Regulations, Field-service Regulations, Map Reading, and Small Arms Firing Manual. One hour a week. Required of Sophomores. Lieutenant SPURGIN.

EDUCATIONAL PSYCHOLOGY.

160. Educational Psychology.—The work of this course is designed primarily for students who intend to teach in the rural high schools. The needs of such students will be constantly kept in view, and to this end the work will be made as practical as possible. The application of the principles of psychology to specific problems of teaching will be the final object of the course. The work of the first term will be devoted largely to the acquisition and meaning of the psychological terminology necessary for the understanding of such problems. Such phases of consciousness as sensation, attention, perception, emotion, imagination, and memory, as well as instinct, habit, will, association, and reason will be especially considered. Tichener's *Primer of Psychology* and Seashore's *Elementary Experiments in Psychology* will form the basis of the work of this part of the course. In the second term the work will consist in the application of the knowledge gained in the first half of the course to the problems of the teacher in general, and especially to those which bear upon the work of the teacher in the rural high school. Special themes on rural high school problems will be assigned each member of the class for investigation and report. Thorndike's *Principles of Teaching* will be used. Required of Seniors in the Normal Division. Three hours a week, both terms. Assistant Professor HINKLE.

SHORT COURSES IN AGRICULTURE.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following short courses are offered. None of these courses will lead to graduation, and they are not in any sense intended as preparatory courses to the regular four-year classes. They are designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen spheres of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take these shorter courses will be carefully drilled in the handicraft and mechanism of their art, and in the application of elementary science to the farm, dairy, garden, and orchard.

1 (c). TWO-YEAR COURSE IN AGRICULTURE.

This course offers, in addition to the purely agricultural branches, introductory and cultural subjects, and thus enables the student to secure not only all the technical and practical work of the One-year Course, but Physiography, Physics, English, and Mathematics, in addition, and all the better prepares young men to become farmers, farm managers, and teachers of agriculture and allied branches in the public schools. A description of the equipment will be found on page 64 and following pages.

TWO-YEAR COURSE.

First Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Agriculture.....	2	2
Carpentry.....	2	0
Drill.....	3	3
English.....	5	5
Mathematics.....	5	5
Physics.....	2	2
Physiography.....	0	2
Physiology and Hygiene.....	2	0
Plant Culture.....	0	2
Totals.....	21	21

Second Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Agriculture.....	3	3
Animal Husbandry and Dairying.....	3	3
Botany.....	3	0
Chemistry.....	3	0
Drill.....	3	3
English.....	3	3
Entomology.....	0	3
Horticulture.....	3	3
Poultry.....	3	0
Soils and Fertilizers.....	0	3
Veterinary Science.....	0	3
Totals.....	24	24

Subjects of Instruction.

Agriculture, First Year.—An introductory course treating of the important field crops of the State. The history, classification, adaptation, culture, harvesting, marketing, and use of corn and small grain. Two periods. Mr. HOBSON.

Agriculture, Second Year.—The second year is devoted to a critical study of cotton, legumes, hay, forage and pasture crops, slage, farm equipment, and farm management. Fee, \$1. Three periods. Professor NEWMAN and Mr. HOBSON.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students*. A study of the fundamental principles of the science and of the common elements and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, \$1. Professor WITHERS and Mr. MULLEN.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of today, with special emphasis on the development

of practical machines and engines. Practical determinations of densities, strengths of materials, measurements of heat and electricity, and everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Mr. MARTIN.

Veterinary Science, Second Year.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoiding and controlling it will be discussed. Three periods. Second term. Professor ROBERTS.

Physiography, First Year.—A study of the natural agencies affecting the earth's surface, soil, water, etc., and temperature, and their effect upon plants and animals. Two periods, second term. Mr. JOSLYN.

Soils, Second Year.—This will include a study of the soils of the State; their formation and classification into agricultural types; their physical properties; relation to moisture and air supply; best methods of conserving and regulating the soil moisture; principles and practice of drainage. The effect of different soil and crop treatments, such as rotation, cultivation, and fertilization, will be studied. Considerable attention will be given to humus, farm manures, and green manures, and to the use and home-mixing of fertilizers, with special reference to the time and methods of using. Three periods, second term. Deposit, \$1. Mr. JOSLYN.

Principles of Plant Culture, First Year.—A course in which the functions of various parts of plants; the activities engendered by heat, cold, moisture and light; and the effect of soil and climate upon the growth of plants are considered. The propagation, planting, and training of plants are also included. Practice work consists in laboratory and field exercises demonstrating the facts studied. Two periods, second term; recitations, one hour; practice, two hours per week. Mr. HAYDEN.

Fruit Culture, Second Year.—A course in practical fruit growing as applied to the different sections of the State. The principal fruits are treated as to location, sites, soils, choice of varieties, best method of propagation, preparation of the land, laying out the orchard, its planting and training, spraying, fertilization, management, and the harvesting, storing, and marketing of the fruit. Three periods, first term. Mr. HAYDEN.

Vegetable Gardening, Second Year.—This course treats of the growing of vegetables for home use, the culture of the principal "truck" crops; and the forcing of vegetables under glass. Practice includes the work of seed sowing, transplanting, and culture of the leading vegetable crops, both under glass and in the field. Each student is required to plan, plant and manage a definite plot assigned to him for the purpose of applying the knowledge gained in the classroom. Three periods, second term. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied and the general principles of nutrition, growth, and reproduction are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Second year. Three periods, first term. Professor WOLF.

Animal Husbandry.—Study of breeds, judging, and management of livestock, animal breeding, and stock feeding. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Second year. Three periods, first and second terms. Professor GRAY and Mr. DRAIN.

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

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year. Mr. DRAIN.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, feeds, and the principles of feeding. It includes also natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain-mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry and how

to prevent or control them will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, \$1. Doctor KAUFF, Mr. McCoy.

Poultry Husbandry.—This course includes a discussion of the poultry industry, market conditions and demands, classes, breeds and types of poultry, and breeding problems, including the selection of laying types, meat types, and utility types of birds. Among the subjects discussed are the management of poultry on the farm, the care and marketing of eggs, artificial and natural incubation, and the proper construction of suitable poultry houses for the farm. Practical work will be given in operating the bone-grinder, feed-mixer, and feed-cutter, and in sprouting grain for the purpose of furnishing succulent feed. Equipment in laboratory and plant gives the student an opportunity to familiarize himself with the practical side of the work. This course is for all students taking poultry work for the first time. Second year. Three periods, first term. Doctor KAUFF.

Physiology and Hygiene, First Year.—The principles of physiology and hygiene are essential to the rational feeding and care of the human body, as well as those of animals. Lectures, recitations, and demonstrations will be used in covering this subject in an elementary way. Two periods, first term. Doctor HANDLEY.

Veterinary Science, Second Year.—The lectures on this subject treat of elementary veterinary anatomy, the care of livestock to prevent diseases, and the treatment of some of the most common diseases. Three periods, first term. Doctor ROBERTS, Doctor KOONCE.

Elementary Zoology and Entomology.—This is a short course in which the beneficial and injurious animals, including insects, are discussed in their relations to the farm. The various insecticides and methods of spraying are also included. Three periods, second term, second year. Fee, \$1. Professor METCALF, Mr. WARE.

Algebra.—Wells' *New Higher Algebra*. A thorough treatment of elementary Algebra, beginning with simple equations and embracing simultaneous equations in two or more unknowns, problem solving, involution, evolution, theory of exponents, and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. First term, five periods. Mr. HARRELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in plane geometry, including numerous original exercises. Five periods, second term. Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. First year, five periods. Mr. WEBBER.

English Composition and Rhetoric.—After a review of grammatical principles, special attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Second year, three periods. Mr. WEBBER.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. First year, two periods. Mr. WHEELER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Lieutenant SPURGIN and Cadet Officers of the Battalion.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of today, with special emphasis on the development of practical machines and engines. Practical determinations of densities, strength of materials, measurements of heat and electricity, and other everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Fee, \$1. Mr. MARTIN.

ONE-YEAR COURSE IN AGRICULTURE.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Agriculture.....	3	3
Animal Husbandry and Dairying.....	3	3
Carpentry.....	1	1
Chemistry.....	3	0
Drill.....	3	3
English.....	3	3
Entomology.....	0	3
Horticulture.....	3	3
Plant Life.....	3	0
Poultry.....	3	0
Soils and Fertilizers.....	0	3
Veterinary Science.....	0	3
Totals.....	25	25

Subjects of Instruction.

Agriculture.—This condensed course in agriculture consists of class, laboratory, and field work with the chief crops of the State from seeding to market; crop rotation; farm equipment and farm management. Fee, \$1. Three periods through the year. Professor NEWMAN and Mr. HODSON.

Soils and Fertilizers.—This will include the study of the soils of the State, their formation and classification into agricultural types; their physical properties, relations to moisture and air supply; best methods of conserving and regulating the soil moistures; principles and practice of drainage; effect of different soil and crop treatments, such as rotation, cultivation, and fertilization. Considerable attention will be given to humus, farm manures and green manures, and the use and home-mixing of fertilizers, with special reference to the time and methods of using and the best mixtures for the different types of soil. Three periods, second term. Deposit, \$1. Mr. JOSLYN.

Animal Husbandry.—Study of breeds, judging and management of livestock, animal breeding, and stock judging. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms. Professor **McNUTT** and **Mr. SALISBURY**.

Veterinary Science.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoidance and control will also be discussed. Three periods, second term. Professor **ROBERTS**.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, and principles of feeding, and it includes a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, and construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain-mixer, and to learn sprouting as a source of succulent food. Parasites and their control and the common diseases of poultry, and how to prevent or control them, will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, \$1. Doctor **KAUFF**, **Mr. McCoy**.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State and the possibilities embodied in its further development. A text-book on the general subject of fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top-grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first term. **Mr. HAYDEN**.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and marketing of the leading vegetables. Practical exercises are given in the laboratory and field which include germinative tests of seeds; seed sowing; methods of transplanting and culture; ma-

nipulation of garden tools; construction and management of hotbeds and cold-frames; and protection of plants from insects. Three periods, second term. Mr. HAYDEN.

Plant Life.—The structure of seed plants and the general principles of nutrition, growth, and reproduction are discussed in an elementary and practical way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking farm crops, fruit trees, etc.; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, first term. Professor WOLF.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students*. A study of the fundamental principles of the science, the common elements, and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, \$1. Professor WITHERS and Mr. MULLEN.

Elementary Zoology and Entomology.—This is a short course in which the beneficial and injurious animals, including insects, are discussed in their relations to the farm. The various insecticides and methods of spraying are also included. Three periods, second term. Fee, \$1. Professor METCALF, Mr. WARE.

Carpentry.—The use and care of ordinary woodworking and bench tools. Exercises in sawing, planing, and making joints. As much time as possible is spent in making models of small buildings, gates, etc. Two hours, first and second terms. Mr. WHEELER.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. Required of one-year students. Mr. WEBBER.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; gallery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may elect either the drill or three hours extra in some other subject in its place. Lieutenant SPURGIN and Cadet Officers of the Battalion.

THE WORK COURSE IN AGRICULTURE.

In order that needy and ambitious young men who are familiar with farm work and are able and willing to do it may get a practical agricultural training, the College has established what is known as its Work Course. The young men in this course attend classes one week and work on the College plant the other week. They do the work on the College farm, in the orchard, and in the poultry plant. They are paid enough for this work to defray their immediate college expenses. In all, twenty-four young men are admitted to this course, but only twelve are received in any one year. These men are admitted by personal application on blanks furnished by the College, and must pledge themselves to remain in this course two years.

First Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Agricultural Mechanics.....	3	3
Agriculture.....	3	3
Animal Husbandry.....	3	3
Animal Studies.....	3	0
Botany.....	0	3
Chemistry.....	3	0
English.....	3	3
Horticulture.....	3	3
Poultry.....	0	3
Soils and Fertilizers.....	3	3
Totals.....	24	24

Second Year.

SUBJECTS.	PERIODS A WEEK	
	1st Term.	2d Term.
Agricultural Mechanics.....	3	3
Agriculture.....	3	3
Animal Husbandry and Dairying.....	3	3
Drainage.....	3	0
English.....	3	3
Entomology.....	3	0
Farm Management.....	0	3
Horticulture.....	3	3
Plant Diseases.....	0	3
Poultry.....	0	3
Veterinary Science.....	3	0
Totals.....	24	24

Subjects of Instruction.

Agriculture.—A study of field crops, farm equipment, and farm management, including recitation and laboratory exercises and field work. Instruction and practical exercises with the chief crops of the State, including operation from seed-time to harvest, together with appropriate rotations for the various crops. Three periods through the course. Professor NEWMAN and Mr. HODSON.

Farm Management.—Types of farming and their relation to soil, climate, labor, transportation, population, capital, and land values; operating expenses; systems of land tenure; location and arrangement of buildings, roads, fences, etc.; farm records and accounts; standard of living; schools and churches. Three periods, second term of second year. Professor NEWMAN.

Poultry Husbandry—Elementary Course.—This course deals with breeds, breeding, poultry-house construction and ventilation, and principles of feeding; and it includes a brief study of feeds. It includes, also, natural and artificial incubation and brooding, dressing and marketing poultry, and the packing and marketing of eggs, mixing feeds, feeding, care of the houses and runs, construction and repair work. Each student is required to operate a bone-grinder, feed-cutter, and grain mixer, and to learn sprouting as a source of

succulent food. Parasites and their control and the common diseases of poultry and how to prevent or control them will be considered. This course is open to First- and Second-year Work Course students for three periods a week during the second term, and to the One-year and the second year of the Two-year Agricultural Course. Fee, \$1. DOCTOR KAUPP, MR. MCCOY.

Soils and Fertilizers.—A study of the origin, plant food, moisture, humus, tillage, and fertilization of soils; green manure, stable manure, and commercial fertilizers as factors in the maintenance of soil fertility; purchase and mixing of commercial fertilizers; composition and use of fertilizers to get best results on different classes of soil. Three periods through first year. MR. JOSLYN.

Drainage.—Field work with levels in determining elevation and slope of land and in staking out and grading drains; benefits of drainage; factors determining cost; methods of constructing drains and terraces. Students will be required to work out and submit a plan for the complete drainage of a field. Three periods, fall term, second year. MR. JOSLYN.

Animal Husbandry.—Study of breeds, judging and management of livestock, animal breeding, and stock judging. There will be lectures on all the above subjects, supplemented by practical work as far as possible. Three periods, first and second terms, first year; first term, second year. PROFESSOR GRAY, MR. DRAIN.

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

The student while in the dairy laboratory uses the leading makes of separators, churns, butter-workers, Babcock testers, etc., until he becomes familiar with their construction and proficient in operating them.

The laboratory course is supplemented by lectures of a practical nature, covering the most important features of dairying. It is a course of study which should meet the requirements of the farmer and dairyman who handle dairy products, whether for home use or for commercial purposes. Three periods, second term, second year. MR. DRAIN.

Veterinary Science.—The lectures on this subject will treat of elementary veterinary anatomy, physiology, hygiene, and sanitation. The general causes for disease and the means of avoidance and control will also be discussed. Three periods, first term, second year. PROFESSOR ROBERTS.

Fruit Culture.—This course treats of fruit growing as applied to the different sections of the State, and the possibilities embodied in its further development. A text-book on the general subject of

fruit culture is supplemented by lectures on the leading fruits, dealing with the kind and preparation of soil for fruits, laying out the orchard, varieties, methods of propagation, planting, cultivation, fertilizing, pruning, harvesting, and marketing. Practical exercises are given in laboratory, orchards, and vineyards, which include budding, grafting, top grafting; making of cuttings; pruning of fruit and ornamental trees; fruit bud studies, planting and transplanting; identification of varieties; packing; and handling of nursery stock. Three periods, first year or second year. Mr. HAYDEN.

Vegetable Gardening.—This course treats of the trucking industry of the State, and the growing of vegetables for home use. A text-book is used, supplemented by lectures on the growing, handling, and marketing of the leading vegetables. Practical exercises are given in the laboratory and field. These include germinative tests of seeds; seed sowing; methods of transplanting and culture; manipulation of garden tools; construction and management of hot-beds and cold-frames, and protection of plants from insects. Three periods, first year or second year. Mr. HAYDEN.

Botany and Plant Diseases.—The structure of seed plants is studied, and the general principles of nutrition, growth, and reproduction are discussed in an elementary and general way. Practical instruction will be given concerning representative fungous and bacterial diseases attacking field, orchard, and garden crops; how to recognize them and how to prevent them, including instruction concerning the preparation of spraying mixtures. Three periods, second term, first and second years. Professor WOLF.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading also is assigned for private study. Three hours a week. First and second years. Mr. WEBBER.

Entomology.—This is a short course, in which the more noxious insects are studied, with special reference to methods of preventing their injuries. The various insecticides and methods of spraying are also included in this course. Three periods, first term, second year. Professor METCALF, Mr. WARE.

Animal Studies.—This course will be devoted to a consideration of the relations existing between man and the other animals, excepting insects. Special emphasis will be placed upon the importance of various groups of animals, beneficial or injurious to the farmer. Three periods, first term, first year. Professor METCALF, Mr. WARE.

Elementary Chemistry.—Classroom and laboratory instruction. Cook's *Practical Chemistry for High School Students*. A study of the fundamental principles of the science, the common elements, and their compounds. Special attention is given to the constituents of the soil, the plant, fertilizers, and feeding stuffs. A laboratory course accompanies the classroom work. Under the direction of a teacher, the student performs experiments illustrating the lectures. Three periods, first term. Laboratory fee, \$1. Mr. MULLEN.

Agricultural Mechanics.—In this course instruction will be given in the use of cement on the farm; the operation of gasolene and kerosene engines; water supply; electric lighting outfits for the farm; the making of fences, etc. Three periods a week, first and second years. Professor SATTERFIELD.

WINTER SHORT COURSE IN AGRICULTURE.

Begins January 9 and Ends February 6, 1917.

The Winter Course in Agriculture is a practical course in farming given by practical men for practical farmers. It is open to all who are engaged in or interested in farming and is designed to aid the man who wishes to farm in a modern and business way, who wants larger and better returns for his labor, and who wants to make a better and more comfortable home on his farm. It is designed to aid farmers who wish:

To manage their soils so that there will be a gain and not a loss in soil fertility;

To use fertilizers and manures with less expense and with better results;

To save soil moisture and plant food;

To save the soil from washing away;

To rotate crops so as to add to crop yields and increase the fertility of the soil;

To select the best types and best individual dairy and beef cattle and to feed and manage them to the best advantage;

To judge all kinds of cattle, horses, hogs, sheep, and poultry;

To breed livestock so that each generation may be improved;

To produce and feed balanced rations for economy and best results;

To fight insect enemies intelligently and fungous and bacterial diseases with success;

To prevent diseases in livestock;

To care for livestock so as to keep them healthy and to get the most profitable return from their work and products;

To select, standardize, and stabilize farm poultry and proper methods of handling breeding and laying flocks, and to care for the sitting hen and her brood;

To breed, graft, and otherwise propagate plants;

To know when and how to spray;

To grow fruits and vegetables successfully.

These and other things will be taught simply, practically, and as thoroughly as the time will permit.

Equipment.

So far as it can be used, the entire agricultural equipment of the College is put at the service of the members of the Winter Course class. The laboratory and classroom equipment, the several large

barns with their equipment of livestock, machines, implements, tools, appliances, and silos; the dairy, with its modern equipment; the horticultural plant; the poultry laboratories, houses, and yards; the libraries, are all used to make the course both interesting and profitable.

Does Such a Course Pay?

All those who have taken this course unite in saying that it has paid them many fold. A thoughtful man has his eyes opened to see so many ways of improving his methods, his soil, his animals, his crops, his orchard, his truck farm, and his poultry that such training as is given in the Winter Course cannot fail to bring not only a handsome economic return, but also a rich return in the greater pleasure taken in his work.

Expenses.

No tuition is charged for the Winter Course. The College cannot offer rooms to students entering this course, but will furnish meals at the dining hall at \$2.75 per week. Rooms may be rented either in West Raleigh or in Raleigh at from \$2.50 per week up.

Twenty or thirty men can perhaps secure rooms free in the small wooden dormitories. Application should be made for these, if a room in these buildings is desired.

Admission.

No examinations are required for entering the Winter Course, and any person over eighteen years of age may enter with full privileges. The greater part of the instruction consists of lectures and laboratory exercises, and the full time of the students is provided for. Some of the evenings will be devoted to popular lectures and some to student meetings. The regular work of the Winter Course begins January 9 at 8:15 a. m., and all students are urged to be here promptly on that date.

For further information, write to

E. B. OWEN, REGISTRAR,
WEST RALEIGH, N. C.

OUTLINE OF FOUR-WEEKS COURSE.

GENERAL AGRICULTURE.

Professor Newman and Mr. Hodson.

Farm Crops.—First a general survey of the farm-crop situation in the several agricultural divisions of the State will be made. Following this the legumes, small grains, and cover crops will be considered from the viewpoints of profitable production of the crops themselves and their relation to livestock and the conservation of soil fertility. Forage, hay, and pasture crops will be discussed. Rotations for corn, cotton, small grain, and tobacco will be planned and discussed and suggestions made for at least a partial reorganization of the present farm-cropping systems for increasing the farmer's profits, economizing labor, and conserving fertility.

ANIMAL HUSBANDRY.

Professor Gray and Mr. Drain.

Breeds of Livestock.—Lectures on this subject will treat of the characteristics of the different breeds of livestock.

Stock Judging.—This work will be made practical, and it will be done in the stock-judging room, where the students will be taught the use of the score card and the points to be considered in the selection of good animals.

Stock Feeding.—Lectures on this subject will treat of the composition and digestibility of the various home-grown and commercial feeds, methods of calculating rations, and suggestions as to the most economical feeds to use.

DISEASES OF LIVESTOCK.

Doctors Roberts and Handley.

Lectures will first briefly cover elementary anatomy, physiology, hygiene, and sanitation. Comparisons will be made of man and domestic animals. Mounted skeletons of man, horse, and cow will be used to assist in making the subject of anatomy more readily understood. Special emphasis will be laid upon the general causes for disease and the means of avoiding and controlling the same.

AGRICULTURAL BOTANY.**Professor Wolf.**

This course will consist of ten lectures. Five of them will treat of the fundamental physiological processes in plants relating to nutrition, growth, and reproduction. The remaining five will treat in a practical way of some important fungous diseases of field, garden, and orchard crops. Ample illustrative material will be used.

SOIL MANAGEMENT.**Professor Sherwin.**

Soils.—This work will consist of lectures on moisture, organic matter, acidity, and other factors which determine soil fertility.

Fertilizers.—Lectures will be given on the production, value, and management of farm manures.

Drainage.—Lectures will be given on the common methods and practices of tile drainage and of terracing.

FIELD WORK IN DRAINAGE.**Professor Sherwin and Mr. Joslyn.**

Those who desire may substitute field work in drainage for the lecture work outlined above under Soil Management. The field work will include the use of levels for laying off terraces and ditches and the digging of ditches and the laying and covering of tile.

ENTOMOLOGY.**Professor Metcalf.**

The aim of this course will be to teach a farmer to recognize his insect friends and enemies. We pay a much greater tax to insects each year than we do to the State and local governments in taxes for several years, and yet there are many farmers who know practically nothing about insects. The farmer should know something about the lives of these interesting animals, and how to control the injurious forms.

The course will be illustrated by specimens, charts, and photographs in order to familiarize the farmer with the principal insects attacking farm crops and fruit trees.

POULTRY RAISING.**Doctor Kaapp.**

Since 95 per cent of the poultry produced in this country is grown on the farms, poultry culture in this course will be treated from the farmer's standpoint.

In this connection attention is called to the great and growing demand for poultry products. Whereas a few years ago eggs sold for 10 cents per dozen, 40 and 50 cents is not unusual now at certain times of the year. Formerly young chickens brought from 10 to 25 cents each and hens 25 cents; at present 35 cents is a low price on the local market for young stock, and hens bring 75 cents to \$1 each.

The breeds and varieties best suited for the farmer, both for eggs and meat, and how to standardize and stabilize the farm poultry product will have first consideration.

The proper construction of the houses and location of same with reference to convenience and health of the flock will also be discussed. The methods of handling the sitting hen and care and feeding of her brood will be thoroughly discussed and demonstrated.

As the annual loss from bad and improperly handled eggs for the United States is \$25,000,000, of which North Carolina bears her share, particular stress will be laid on the production of good marketable eggs.

The reasons why poultry undrawn, dry picked, keeps better and commands the highest price in the best markets of the country will be demonstrated.

Caponizing, one of the easiest operations learned, will have special attention. By this operation thousands of dollars can be saved to the State, improving the quality of the flesh on the many surplus cockerels now marketed yearly.

Incubating and brooding, both natural and artificial, will be thoroughly discussed and made clear.

The College and Station flocks consist of nineteen of the most popular and useful varieties of poultry, embracing both the utility and egg breeds of fowls. They are kept in several types of house, so that the different styles of houses may be seen and compared.

The incubator cellar contains fifteen machines of several different standard makes, including a giant of 1,800-egg capacity, and students have the opportunity of becoming familiar with the best.

To those who may wish to specialize in poultry culture as far as time will admit, opportunity will be given to become familiar with the details of running a poultry plant by being given an incubator and brooder, a pen of fowls to care for, etc.

HORTICULTURE.

Professor Pillsbury and Mr. Hayden.

The course in Horticulture is designed to meet the demand for practical instruction along the lines of plant propagation, fruit growing, and vegetable gardening. Especial consideration will be given to the application of principles and methods to North Carolina conditions.

Plant Propagation is to be presented by means of lectures, demonstrations, and actual practice. The methods used in multiplying plants, such as seed sowing, separation and division, the making of cuttings and layers, and budding and grafting, will be treated in turn.

Fruit Growing is to be considered both from the standpoint of the farmer and that of the fruit grower. It is to be treated by means of lectures and practice in the selection of sites and soils, the laying out of orchards, the planting, pruning, and training of trees, spraying, and the marketing of the fruit.

Vegetable Gardening will treat of the culture of the leading vegetables for both market and home use. Every farm should be supplied with a home garden, and the consideration of this branch of Horticulture is vital to the success of the farmers of the State. Lectures upon the principal crops will be supplemented by demonstrations and practice in the selection of sites and soils, formation of garden plans, in the construction and use of cold-frames and hot-beds, starting early vegetables, transplanting, cultivation, and marketing.

Equipment.—The Department of Horticulture has under its management about thirty acres of land devoted to the culture of all the standard tree, vine, and small fruits and vegetables which it is possible to grow successfully in this climate, as well as other varieties maintained for instructional purposes.

In the fruit plantation, which is very complete, are to be found standard sorts of apples, pears, peaches, plums, cherries, quinces, persimmons, pecans, figs, muscadine grapes, "bunch" grapes, raspberries, blackberries, dewberries, and strawberries. There is also a nursery in which both fruit and ornamental plants are grown. This is especially valuable in providing material and opportunity for carrying on various methods of plant propagation, as well as in furnishing stock of all kinds for planting about the grounds.

Quite an extensive area is devoted to vegetable gardening, which is carried on in a large measure upon a commercial basis. This is

possible because of an arrangement with the Department whereby the College dining-room is supplied with fresh vegetables throughout the year. Here all the leading vegetables are grown in season according to the best practice in rotation, fertilization, tillage, and harvesting; and the student is provided with ample materials for study and practice.

The Horticultural grounds are also worthy of study as to the design as a whole, and provide an example of how a home may be attractive by means of lawn, trees, shrubs, and vines.

Additional facilities in the form of a laboratory building and a greenhouse have recently been provided. The laboratory building is a one-story brick structure with a basement to house the heating plant, and covers an area of 25 by 41 feet. Eventually it will be lengthened to 70 feet. The greenhouse is of the type known as "all iron" construction, with concrete walls, and makes as substantial and durable a building of this sort as can be erected. Both of these buildings have been fitted up and are in use. Practice work is emphasized in all courses, and these facilities insure better work than ever before.

ONE-WEEK GRADUATE COURSE IN VETERINARY MEDICINE.

January 8-13, 1917.

Open to graduate veterinarians only. Alterations in the following outline of subjects may be made to suit the wishes of those attending. The subject-matter in each case will be condensed so as to cover the entire field during the week.

Animal Husbandry—Judging, Feeding, and Breeding.—This course is given by the Animal Husbandry Division. The Livestock Judging will embrace the points to be considered in determining the fitness of animals for specific purposes. The Stock Feeding instruction will cover the various feeds available, their composition, and the methods of compounding balanced rations. The Animal Breeding lectures will discuss the selection, the laws of breeding, and the management of breeding animals.

Dairying.—This course is offered by the Dairy Division. The equipment necessary for a dairy, the methods of conducting a dairy business, and the composition of milk will be the subjects of study. Laboratory demonstrations will be given to illustrate methods of testing and standardizing milk and cream, also the scoring of butter.

Parasites and Parasitic Diseases.—Three or more lectures will be given on this subject, taking up the more important internal and external parasites, using for the purpose of demonstration one of the largest private collections of parasites in this country. Symptoms of parasitism, methods of recognition of the parasites, lesions produced, and means of eradication will be thoroughly discussed. Professor KAUFF.

Common Diseases of Poultry.—Three or more lectures will be given on this subject, taking up the more troublesome diseases, both parasitic and bacterial, making actual demonstrations from the poultry and pathology research laboratory, run jointly by the College and the Station. Professor KAUFF.

Meat and Milk Inspection.—The subject will be covered in the discussion of an outline indicating what inspection for Southern towns should consist of. The work will be demonstrated by visits to the municipally owned abattoir, the city market, and some of the better dairies about Raleigh. Doctor KOONCE.

Anatomy and Dissection.—Condensed outlines of the different anatomical systems will be given, such as of skeleton, including joints,

and muscular, nervous, digestive, circulatory, respiratory, urinary, and genital systems. Abundance of well-injected equine subjects will be available for dissection of all parts, but particular attention will be given those areas involved in special surgery. Professor ROBERTS.

Veterinary Physiology.—The physiology of digestion, nutrition, and reproduction has made much advancement in the past five years. It is, therefore, essential that we understand the latest and the most authenticated scientific findings. Lectures will be given summarizing the essentials of these subjects. Laboratory methods, also, will be used to demonstrate the actions of the digestive fluids, and prepared specimens shown to illustrate, as far as possible, the phenomena of reproduction. The remaining time will then be given to a discussion, in a practical manner, of the respiratory and the circulatory systems. Doctor HANDLEY.

Clinical Diagnosis and Clinics.—The subject-matter will be given in the form of a synopsis of the essential factors concerned in determining the alterations in each of the anatomical systems and regions of the animal body. Demonstrations will be made in the conduct of clinics at the veterinary hospital and by various laboratory and field methods of diagnosis. It is expected to have opportunity to show typical reactions from use of intra-dermal and ophthalmic tuberculin. Doctors ROBERTS, KOONCE, HANDLEY, KAUFF.

Open Discussions on Surgery, Practice, Meat and Milk Inspection, etc. Leaders of each chosen by those attending. Stated periods will be appointed for each of the above subjects on which round-table discussions will be held of the veterinarian's everyday problems.

FRUIT GROWING.

LECTURES AND DEMONSTRATIONS.

January 4, 5, 6, 1917.

The Horticultural Department of the College, aided by the Experiment Station and Extension Service, offers this year a special course on fruit growing in North Carolina.

This course is offered on account of the growing interest for practical information in regard to locating, starting, and managing orchards and the packing of their products.

The following outline will indicate the subjects that will be included in the instruction and in the demonstrations:

- Jan. 4.—Propagation of Fruit Plants.
Varieties of Fruit.
Location and Site Requirements for an Orchard.
Laying Out and Starting an Orchard.
- Jan. 5.—Home Orchard Planning.
Principles and Mechanics of Pruning.
Pruning Demonstrations.
Packing Apples in Barrels.
- Jan. 6.—Orchard Management.
Orchard Pests.
Spraying Demonstrations.
Packing Apples in Boxes.

II. ENGINEERING COURSES.

- a. Four-year Course in Civil Engineering.
- b. Four-year Course in Mechanical Engineering.
- c. Two-year Course in Mechanic Arts.
- d. Four-year Course in Electrical Engineering.
- e. Four-year Course in Chemistry.

The Engineering courses give a thorough grounding in such fundamental sciences as Mathematics, Physics, and Chemistry, and thorough drill in the application of the principles thus learned to engineering problems. The student is given practice in the use of engineering instruments and methods, and is encouraged to rely upon his own resources in the solution of problems. Though the courses are primarily technical and practical, they include subjects of general culture throughout all four years.

The Freshman years of all the Engineering Courses are identical and include a great deal of practice. The student in the different shops learns the use of tools and the handling and manipulation of materials of construction. Instruction is given in working wood and iron. In the Sophomore year this work is continued in the pattern-making shop and in the foundry. Also in the Physical laboratory much attention is paid to the practical value of such instruction. Here the student is taught the science of measurement and is trained to observe and work accurately. During these two years he is also given a thorough training in Mechanical Drafting, skill in which is essential in all lines of engineering work.

Differentiation of the different engineering courses begins in the Sophomore year. The practical work here, in the shop, in the field or in the laboratory, directs the student's attention to the specific phases of that branch of the profession he is to follow. In the Junior year the study of engineering methods is begun and is continued more fully in the Senior year.

Upon the satisfactory completion of these courses the degree of Bachelor of Engineering is conferred. The advanced degrees of Civil Engineer, Electrical Engineer, and Mechanical Engineer may also be conferred upon graduates of three years standing who have had responsible charge of important work, upon complying with the College requirements (see page 193).

More detailed descriptions of the different courses follow.

COURSE IN CIVIL ENGINEERING.

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

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

Civil Engineering Equipment.

There is a complete equipment of all instruments necessary to civil engineering field work. The classrooms, drawing-rooms, and laboratories are in Winston Hall.

II (a). The Four-year Course in Civil Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*	
	1st Term.	2d Term.
Mechanical Drawing, M. E. 103, 104†.....	2	2
Woodwork, M. E. 105, 106.....	2	2
Forge Work, M. E. 108.....	--	2
Engineering Lectures, M. E. 101.....	2	--
Algebra, 340.....	5	--
Geometry, 341.....	--	5
Physics, 280.....	4	4
Physical Laboratory, 282.....	1	1
Composition and Rhetoric, 360.....	3	--
American Literature, 361.....	--	3
Military Drill, 390.....	3	3
Totals.....	22	22

Sophomore Year.

Architecture, 220.....	2	--
Architectural Drawing, 221.....	2	2
Advanced Algebra, 343.....	5	--
Trigonometry, 344.....		
Analytical Geometry, 345.....	--	5
Descriptive Geometry, M. E. 202.....	--	2
Physics, 281.....	2	2
Physical Laboratory, 283.....	1	1
General Chemistry, 302.....	3	3
General Chemistry (laboratory), 303.....	2	2
Advanced Rhetoric, 362.....	3	3
Public Speaking, 363.....	--	
Military Drill, 390.....	3	3
Military Tactics, 391.....	1	1
Totals.....	24	24

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

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

Junior Year.

SUBJECTS.	PERIODS & WEEKS.	
	1st Term.	2d Term.
Road Building, 212.....	1	1
Surveying, 202, 206.....	2	2
Surveying (field work), 207.....	2	2
Construction, 205.....	2	--
Topographical Drawing, 203.....	2	2
Graphic Statics, 201.....	--	2
Mechanics, 204.....	3	3
Calculus, 345.....	5	5
English Literature, 364.....	3	3
Military Drill, 390.....	3	3
Totals.....	23	23
Modern Languages, 370, 373.....	3	3

Senior Year.

Mechanics of Materials, 215.....	3	--
Roofs and Bridges, 209.....	3	--
Bridge Design, 210.....	--	3
Municipal Engineering, 211.....	--	3
Surveying (field work), 208.....	2	--
Water Supply, 218.....	--	2
Hydraulics, 216.....	3	--
Railroad Engineering, 206.....	3	2
Reinforced Concrete, 214.....	--	3
Astronomy, 213.....	--	2
Laboratory, 217.....	--	2
Mechanics, 204.....	2	--
Journals, 365.....	3	--
Elect one from the following 3 periods first term, 6 periods second term:		
Classics, 366.....	--	3
Economics, 367.....	--	3
Military Drill, 390.....	3	3
Modern Languages, 371, 374.....	3	3
Totals.....	22	22

Subjects of Instruction.

200. Descriptive Geometry, Stereotomy.—Text-book, lectures, problems, and completed drawings. Two periods, second term. Required of Sophomores in Civil Engineering. Mr. POOLE.

201. Graphic Statics.—Determination of stresses in frame structures by graphical methods. Lectures and original problems. Two periods, second term. Required of Juniors in Civil Engineering. Professor MANN.

202. Surveying.—Land surveying, leveling, elements of triangulation, topographical surveying, road location. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN, Assistant Professor POOLE.

203. Topographical Drawing.—Conventional signs, computations, forms of field notes, methods of platting, completed map from field notes. Two periods. Required of Juniors in Civil Engineering. Professor MANN.

204. Mechanics.—Nature and measurement of forces, moments, conditions of equilibrium, moment of inertia, laws of motion, constraining and accelerating forces, dynamics of a rigid body, momentum and impact, work, power, friction, application of principles to various engineering problems. Three periods. Required of Juniors in Civil Engineering. Two periods, first term. Required of Seniors. Professor RIDDICK, Professor MANN, Mr. TUCKER.

205. Construction.—Masonry, foundations, railroads, dams, retaining walls, arches, etc. Baker's *Masonry Construction*. Lectures. Two periods, first term. Required of Juniors in Civil Engineering. Professor MANN.

206. Railroad Engineering.—Reconnaissance, preliminary and location surveys, cross sections and compound curves. Two periods, second term. Required of Juniors. Searles's *Field Engineering*. Spirals, Railroad Construction, Estimates, etc. Three periods, first term, two periods, second term. Required of Seniors. Searles's *Railroad Spirals*, Crandall & Barnes's *Railroad Construction*. Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

207. Surveying.—Field work. Use of instruments, compass, level, transit, and plane table. Practical work in land surveying, topography, leveling, railroad surveying, working up notes, and platting. Two periods. Required of Juniors in Civil Engineering. Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

208. Surveying.—Field work. Triangulation and topography, use of sextant and plane table, surveys for sewers, waterworks, etc.

Two periods, first term. Required of Seniors in Civil Engineering. Professor MANN, Assistant Professor POOLE, Mr. TUCKER.

209. Roofs and Bridges.—Determination of stresses in roof and bridge trusses by the analytical method. Merriman's *Roofs and Bridges*. Original problems. Three periods, first term. Required of Seniors in Civil Engineering. Professor RIDDICK.

210. Bridge Design.—Calculation of stresses, design, specifications, and estimate of cost of a wooden rooftruss and a steel railway bridge. Three periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

211. Municipal Engineering.—Text-books, lectures. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

212. Road Building.—Text-book on construction of roads, streets, and pavements. Lectures on practical roadmaking in North Carolina. One period. Required of Juniors in Civil Engineering. Professor RIDDICK.

213. Astronomy.—Determination of azimuth, latitude and longitude, and time. Comstock's *Astronomy for Civil Engineers*. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

214. Reinforced Concrete.—Turneaure & Maurer's *Principles of Reinforced Concrete Construction*. Problems in beams, columns, retaining walls, etc. Three periods, second term. Required of Seniors in Civil Engineering. Professor MANN.

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

216. Hydraulics.—Methods of measuring flow of streams, laws governing flow in pipes and conduits, determination of water-power in streams, testing of hydraulic motors. Text-book, Merriman's *Hydraulics*. Two periods, one term. Required of Seniors in Civil, Mechanical, and Electrical Engineering. Professor RIDDICK, Professor MANN.

217. Laboratory.—Tests of cement and other materials. Hydraulic measurements. Two periods, second term. Required of Seniors in Civil Engineering. Assistant Professor POOLE, Mr. TUCKER.

218. Water Supply.—Investigation of water supplies, methods of treatment, design and construction of filtration and pumping plants, distribution systems. Two periods, second term. Required of Seniors in Civil Engineering. Professor RIDDICK.

ARCHITECTURE.

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

221. Architectural Drawing.—Drawings from a building already constructed, design of a dwelling, detail and perspective drawings. Two periods. Required of Sophomores in Civil Engineering. Assistant Professor POOLE.

FOUR-YEAR COURSE IN MECHANICAL ENGINEERING.

The regular four-year course in Mechanical Engineering offers a training in the fundamental principles of design, construction, manufacture, and operation of all classes of standard and special machinery, and their economic application to railroads, steamships, mills, shops, factories, and power plants, as well as in the technical and executive management of the manufacturing and transportation industries. To this end the course of instruction is as broad as is possible to give in a technical school.

The course begins with a thorough training in mathematics, physics, and chemistry as a foundation for the appropriate technical work, which is developed along several parallel lines. Applications of these fundamental sciences to the physical properties of the materials of construction, especially the metals and their practical manipulation, lead through the courses in mechanics, resistance of materials, shop processes, the materials-testing laboratory, drafting and kinematics, to the principles of design, which are fixed by application to the design of machinery for the execution of any kind of process in which machinery is either absolutely essential or more economical than corresponding hand execution of the same process. The principles underlying the performance of machinery are developed by courses in thermodynamics, mechanics, and hydraulics, with experimental laboratory demonstrations. The instruction in the performance, design, and manufacture of machine and power units in the classroom and laboratory, supplemented by visits to power plants and factories, is the basis of the work on the design of plants and mills.

To success in any one of these particular branches or phases of this profession a thorough technical training is absolutely indispensable, for it supplies the broad, general foundation, which must in its turn be supplemented by practical experience and by contact with the special line of work chosen.

II (b). The Four-year Course in Mechanical Engineering, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Physics, 280.....	4	4
Military Drill, 390.....	3	3
Composition and Rhetoric, 360.....	3	--
Algebra, 340.....	5	--
Engineering Lectures, M. E. 101.....	2	--
Geometry, 341.....	--	5
American Literature, 361.....	--	3
Mechanical Drawing, M. E. 103, 104.....	2	2
Wood Shop Work, M. E. 105, 106.....	2	2
Physical Laboratory, 282.....	1	1
Forge Shop Work, M. E. 108.....	--	2
Totals.....	22	22

Sophomore Year.

Physics, 281.....	2	2
General Chemistry, 302.....	3	3
Advanced Rhetoric, 362.....	3	3
Public Speaking, 363.....		
Military Drill, 390.....	3	3
Military Tactics, 391.....	1	1
Advanced Algebra, 343.....	5	--
Trigonometry, 344.....		
Analytical Geometry, 345.....	--	5
Descriptive Geometry, M. E. 202.....	--	2
Physical Laboratory, 283.....	1	1
General Chemistry (Laboratory), 303.....	2	2
Foundry Work, M. E. 203.....	2	--
Pattern Making, M. E. 205.....	2	--
Mechanical Drawing, M. E. 206.....	--	2
Totals.....	24	24

Junior Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Heat Engines, M. E. 301, 302.....	3	3
Mechanics, M. E. 303, 304.....	2	2
Electrical Engineering, 285.....	2	2
Calculus, 346.....	5	5
English Literature, 364.....	3	3
Military Drill, 390.....	3	3
Mechanism, M. E. 305.....	2	--
Machine Design, M. E. 306.....	--	2
Machine Shop, M. E. 307, 308.....	1	1
Mechanical Engineering Laboratory, M. E. 309, 310.....	1	1
Electrical Laboratory, 290.....	1	1
Totals.....	23	23
OPTIONAL:		
Modern Languages, 370 or 373.....	3	3

Senior Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Power Plants, M. E. 401, 402.....	3	2
Gas Engines, M. E. 403.....	3	--
Mechanics, M. E. 405.....	3	--
Mechanics of Materials, M. E. 406.....	--	2
Industrial Engineering, M. E. 408.....	--	2
Heating, Ventilation, and Refrigeration, M. E. 410.....	--	3
Hydraulics, 216.....	--	2
Machine Design, M. E. 411.....	3	--
Gas Engine or Turbine Design, M. E. 412, 414.....	--	2
Machine Shop Work, M. E. 415, 416.....	4	2
Mechanical Engineering Laboratory, M. E. 417, 418.....	2	2
Power Plant Design, M. E. 420.....	--	2
Elect one of the following subjects:		
Military Drill.....	3	3
Modern Languages, 371 or 372.....	3	3
Journals, 365.....	3	--
Classics, 366.....	--	3
Economics, 367.....	--	3
Machine Shop, M. E. 421, 422.....	2	2
Machine Design, M. E. 423, 424.....	2	2
	21	22

Mechanical Engineering Equipment.

Buildings.—The drawing rooms and recitation rooms are in the Mechanical Building; while the forge shop, foundry, wood shop, dry kiln, machine shop, and mechanical laboratory are in the new shop building, which was completed in 1915. This building is of brick and has a floor space of 26,350 square feet. It contains the machinery from the old shops as well as many new machines. Each shop contains a demonstration lecture-room of which use is made for recitation work. The Power Plant is also utilized for experimental engineering.

Drawing Rooms.—The drawing rooms are well lighted, heated, and ventilated, and are spacious. They are equipped with drawing tables, board and filing cabinets, models of valves, pumps, machine parts, etc., etc.

Forge Shop.—This is a well lighted and ventilated room 35 x 72 feet. It is equipped with forty anvils and twenty double forges of the down-draft type, each having individual tools, thus accommodating forty students at one time. The shop is equipped with a down-draft exhaust system operated by a 120-inch Sturtevant exhaust fan for removing the smoke and gases from the fires; one emery grinding machine, one 48-inch grinding stone, one drill press, one standard gas furnace of the combination type with connections to an electric pyrometer and complete equipment for hardening, tempering, carbonizing, and annealing; vises, swage blocks, and surface plates. The shop also has a tool-room, office, and a room with elevated seats, and an instructor's forge, with equipment for demonstrating and lecturing.

The Foundry.—This will accommodate about thirty-five students at one time. The main floor is 35 x 72 feet, with five stock-rooms underneath. There is also an office, with a pattern-room and lecture-room. The equipment consists of a Northern Engineering Works 36-inch cupola, one crucible brass furnace, an Arcade Rotary Sand Sifter, one core machine, one core oven, four molding machines, and all necessary tools for bench and floor work.

Wood Shop.—This room is 50 x 118 feet and has all the conveniences of a modern shop. It contains the following machines and equipment: one combination bench and lathe for demonstrating and lecturing; elevated seats to accommodate about forty students; twenty double carpenters' benches, with all necessary tools for each bench; thirty 12-inch turning lathes, each lathe being fully equipped with turning tools; a rip saw; a cut-off saw with foot feed, and a combination saw with dado heads and other attachments; two 24-inch surface planers; a 12-inch and a 6-inch jointer; a universal boring machine; a 6½-inch tenoning machine; a 34-inch band saw; an iron-frame self-contained jig saw; a shaper or edge-molding machine with a complete set of molding cutters, saws, etc.; a chain mortiser; a hollow chisel mortiser; belt, drum, and disc sanders; a planer-knife grinder; a 38-inch grindstone; a wood-trimmer; a panel-raising machine; a 4-inch Fay & Egan molder; a Willey electric-driven emery wheel; an adjustable miter box; a steam glue-heater; a large assortment of screw and bar clamps, both iron and wood. There are also up-to-date tool and stock rooms connected with this shop.

Machine Shop.—This well equipped shop is 50 by 100 feet, and contains many new machines. It has a cement floor and large windows, which make it an ideal room for machine work. There are the following machines: A 16-inch Davis & Egan lathe, with 10-foot bed; a 14-inch Windsor lathe with 5-foot bed; a 14-inch Putnam lathe with 4-foot bed; a 14-inch Champion lathe with 6-foot bed; a 14-inch Flather lathe with a 6-foot bed; three 14-inch lathes with 6-foot beds (built in College shops by students); a 26-inch by 44-inch by 12-foot bed McCabe double spindle lathe; a 14-inch Champion lathe; a 12-inch Seneca Falls lathe; a 16-inch Gould & Eberhard shaper; an 18-inch Prentiss shaper; a 24-inch upright Bickford drill press; a 32-inch American drill press; a Brown & Sharpe Universal milling machine, with all attachments; a 20-inch by 5-foot Pease planer; one large and one small emery tool grinding machine; a Greenwich arbor press; an electric center grinder; a Whiton centering machine, and a twist drill grinder. The machines have full equipment of chucks, rests and tools. The benches are well provided with vises.

Mechanical Laboratory.—The laboratory is located in a room 45 by 95 feet, and is well equipped with the necessary apparatus for performing commercial tests on the various mechanical engineering problems.

For general laboratory there are various measuring instruments, thermometers, pyrometers, steam engine indicators, planimeters, tachometers, pressure and vacuum gages, a Crosby gage tester, steam calorimeters, both throttling and separating, an Emerson fuel calorimeter for testing coal and oils, an apparatus for testing oil for flash-point, burning-point, and viscosity, apparatus for flue-gas analysis, both indicating and recording, and apparatus rigged for making calibration tests on thermometers, indicator springs, and steam gages.

For the work in steam engineering there are the following: A 40-horsepower Skinner automatic engine, to which is connected a Wheeler surface condenser with a Blake air pump; a 25-horsepower steam engine, a 10-horsepower engine, a 10-horsepower De Laval steam turbine, and apparatus arranged for making tests on injectors, pumps, flow of fluids through orifices and nozzles. Besides the above, which are used only for experimental purposes, the College Power Plant, with a 100-horsepower Skinner automatic steam engine, a 135-horsepower De Laval steam turbine, with all auxiliaries, as well as the boiler equipment, consisting of two 200-horsepower Atlas and two 75-horsepower Babcock & Wilcox water tube boilers, are all available for tests.

For making efficiency and economy tests on gasoline and oil engines, the following equipment is available: One 11-horsepower Focs gasoline engine; one 6-horsepower Bessemer oil engine; one 2-horsepower McVicker gasoline engine; one 3-horsepower 2-cycle Detroit oil engine; one 16-horsepower Ford automobile engine; a 1-horsepower engine, built in shops, and a 5-horsepower De La Vergne oil engine. To this collection it is hoped to add one or two more oil engines in the near future.

For the course in testing of materials the following are available: A 50,000-pound Riehle automatic testing machine, arranged for tensional, compression, and transverse tests; a 15,000-pound Olsen testing machine for small specimens, and necessary auxiliary apparatus, such as micrometers, extensometers, etc., for obtaining results of the various tests.

Subjects of Instruction.

Freshman Year.

101. Engineering Lectures.—First term. A series of lectures intended to acquaint students with general engineering terms and principles; also with materials used in engineering work, such as lumber, iron, steel, copper, brass, cement, coal, and other materials. Lantern slides are used wherever possible. Two periods. Required of Freshmen in Engineering and Textile Industry. Professor SATERFIELD and Assistants.

103. Mechanical Drawing.—First term. Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blue-printing; elements of descriptive geometry; cylinders; cones; prisms; intersecting and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. BIGGS.

104. Mechanical Drawing.—Second term. Continuation of 103. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. BIGGS.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the Department keeps for sale, practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the Department. Estimated cost of outfit, \$12 to \$15.

Text-book.

Drawing board, 22x32 inches.

T-square, 30 inches.

60° triangle, 9 inches, transparent.

45° triangle, 7 inches, transparent.

12-inch triangular architect's scale.

4H pencil. H or F pencil.

Erasers for ink and pencil.

Penholder with five points.

Pencil-sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.

5½-inch dividers with hairspring adjustment.

3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.

5½-inch ruling pen.

105. Wood Shop Work.—First term. Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as bookcases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College.

The student also gets a good working knowledge of woodworking machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines.

They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

106. Wood Shop Work.—Second term. Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood-turning, which includes turning between centers, face plate, chuck work, polishing, and finishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

108. Forge Shop Work.—Second term. Treatment of iron and steel, the uses of punches, swages, fullers, and set-hammers, both hand and machine tools. Exercises in drawing, upsetting, forming; scarf, jump, butt, and cleft welding; making of forge and machine-shop tools from blue-prints; hardening and tempering, annealing, carbonizing, and case hardening; selection of tool steels. Special

work on equipment and repairs about the College shops and laboratories. Two periods, recitation and exercises. Required of Freshmen in Engineering and Textile Industry. Mr. NICHOLS.

Sophomore Year.

202. Descriptive Geometry.—Second term. Instruction in method of representing on a flat surface geometrical magnitudes, points, lines, surfaces, and solids, and the solution of problems relating to them. A practice period follows each hour of instruction. Prerequisite, Mechanical Drawing 103 and 104. Two periods. Required of Sophomore Mechanical and Electrical Engineers. Professor SATTERFIELD and Mr. RICHARDSON.

203. Foundry Work.—First term. Recitations and exercises in foundry work, including selection and working condition of sand; use and care of tools and machines; floor, bench, machine molding, and core-making; mixing cast-iron and alloys; management of cupola and brass furnace in iron and brass melting; making castings for special machines, general repairs, and machine-shop work; relation and merits of a variety of tools and materials used in foundry practice. Two periods. Required of Sophomores in Mechanical and Electrical Engineering. Mr. NICHOLS.

205. Pattern Making.—A study of pattern-making in its relation to molding; the practical construction of patterns to prevent warping and twisting; the making of special patterns, also patterns for different machines, such as drill presses, lathes, jointers, etc.; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Required of Sophomores in Mechanical and Electrical Engineering. Two periods, first term. Prerequisite, Woodwork 105 and 106. Mr. WHEELER, Mr. NICHOLS.

206. Mechanical Drawing.—Second term. Making drawings and calculations setting forth the general principles of Descriptive Geometry. The design of cams to give specified motions, and problems in elementary machine design. Two periods. Required of Sophomores in Mechanical and Electrical Engineering. Prerequisite, Mechanical Drawing 103 and 104. Mr. RICHARDSON.

Junior Year.

301. Heat Engines.—First term. A study of elementary thermodynamics, properties of steam, calorimeters and mechanical mixtures, combustion and fuels, boilers and boiler auxiliaries. Three periods. Required of Junior Mechanical Engineers. Professor SATTERFIELD.

302. Heat Engines.—Second term. A study of steam engines, steam turbines, and internal combustion engines—types and details, valve gears and governors; calculations for testing; economy of installation and operation. Three periods. Required of Junior Mechanical Engineers. Professor SATTERFIELD.

303. Mechanics.—First term. Nature and measurements of the various units entering into the study of Mechanics. Statics, as applied to forces acting at a single point and on a rigid body and involving the use of the triangle of forces, the X-component and Y-component and Moment principles. The application of the principles of Statics as applied to the solving of problems in simple mechanics. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, Physics 280, Algebra 340, and Trigonometry 344. Assistant Professor VAUGHAN.

304. Mechanics.—Second term. Graphical statics and its application for the purpose of finding reaction and stresses in members of framed structures. Kinematics, which treats of the motion of bodies without reference to the forces producing the motion or masses of the moving bodies. The solving for velocity and acceleration of bodies when in rectilinear and curvilinear motion. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisite M. E. 303. Assistant Professor VAUGHAN.

305. Mechanism.—First term. An analysis of the motions and forms of machines. Among the subjects discussed are instantaneous centers, kinematic chains, velocity diagrams, parallel and straight line motions, cams, gearing, worms and worm wheels, belting and intermittent motions. The solution of a large number of practical problems by both graphical and mathematical methods is required. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 202 and M. E. 206. Associate Professor ELLIS.

306. Machine Design.—Second term. A study of materials used in machine construction; analysis of stresses in machine parts; design of machine parts, considering them as compression, tension, or torsion members; modification of the above to suit practice and for the sake of general appearance. Design of simple machines, such as shears, punches, power pumps, etc., all calculations to be made in standard form and handed in with the assigned problem. Two periods. Required of Juniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 202 and M. E. 302. Associate Professor ELLIS.

307. Machine Shop Work.—First term. Bench work, exercises in chipping and filing. One period. Required of Junior Mechanical and Electrical Engineers. Mr. PARK.

308. Machine Shop Work.—Second term. Machine work. Exercises in lathe work, boring, reaming, drilling, planing, milling and shaping. One period. Required of Junior Mechanical and Electrical Engineers. Mr. PARK.

309. Mechanical Engineering Laboratory.—First term. This course will parallel M. E. 301 and 302 and involve the performing of simple tests such as determining the temperature-pressure curve, getting resulting temperatures in mechanical mixtures, etc. Practice in the use of steam calorimeters and fuel calorimeters for determining the heating value of fuels. The operation of instruments for determining the products of combustion in a furnace. One period. Required of Juniors in Mechanical Engineering. Prerequisite, Physics 281. Assistant Professor VAUGHAN, Mr. WHEELER.

310. Mechanical Engineering Laboratory.—Second term. Simple calibration work on steam gages, vacuum gages, indicator springs, etc. Practice in use of indicators and planimeters for the purpose of obtaining indicated horsepower of steam engines and gas engines. Study and operation of lubricators. Testing of lubricants for flash-point, burning-point, and viscosity. One period. Required of Juniors in Mechanical Engineering. Prerequisite, M. E. 309. Assistant Professor VAUGHAN, Mr. WHEELER.

325. Heat Engines.—First term. Nature and measurement of the units of heat, work, and power as used in steam engineering. A study of the properties of steam; use of the "Steam-Tables" for solving problems. The theory of steam calorimeters, mechanical mixtures, and combustion of fuels. The application of the above to boilers for the purpose of determining rating, capacity, and efficiency. The function of the various boiler auxiliaries is critically examined. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisites, Physics 281, Algebra 343. Assistant Professor VAUGHAN.

326. Heat Engines.—Second term. The study of elementary thermodynamics as applied to the steam and gas engine cycles, the steam engine, including classification and details, valves, valve gears, and governors. Determination of indicated and brake horsepowers and heat efficiency from given conditions. Steam turbines and gas engines will be studied briefly. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisite, M. E. 325. Assistant Professor VAUGHAN.

Senior Year.

401. Power Plants.—First term. A study of fuels and combustion; steam boilers; smoke prevention; superheaters and superheated steam; coal and ash handling apparatus; mechanical draft. A comparative study of steam engines; efficiencies; heat losses; influence of condensing and superheating; costs. Three periods. Required of Mechanical Engineers. Professor SATTERFIELD.

402. Power Plants.—Second term. A study of the elementary theory, efficiency, and economy of the steam turbine; types, functions, and operation of condensers, feed-water heaters and purifiers, pumps, separators, traps, and drains. A study of piping and pipe fittings. Attention is also given to cost of power and to specifications for power-plant equipment. Two periods. Required of Mechanical Engineers. Assistant Professor VAUGHAN.

403. Gas Engines.—First term. Thermodynamics of the gas engine, theoretical comparisons of various types of internal combustion engines. Combustion, including combining weights and volumes, heating value, air required, etc. Gas engine fuels; solid, liquid, and gas. Gas producers, carbureters, and vaporizers. The fuel mixture, pressure, and temperature resulting from combustion. Modern types of internal combustion engines; auxiliaries, including ignition, starting apparatus, and mufflers; regulation, efficiency, and economy. Three periods, first term. Required of Seniors in Mechanical Engineering. Prerequisites, Heat Engines, M. E. 301 and 302, and Mechanics, M. E. 303 and 304. Assistant Professor VAUGHAN.

405. Mechanics.—First term. A study of the kinetics of a particle and the mass center of a rigid body, with the equations of motion for translation, moment of inertia, work, energy, principle of work and its application to mechanics. Three periods. Required of Seniors in Mechanical and Electrical Engineering. Associate Professor ELLIS.

406. Mechanics of Materials.—Second term. A study of the effects of loads and forces in engineering structures by use of the stress-strain diagram. Determination of ultimate stress and elastic limit of materials, with investigation for maximum and minimum bending moment and shear. Torsion and its application to shafting, with theories as to elastic limit and failure. Two periods. Required of Seniors in Mechanical and Electrical Engineering. Prerequisites, M. E. 303 and M. E. 405. Associate Professor ELLIS.

408. Industrial Engineering.—Second term. In this course a study is made of the origin of the Industrial Systems; principles of industrial organization; forms of industrial ownership; nature and distribution of expense; the primary wage systems; philosophies of

management; and the buying, handling, and use of materials. Two periods. Required of Mechanical Engineers. Professor **SATTERFIELD**.

410. Heating, Ventilation, and Refrigeration.—First term. This subject treats of the various methods of heating, such as by open fires, hot air, steam, and hot water; of the proper ventilation of all types of buildings; of the various types of ice-making and refrigerating machinery, and their installation, care, and management; and of the cost of heating and cooling. Three periods, second term. Required of Seniors in Mechanical Engineering. Professor **SATTERFIELD**.

411. Machine Design.—First term. Advanced machine design based on the thermal and mechanical problems involved in the design of a steam engine for power, economy, and regulation. The students are given the requirements of the engine—such as speed, regulation, and economical point of cut-off for required horsepower—and are required to make calculations and detail drawings for problems assigned. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 305, 303 and 304, 302 and 301. Associate Professor **ELLIS**.

412. Gas Engine Design.—Second term. The practical applications of the principles discussed in M. E. 403 combined with the rational and empiric methods of design as developed in general practice. Two periods. Either this or 414 is to be elected by Seniors in Mechanical Engineering. Prerequisite, M. E. 403. Associate Professor **ELLIS**.

414. Turbine Design.—Second term. The calculations for the most economical water rate are made and are based on the general principles related to the flow of steam through nozzles with the resulting action upon turbine buckets, including the losses due to friction, rotation, etc. The estimates for the sizes of the nozzles, shaft bearings, etc., with the shape of the buckets to suit the velocity diagrams, are made. The detail and assembly drawings of the turbine are also made. Two periods, spring term. Either this or 412 is to be elected by Seniors in Mechanical Engineering. Prerequisites, M. E. 401 and M. E. 411.

415. Machine Shop Work.—First term. Making the parts of some machine, or of an engine. Making tools, such as taps and reamers. Two periods. Required of Seniors in Mechanical Engineering. Mr. **PARK**.

416. Machine Shop Work.—Second term. Laying out work. Duplicate and interchangeable parts. Working to standard gages. Two periods. Required of Seniors in Mechanical Engineering. Mr. **PARK**.

417. Mechanical Engineering Laboratory.—First term. The testing of simple machines for efficiency under various conditions of loading. Efficiency and economy tests on injectors, pumps, steam engines, and steam turbines. Boiler tests for determining horsepower and efficiency. In addition to the testing work, advanced heat problem work will be given, dealing with the various heat cycles studied in the laboratory. Two periods. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 301 and 302 and M. E. 309 and 310. Assistant Professor VAUGHAN, Mr. WHEELER.

418. Mechanical Engineering Laboratory.—Second term. The determination of efficiency and economy of gas, gasoline, and oil engines. Tests for refrigerating effect in a cold-storage plant. The testing of materials of construction for strength in compression and tension; determination of elastic limit, modulus of elasticity, etc. A continuation of the heat problem work from M. E. 417. Two periods. Required of Seniors in Mechanical Engineering. Prerequisites, M. E. 417, M. E. 403, M. E. 405. Assistant Professor VAUGHAN, Mr. WHEELER.

420. Power Plant Design.—Second term. A continuation of M. E. 401, consisting of a study of the selection, location, and proportioning of the essential details of steam power plants, such as engines, boilers, pumps, piping, condensers, feed-water heaters, chimneys, etc. The course consists of the study of references, lectures on the subject, and the drawing of the plans of plants. Two periods. Required of Seniors in Mechanical Engineering. Prerequisite, M. E. 411. Associate Professor ELLIS.

421. Machine Shop Work.—First term. The making and assembling of some complete machine, in so far as is possible. Two periods. Elective for Senior Mechanical Engineers. Mr. PARK.

422. Machine Shop Work.—Second term. Continuation of 421. Two periods. Elective for Senior Mechanical Engineers. Mr. PARK.

423. Machine Design.—First term. Advanced work in design, exact subject to be selected by student and professor in charge. Two periods. Elective for Senior Mechanical Engineers. Associate Professor ELLIS.

424. Machine Design.—Second term. Continuation of 423. Two periods. Elective for Senior Mechanical Engineers. Associate Professor ELLIS.

431. Mechanical Engineering Laboratory.—First term. Calibration of the instruments used in performing tests on mechanical engineering problems. Practice in the use of calorimeters, both steam and fuel; indicators, planimeters, etc. Testing of lubricants for flash-point, burning-point, and viscosity. Checking the formulas used in

determining the flow of fluids through orifices and nozzles. One period; required of Seniors in Electrical Engineering. Prerequisites, M. E. 325 and 326, and M. E. 303 and 304. Assistant Professor VAUGHAN, Mr. WHEELER.

432. Mechanical Engineering Laboratory.—Second term. Efficiency tests of pumps, injectors, boilers, steam engines, steam turbines, and gasolene and oil engines. Testing of materials for strength in compression and tension; determination of elastic limit and modulus of elasticity. One period. Required of Seniors in Electrical Engineering. Prerequisite, M. E. 431. Assistant Professor VAUGHAN, Mr. WHEELER.

MECHANIC ARTS.

In order to meet the necessities of young men who wish to prepare themselves for the industrial arts rather than for industrial science and art, the following two-year course in Mechanic Arts is offered.

This course does not lead to graduation, and it is not in any sense intended as a preparatory course for the regular four-year classes. It is designed simply to help young men better fit themselves, by a year or two of practical work under competent and interested supervision, for their chosen sphere of industrial activity.

Those students whose inclinations, limitations, or necessities lead them to take this course will be carefully drilled in the handicraft of their art, and in the application of elementary science to the shop, drawing-room, and power plant.

II (c). TWO-YEAR COURSE IN MECHANIC ARTS.

First Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Mechanical Drawing.....	3	3
Woodwork.....	2	2
Forge Work.....	--	2
Engineering Lectures.....	2	--
Mechanical Technology.....	--	2
Physics.....	2	2
Algebra.....	5	} 5
Plane Geometry.....	--	
English.....	5	5
Military Drill.....	3	3
Totals.....	22	24

Second Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Machine Drawing.....	3	3
Machine-shop Work.....	3	3
Power Machinery.....	3	3
Elementary Mechanics.....	..	2
Gas Engine Laboratory.....	..	1
Machine Shop or Drawing.....	..	2
Pattern Work.....	2	..
Foundry.....	2	..
Algebra.....	5	..
Geometry.....	..	5
English.....	3	3
Drill.....	3	3
Totals.....	24	24

Subjects of Instruction.

First Year.

Mechanical Drawing.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawing from working sketches of machine details; tracing; blue-printing; elements of Descriptive Geometry; cylinders; cones; prisms; intersections and developments; miscellaneous problems. Three periods. Mr. RICHARDSON.

Note.—Each student will be required to furnish at his own expense the following outfit. To insure uniformity in grade of instruments and other supplies, the department keeps for sale, at practically cost, the articles named below. These may be purchased elsewhere, but must be approved by the department. Estimated cost of outfit, \$12 to \$15.

Text-book.

Drawing board 21 by 30 inches.

T-square 30 inches.

60° triangle 9 inches, transparent.

45° triangle 7 inches, transparent.

12-inch triangular architect's scale.

Irregular curve.

4H pencil. H or F pencil.

Erasers for ink and pencil.

Penholder with five points.

Pencil sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.

5½-inch dividers with hairspring adjustment.

3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.

5½-inch ruling pen, 4½-inch ruling pen.

Wood Shop Work.—First term. Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as book-cases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College. The students also get a good working knowledge of wood-working machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines. They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Mr. WHEELER, Mr. MARTIN.

Wood Shop Work.—Second term. Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood turning, which includes turning between centers, face plate, chuck work, polishing and finishing. Two periods. Mr. WHEELER, Mr. MARTIN.

Forge Shop Work.—Second term. Treatment of iron and steel, the uses of punches, swages, fullers, and set-hammers, both hand and machine tools. Exercises in drawing, upsetting, forming; scarf, jump, butt, and cleft welding; making of forge and machine-shop tools from blue-prints; hardening and tempering, annealing, carbonizing, and case hardening; selection of tool steels. Special work on equipment and repairs about the College shops and laboratories. Two periods, recitation and exercises. Mr. NICHOLS.

Algebra.—Wells's *New Higher Algebra*. A thorough treatment of Elementary Algebra, embracing the subjects of simple and simultaneous equations, involution, evolution, theory of exponents and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. Five periods, first term. Assistant Professor HARBELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in Plane Geometry, including numerous original exercises. Five periods, second term. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

Engineering Lectures.—First term. A series of lectures intended to acquaint students with general engineering terms and principles; also with materials used in engineering work, such as lumber, iron, steel, copper, brass, cement, coal, and other materials. Lantern slides are used wherever possible. Two periods. Professor SATTERFIELD and Assistants.

Mechanical Technology.—Deals with building materials, pulleys, belts, pattern-making, foundry, machine-shop tools and operation, gear proportions, etc. Two periods, second term. Mr. PARK.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Five hours a week. Required of first-year students. Mr. WEBER.

Physics.—A general science course is given under the head of Physics. The course embraces the historical development of the scientific ideas of to-day, with special emphasis on the development of practical machines and engines. Practical determinations of densities, strengths of materials, measurements of heat and electricity, and everyday determinations are made before the class. Machines are analyzed and the relations of force and energy are worked out. Practical heating and the wiring of electric circuits are also studied. The purpose of the course to be both educative and practical is carefully followed. Required of First-year students. Two periods. Mr. MARTIN.

Second Year.

Machine Drawing.—Sketching and drawing of machine parts and machines. Detail working drawings. Tracing and blue-printing. Three periods. Prerequisite, first year Mechanical Drawing. Associate Professor ELLIS.

Machine-shop Work.—Bench and machine work. Exercises in chipping and filing. Exercises in lathe work, boring, reaming, drilling, planing, milling, and shaper-work. Three periods. Mr. PARK.

Power Machinery.—Descriptive study of the machinery of steam power plants, engines, boilers, condensers, pumps, steam turbines, piping, care and management, study of gas and oil engines. Combustion of fuels. Indicators; indicated, brake, and boiler horsepower problems. Three periods. Mr. PARK.

Elementary Mechanics.—This subject is intended to treat the elementary mechanics problems which arise in connection with machine shop and drafting room practice. Two periods, second term. Mr. NICHOLS.

Gas Engine Laboratory.—In connection with a study of the principles of the internal combustion engine in power machinery, this laboratory course is offered for the purpose of acquainting the student with the actual handling of such engines. Practice is given on the various types of gasoline, kerosene, and oil engines. One period, second term. Assistant Professor VAUGHAN.

Pattern-making.—A study of pattern-making in its relation to molding; the practical construction of patterns to prevent warping and twisting; the making of special patterns, also patterns for different machines, such as drill presses, lathes, jointers, etc.; cores and core-boxes; introducing draft, shrinkage, finish, and the appliances and usage of modern pattern work. Two periods, first term. Prerequisite, first term work. Mr. WHEELER, Mr. NICHOLS.

Foundry Work.—Recitations and exercises in foundry work, including selection and working condition of sand; use and care of tools and machines; floor, bench, machine molding and core-making; mixing cast-iron and alloys. Management of cupola and brass furnace in iron and brass melting; making castings for special machines, general repairs, and machine-shop work; relation and merits of a variety of tools and materials used in foundry practice. Two periods, first term. Mr. NICHOLS.

Algebra.—Wells's *New Higher Algebra*. Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Prerequisite, first-year Algebra. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Prerequisite, first-year Mathematics. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

English Composition and Rhetoric.—After a review of grammatical principles, special attention is given to the selection of subjects and the planning of essays, to the choice of words, and to the structure of sentences and paragraphs. Standard poetry and prose are read in class, and additional books are assigned for parallel reading. Frequent short themes are written. Three periods. Required of second-year students. Assistant Professor PRATT, Mr. WEBBER.

FOUR-YEAR COURSE IN ELECTRICAL ENGINEERING.

The four-year course in Electrical Engineering is planned for those who wish a thorough practical preparation for following this profession. Only the most thorough training in the fundamental laws and principles of electricity and magnetism will suffice as a preparation for this branch of engineering in which the art is advancing so rapidly. This training is given by a careful study of text-books and coördinated work in the various laboratories. The department, as will be seen from the equipment described below, is well supplied with dynamos, motors, transformers, and other electrical machines, and with testing instruments and apparatus of all descriptions.

Electrical Engineering Equipment.

The course in Electrical Engineering is accompanied by work in the laboratory and the designing-room. The department occupies the western portions of the basement and of the first floor of Winston Hall. On the first floor are the classrooms, offices, library, drafting-room, and instrument laboratory. The classrooms are well equipped for demonstrating the principles studied in the text-books. The designing-room is suitably furnished for its purpose, and the instrument laboratory is supplied with standardizing apparatus and instruments, provided for quickly determining the accuracy of all the apparatus used in actual measurements and also for advanced measurements in electricity and magnetism. This room is well supplied with power, current from single, two- and three-phase sources being available, as well as direct current from the power-house and storage batteries.

In the basement are located the dynamo laboratory, the photometric laboratory, instrument room, the department's repair shop, and rooms for high-tension apparatus, storage battery, and stores.

The dynamo laboratory is a room 90 x 30 feet. Its equipment consists of direct and alternating current dynamos and motors of practically all types and ranging in size from one to thirty-seven kilowatts, the aggregate capacity being about two hundred kilowatts in machines and seventy-five kilowatts in transformers. Power is supplied to the laboratory by means of three independent circuits running from the College power-house. A full complement of ammeters, voltmeters, wattmeters, phasemeters, tachometers, rheo-

stats, condensers, inductances, and other apparatus used in the study of electrical machines is provided. The equipment is arranged so that power is conveniently supplied to a number of independent stations, at each of which a group of students can conduct an experiment without being affected by the work of other groups.

Power-house.

The College power-house is also available for student instruction. It is a brick building containing an excellent equipment of modern type. This consists of one seventy-five kilowatt, six-hundred volt, three-phase revolving field alternator directly connected to a high-speed engine; two fifty-kilowatt, three-hundred volt, three-phase revolving field alternators, driven by a DeLaval steam turbine, with direct-driven exciter; a ten-kilowatt, direct-connected, direct current generator; a motor-generator exciter set; and a completely equipped switchboard.

The city of Raleigh is unusually well situated for students of Electrical Engineering. The local power company has a fine modernized steam turbine-driven plant which operates in conjunction with the water-power plant at Buckhorn Falls, on the Cape Fear River, from which point the power is transmitted at sixty thousand volts. This company also owns the large plant at Blewetts Falls, from which power is transmitted at one hundred and ten thousand volts. This line crosses the College property, and has an outdoor transformer and meter station located within easy reach.

Library.

This department has a small but growing library and takes a number of the leading electrical journals, all of which are at all times available for the students' use.

PHYSICS.

Physics is the fundamental subject at the base of all engineering courses. It considers the absolute properties of the materials with which the engineer has to deal; it analyzes the forces acting on these materials; and it studies the transformation of energies which are utilized in all engineering work. A thorough grounding in Physics is for this reason insisted on in all engineering courses. To this end every possible facility is afforded for thorough instruction in Physics. The work embraces attendance on demonstrated lectures, recitations, and lectures and text-book assignments, and practical

determinations of physical quantities in the laboratories. Once or twice each week each class in Physics is given a demonstrated lecture in which the actual laws and operations studied are worked out before the class. These lectures are also designed to give a historical background to the subject, wherein the student may get not only an appreciation of the struggle through which man has come to an orderly interpretation of his environment, but an enthusiasm for investigation and research. The first year's work is more general, with emphasis on the fundamental laws behind all interaction of forces and energy transformations. In the second year the general laws are amplified and the broader applications to engineering investigated.

Equipment.

The William Kearny Carr Physical Laboratory occupies the ground floor of Holladay Hall. It embraces two lecture-rooms, four laboratories, an apparatus room, and a repair shop. The main lecture room is equipped with a large lecture table having connections for water, gas, electricity, and a stereopticon. The first year's work is carried on in a large laboratory well equipped so that each student performs the set of thirty-two standard measurements of physical quantities. The second year's work is performed in two laboratories, in one of which measurements in mechanics, heat, and electricity are made, while the other is used for measurements in light and optics. The Department has its own shop and employs its own mechanic for constructing and repairing apparatus. The collection of apparatus for demonstrated lectures is being continually added to and is at present large and excellently adapted for this purpose.

The William Kearny Carr Research Laboratory.

Through the generous bequest of the late William Kearny Carr the Department has established an excellent research laboratory for graduate work. Mr. Carr's private laboratory was thoroughly equipped with the finest apparatus for investigations in the subjects of light, sound, and electrical radiation. This apparatus has now been placed in a large, well lighted room on the ground floor, with spaces provided for private research. Few institutions can offer such facilities for advanced study of polarized light and sound as are afforded by the equipment of the Carr Research Laboratory. Advanced work for students and instructors is offered, and research work is assigned to those desiring to take the degree of Master of Science.

**II (d). The Four-year Course in Electrical Engineering, leading to
the degree of Bachelor of Engineering.**

Freshman Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Elementary Physics, 280.....	4	4
Physical Laboratory, 282.....	1	1
Mechanical Drawing, M. E. 103, 104.....	2	2
Woodwork, M. E. 105, 106.....	2	2
Forge Work, M. E. 108.....	--	2
Engineering Lectures, 101.....	2	--
Algebra, 340.....	5	--
Geometry, 341.....	--	5
Composition and Rhetoric, 360.....	3	--
American Literature, 361.....	--	3
Military Drill, 390.....	3	3
Totals.....	22	22

Sophomore Year.

Physics, 281.....	2	2
Physical Laboratory, 283.....	1	1
Descriptive Geometry, M. E. 202.....	--	2
Mechanical Drawing, M. E. 206.....	--	2
Advanced Algebra, 343.....	5	--
Trigonometry, 344.....		
Analytical Geometry, 345.....	--	5
General Chemistry, 302.....	3	3
General Chemical Laboratory, 303.....	2	2
Foundry, M. E. 203.....	2	--
Pattern-making, M. E. 205.....	2	--
Advanced Rhetoric, 362.....	3	3
Public Speaking, 363.....	--	
Military Tactics, 391.....	1	1
Military Drill, 390.....	3	3
Totals.....	24	24

Junior Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Electrical Engineering, 284.....	3	3
Electrical Engineering Laboratory, 289.....	2	2
Steam Engines and Boilers, 241.....	2	2
Machine-shop Work, M. E. 307, 308.....	1	1
Machine Design, M. E. 305, 306.....	2	2
Mechanics, M. E. 303, 304.....	2	2
Calculus, 346.....	5	5
English Literature, 364.....	3	3
Military Drill, 390.....	3	3
Totals.....	23	23
Modern Languages, 370, 373.....	2	3

Senior Year.

Alternating Currents, 286.....	3	3
Electrical Application, 287.....	2	2
Electrical Transmission, 288.....	2	2
Electrical Engineering Laboratory, 291.....	2	2
Electrical Design, 292.....	3	2
Mechanics, M. E. 405.....	3	--
Mechanics of Materials, M. E. 406.....	--	2
Mechanical Engineering Laboratory, M. E. 431, 432.....	1	1
Hydraulics, 216.....	--	2
Journals, 365.....	3	--
Elect from the following 3 periods first term, 6 periods second term:		
Classics, 366.....	--	3
Economics, 367.....	--	3
Military Drill, 390.....	3	3
Modern Languages, 371, 374.....	3	3
Totals.....	22	22

Subjects of Instruction.

280. Physics.—Introductory course in Physics, planned to give the student a broad view of the field covered by this fundamental science for all engineering work. It includes the study of the fundamental units, the English and Metric systems of measures, definitions of force, work, power, lines of motion, principles of machines, mechanics of fluids, heat, sound, light, electricity and magnetism. Text-book, Black and Davis's *Practical Physics*. Four periods. Required of Freshmen in Engineering and Chemistry. Associate Professor HECK, Assistant Professor PRITCHETT.

281. Sophomore Physics.—A more advanced and more thorough course in Physics, arranged particularly to meet the needs of engineering students. Particular attention is paid to Mechanics, fluids, gases, heat, electricity and magnetism. Two periods. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physics 280. Associate Professor HECK, Assistant Professor PRITCHETT.

282. Physical Laboratory.—In the shops the engineering student handles and works with the materials of construction. In the laboratory he is taught to measure and observe. The course here is arranged to make him familiar through actual observation with physical phenomena and teach him how these are measured and controlled. It includes practice in handling units in the British and Metric systems, measurements, composition and resolution of forces, the lever, the inclined plane, the pendulum, density of materials, and specific gravity, the thermometer, heat and its effect on materials, sound, laws of strings, laws of lenses and mirrors, magnetism and electricity. One period. Fee, \$1. Required of Freshmen in Engineering and Chemistry. Mr. MARTIN.

283. Sophomore Physical Laboratory.—A more advanced course in physical measurements accompanying classroom instruction in this subject. It includes a study of the theory of measurements upon which all engineering work is based. More care and greater accuracy, and more elaborate reports are required in this course than in the Freshman laboratory. The work is intended not only to impress the truths and principles taught in the classroom, but also to give some facility in the use of scientific instruments and training in accurate observation. One period. Fee, \$1. Required of Sophomores in Engineering and Chemistry. Prerequisite, Physical Laboratory 282. Assistant Professor PRITCHETT.

284. Direct Current Machinery and Apparatus.—A thorough study is made of the production and utilization of direct currents, begin-

ning with the theory of the magnetic circuit, electromagnetic induction, electrical measurements, storage batteries, dynamos and motors, operation and care of direct current machinery, electrical distribution and lighting. Text-book, Franklin and Esty's *Elements of Electrical Engineering*. Three periods, through the year. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE.

285. Electrical Engineering.—An introductory course for students in other engineering departments, consisting of the study of the apparatus used in the production, distribution, and utilization of electrical power. Required of Juniors in Mechanical Engineering. Text-book, Timbie's *Elements of Electricity*. Two periods. Prerequisites, Subjects 281, 342, 343 and 344. Professor BROWNE, Associate Professor MCINTYRE.

286. Alternating Currents and Machinery.—A study of the flow of periodic currents in circuits containing resistance, inductance, and capacity; the construction, operation, and performance of alternating current machinery. Text-book, Franklin and Esty's *Alternating Currents*. Three periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284, 345, 346. Professor BROWNE.

287. Industrial Applications of Electricity.—A detailed study is made of the many industrial applications of electricity, such as electric traction, the electric drive in mill and factory, electric power stations, industrial electro-chemistry and electro-metallurgy, telegraphy, and telephony. Two periods. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Professor BROWNE, Associate Professor MCINTYRE.

288. Electrical Transmission of Power.—A practical study of the problems involved in the transmission of power from the generating station to the consumer; hydro-electric developments; high-tension transmission. Required of Seniors in Electrical Engineering. Text-book, Ferguson's *The Elements of Electrical Transmission*. Two periods. Prerequisites, Subjects 284, 289. Professor BROWNE.

289. Direct Current Laboratory.—This study accompanies that of direct current machinery. It includes use of standardizing apparatus, calibration of instruments, advanced electric and magnetic measurements, and the operation and testing of direct-current dynamos and motors. Text-book, Sever and Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Fee, \$2. Required of Juniors in Electrical Engineering. Prerequisites, Subjects 281 and 283. Associate Professor MCINTYRE.

290. Electrical Engineering Laboratory.—This course accompanies Study 285. Instruction is given in the care and operation of direct and alternating current machinery. Required of Juniors in Mechanical Engineering. One period. Fee, \$1. Text-book, Sever's *Direct Current Tests*. Prerequisites, Subjects 281, 283. Associate Professor McINTYRE.

291. Alternating Current Laboratory.—This study is taken up simultaneously with the study of alternating currents. It includes practice with alternating currents, measurements of inductance and capacity, experimental study of transformers, alternating current generators and motors, advanced methods of testing electrical apparatus, and shop testing. Text-book, Sever and Townsend's *Laboratory and Factory Tests*, supplemented by notes. Two periods. Fee, \$2. Required of Seniors in Electrical Engineering. Prerequisites, Subjects 284 and 289. Associate Professor McINTYRE.

292. Electrical Design.—An introductory course in the designing of electrical apparatus, taking up the calculation of circuits and performance, the design of rheostats and heating devices, controllers, electromagnets, transformers, direct and alternating current dynamos and motors. Three periods first term, two periods second term. Required of Seniors in Electrical Engineering. Prerequisite, 284. Professor BROWN, Assistant Professor McINTYRE.

COURSE IN CHEMISTRY.

In harmony with the general purposes for which the College was founded, the course in Chemistry is arranged to prepare young men for careers in that department. To this end the training given in general, physical, organic, and analytical chemistry is supplemented by instruction in technical chemical analysis and in applied chemical subjects. The kindred scientific subjects of Biology and Physics are taught, together with the cultural studies included in the other courses.

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

The State Museum is open to the public each day, and among other things contains a very excellent collection of the State's minerals, ores, and building stones.

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

Chemical Equipment.

The Chemical Department occupies the whole of the second floor of Winston Hall. There are three classrooms, one for about ten students, one for about thirty students, and one for ninety students. The classrooms are well lighted, have very convenient lecture tables, and settees with arm-rests for taking notes.

The laboratory for inorganic chemistry can accommodate three hundred and thirty-six students, the laboratory for qualitative analysis ninety-six students, and for organic chemistry and quantitative analysis about twenty students each. A small laboratory has been set aside for special work. The laboratories are fitted up with conveniently arranged desks and hoods, each of which has the necessary water and gas connections. The balance room is located near the quantitative laboratory.

The department also has a dark room for photographic work, fire-proof rooms for combustion, ample stockrooms, and a preparation room.

The Chemical library, containing an excellent collection of reference books and complete sets of some of the leading chemical journals, occupies a room convenient to the laboratories for the upper classmen.

The members of the instructing staff have offices adjacent to the laboratories.

II (e). The Four-year Course in Chemistry, leading to the degree of Bachelor of Science.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Inorganic Chemistry, 300.....	2	2
Inorganic Chemistry (laboratory), 301.....	1	1
Physics, 250.....	4	4
Physical Laboratory, 282.....	1	1
Botany, Elementary, 320.....	3	3
Algebra, 340.....	5	..
Geometry, 341.....	..	5
Composition and Rhetoric, 360.....	3	..
American Literature, 381.....	..	3
Military Drill, 390.....	3	3
Totals.....	23	23

Sophomore Year.

Analytical Chemistry, Qualitative, 304.....	3	3
Physics, 251.....	2	2
Physical Laboratory, 283.....	1	1
Geology, 327.....	..	2
Physiology, 325.....	3	..
Advanced Algebra, 343.....	5	..
Trigonometry, 344.....		
Analytical Geometry, 345.....	..	5
German, 370.....	3	3
Advanced Rhetoric, 362.....	3	3
Public Speaking, 365.....	..	
Military Tactics, 391.....	1	1
Military Drill, 390.....	3	3
Totals.....	24	23

Junior Year.

Subjects.	PERIODS & WEEKS.	
	1st Term.	2d Term.
Analytical Chemistry, Quantitative, 305.....	4	4
Agricultural Chemistry, 306.....	3	..
Organic Chemistry, 307.....	2	2
Organic Chemistry (laboratory), 308.....	3	3
Bacteriology, 321.....	..	3
Soils, 331.....	3	3
German, 371.....	3	3
English Literature, 364.....	3	3
Military Drill, 390.....	3	3
Totals.....	24	24

Senior Year.

Analytical Chemistry, Quantitative, 309.....	3	3
Advanced Inorganic Chemistry, 310.....	..	2
Physical Chemistry, 311.....	3	3
Physical Chemistry (laboratory), 312.....	1	1
Bio-Chemistry, 313.....	2	2
Microchemical Analysis, 314.....	2	..
Elect six periods from the following:		
Journals, 365.....	3	..
Classics, 366.....	..	3
German, 372.....	3	3
Economics, 367.....	..	3
Advanced Bacteriology, 322.....	3	3
Soils, Advanced, 332.....	3	..
Feeds, 335.....	..	3
Fertilisers, 333.....	..	3
Drawing, 230.....	2	2
Calculus, 346.....	5	5
Military Drill, 390.....	3	3
Other subjects if approved by the Professor of Chemistry.		
Totals.....	22	22

CHEMISTRY.

300. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with the fundamental principles of the science, are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

301. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, \$2. Doctor FREDERICK.

302. General Chemistry.—McPherson and Henderson's *General Chemistry*. A study of the non-metallic elements, metals, laws of chemical combination, ionization, electrolysis, neutralization, valence, equilibrium, molecular weights, thermochemistry, etc. Three periods. Required of Sophomores in Engineering. Professor WITHERS, Doctor DOBBINS, and Mr. MULLEN.

303. General Chemistry.—Laboratory work to accompany Course 302, followed by a brief course in qualitative analysis. McPherson and Henderson's *Exercises in Chemistry*. Two periods. Required of Sophomores in Engineering. Fee, \$3. Doctor DOBBINS and Mr. MULLEN.

304. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores in Chemistry. Fee, \$4. Doctor MILLER.

305. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis of pure salts at first and later of substances of agricultural and industrial importance. Four periods. Required of Juniors in Chemistry. Fee, \$4. Doctor WILLIAMS.

306. Agricultural Chemistry.—Stoddart's *Chemistry of Agriculture*. A study of plants and animals, their nutrition and products, from a chemical standpoint. Three periods, second term. Required of Juniors in Chemistry. Professor WITHERS.

307. Organic Chemistry.—Moore's *Outlines of Organic Chemistry*. A study of the fundamental principles of Organic Chemistry and of the most important organic compounds. Two periods. Required of Juniors in Chemistry. Doctor DOBBINS.

308. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual*. A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in their transformations. Three periods. Required of Juniors in Chemistry. Fee, \$3. Doctor DOBAINS.

309. Analytical Chemistry.—Quantitative analysis, advanced. A continuation of Course 305. Eight periods. Required of Seniors in Chemistry. Fee, \$8. Doctor WILLIAMS.

310. Advanced Inorganic Chemistry.—A lecture course in which is discussed the development of the science of chemistry, special attention being given to the periodic law, radio activity, the coordination theory, and the modern trend of chemical thought. Two periods, second term. Required of Seniors in Chemistry. Doctor MILLER.

311. Physical Chemistry.—Jones's *Introduction to Physical Chemistry*. The fundamental principles of Physical Chemistry are taken up, including the constitution of matter, the gas laws, thermochemistry, photochemistry, electrochemistry, chemical dynamics, and equilibrium, emphasis being laid on the phenomena of solutions. Three periods. Required of Seniors in Chemistry. Doctor FREDERICK.

312. Physical Chemistry.—Laboratory work. Here the student carries out experiments involving molecular weight determinations, lowering of freezing point, elevation of boiling point, conductivity measurements, and other determinations as they are deemed expedient. One period. Required of Seniors in Chemistry. Fee, \$2. Doctor FREDERICK.

313. Bio-Chemistry.—A study of carbohydrates, fats and proteins. Two periods. Required of Seniors in Chemistry. Professor WITHERS.

314. Microchemical Analysis.—A laboratory course in which the common elements are detected by means of the microscope. The student is also taught to identify such fabrics as silk, wool, linen, cotton, etc., and to analyze alloys, soils, fertilizers, and other commercial products for their constituents. Two periods, first term. Required of Seniors in Chemistry. Fee, \$2. Doctor MILLER.

BOTANY AND BACTERIOLOGY.

320. General Botany.—This course is planned to give a general knowledge of the elementary facts and fundamental principles of Botany. It aims to supply the foundation upon which subsequent courses in this division are built, as well as the basic facts upon which rest certain phases of applied botany, such as horticulture and agronomy. The first term will be devoted to the general mor-

phology of the seed plants. Attention will be devoted to the anatomical features of seeds, flowers, leaves, fruits, stems, roots, cells, tissues, and tissue systems, and to the correlation of anatomical structures with their physiological functions. The second term will be devoted to the general morphology of algæ, fungi, mosses, and ferns, using selected representatives as types in both the lecture and laboratory work. Special emphasis will be laid upon nutrition, reproduction, life history, and evolution of sex of those forms which are of both scientific and economic importance. Fee, \$1. Three periods. Required of Freshmen. Professor WOLF, Mr. COOPER, Mr. LEHMAN.

321. Agricultural Bacteriology.—The subject-matter of this course includes an introduction to the principles of bacteriology. The course is designed to serve as a basis for students contemplating specialization in applied phases of the subject, such as bacteria in relation to plant diseases, to human diseases, and to the diseases of domestic animals; soil bacteriology; dairy bacteriology; sanitation with reference to sewage disposal and water supplies; and the consideration of bacterially produced processes in the industries. The student becomes familiar through laboratory practice with methods employed in the culture and study of bacteria. Fee, \$3. Three periods, second term. Professor WOLF, Mr. COOPER.

321. Bacteriology.—Lectures and laboratory work on the physiology, morphology, and economy of bacteria, with especial reference to home sanitation and disinfection, and to the relation of bacteria to disease in plants and animals, and to agricultural practice. The student becomes familiar in the laboratory with methods of culture and investigation in bacteriology. Three periods, second term. Required of Juniors in Chemistry. Mr. COOPER.

322. Bacteriology (Advanced).—A course designed to extend knowledge in special fields and to perfect the technique in bacteriology for those who desire to do original work in bacteriology. Work may be elected in sewage bacteriology, dairy bacteriology, bacterial plant diseases, bacteriology of manure, water, soil, or air. The course is flexible and will be made to fit the requirements of those students electing it. Three periods. Elective for Seniors in Chemistry. Prerequisite, Botany 321. Professor WOLF, Mr. COOPER.

PHYSIOLOGY.

325. Animal Physiology.—Mounted skeletons of man, of the horse, and of the cow will be used in a brief study of elementary anatomy of man and domestic animals. This will be followed by a comparative study of some of the functions of the various systems and

organs of the body, such as the skeleton, muscles, nerves, organs of special sense, digestion, circulation, respiration, skin, etc. The subject will be covered by lectures, recitations, demonstrations and laboratory exercises. Three periods, first term. Required of Sophomores in Chemistry. Doctor ROBERTS.

GEOLOGY.

327. Geology.—Introductory course in Geology. Pirsson and Schuchert's *Text-book of Geology*, Part I. A brief course treating of soil, the action of the various agencies on the land, building up of land by water, and the study of the principal constituents of the soil. Two hours, first term. Required of Sophomores in Chemistry. Doctor WILLIAMS and Mr. MULLEN.

SOILS.

331. Soils.—Attention is given to the forces that decompose and disintegrate rock and to the influence of these forces and of the various kinds of rock on the resulting soil. The physical characters, such as water-holding capacity, capillarity, drainage, effect of mulches, temperature and weight, and the modification of these characters by tillage, cropping, and all operations of practical soil management, are discussed and exemplified in the classroom, laboratory, and field. Some attention is given to the classification of soils in the United States and especially in North Carolina. The physical, chemical, and bacteriological soil conditions are discussed in relation to each other and to their effects on soil fertility. Systems of maintaining the permanent productiveness of soils are studied. Three periods throughout the year. Required of Juniors. Prerequisites, Chemistry 300, 301, and Physics 280. Professor SHERWIN.

332. Advanced Soils.—In this course the student will be guided in the study of any line of soils work he may choose, either along practical or scientific lines. Laboratory work will be given. Considerable reference will be made to Experiment Station literature, with the aim of acquainting the student with the literature on the subject, and with the methods of investigation used. Three periods, first term. Prerequisite, Soils 331. Elective for Seniors in Chemistry. Professor SHERWIN.

333. Fertilizers.—Fertilizing as a factor in soil management and economical crop production. Sources, composition, availability, and value of various commercial and farm fertilizers. Comparative value of the elements of plant food in different carriers, as shown by their productive capacity. Fertilization of all the principal crops

of the State and of any special crops in which the class is interested will be discussed, considering amount, method, and time of application, as well as the most economical formula to use. Three periods, second term. Elective for Seniors in Chemistry. Prerequisite, Soils 331. Professor SHERWIN.

STOCK FEEDING.

335. Stock Feeding.—A study of the compositions of feeds, and the food requirements of the domestic animals. The student will be required to become familiar with the fundamental principles, so that he can compound suitable rations for the different classes of livestock. Special emphasis will be laid upon practical problems in feeding. Three periods, second term. Elective for Seniors in Chemistry. Professor GRAY.

MATHEMATICS.

While the subject of mathematics is presented in such a manner that the student obtains a thorough working knowledge of those principles which he needs in his Engineering Course, yet it is not the purpose to subordinate the general theory of mathematics to the practical side. The work consists of recitations, written exercises, and lectures, with frequent oral and written quizzes.

340. Algebra.—Wells's *New Higher Algebra*. This course begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutations, combinations, and continued fractions. Five periods, first term. Required of Freshmen. Prerequisite, entrance requirements. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

341. Plane and Solid Geometry.—This course begins with the fourth book, completes Solid Geometry, and includes numerous original exercises. Five periods, second term. Required of Freshmen. Prerequisites, entrance requirements and a term standing of 50 per cent or more on the work of the first term. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

343. Advanced Algebra.—Wells's *New Higher Algebra*. The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 340 and 341. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

344. Trigonometry.—Wells's *Plane and Spherical Trigonometry*. Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 340 and 341. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER.

345. Analytical Geometry.—Wentworth's *Analytical Geometry*. Loci of equations, straight line, circle, parabola, ellipse, hyperbola, a discussion of the general equation of the second degree, higher plane curves, and geometry of three dimensions. Required of Sophomores. Five periods, second term. Prerequisite, 344. Professor YATES, Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. TUCKER.

346. Differential and Integral Calculus.—Osborne's *Elements of Calculus*. A thorough treatment of the fundamental principles and derivations of formulæ; applications to various problems, such as expansion into series, evaluation and indeterminate forms, maxima and minima, radius of curvature, lengths of curves, areas, volumes, etc. Five periods, first term; four periods, second term. Required of Juniors in Engineering. Elective for Seniors in Chemistry. Prerequisites for differential calculus, 343 and 345; for integral calculus, differential calculus. Professor YATES, Assistant Professor HARRELSON, Mr. TUCKER.

ENGLISH.

360. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

361. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely on class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

362. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three

periods, first term, and second term to March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

363. Public Speaking.—The principles governing the preparation and delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods, after March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

364. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods throughout the year. Required of Juniors. Professor HARRISON, Associate Professor SUMMEY.

365. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Required of Seniors in Civil and Electrical Engineering. Elective for Seniors in Mechanical Engineering and Chemistry. Professor HARRISON.

366. Classics.—The lives and works of the greatest scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Elective for Seniors. Professor HARRISON.

ECONOMICS.

367. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment of farm products and the location and development of industries generally. Designed to meet the needs of students in Engineering, Textile Industry, and Agriculture. Three periods, first term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the student to read and become acquainted with German, French, and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years work in German is required of students taking the Chemical course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

370. Beginner's German.—Grammar, composition, and translation. Bacon's *German Grammar*. Reader to be selected. Required of Sophomores in Chemistry course. Elective for Juniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

371. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical German the second term. Gore's *German Science Reader* and Wallentin's *Grundzüge der Naturlehre*. Required of Junior Chemists. Elective for Seniors of other courses. Both terms, three hours. Assistant Professor HINKLE.

372. Advanced Scientific German.—Chemical German forms the basis of the work. Text to be selected. Senior elective. Both terms, three hours. Assistant Professor HINKLE.

373. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Giese's *Graded French Method*. Bowen's *First Scientific French Reader*. Junior elective. Both terms, three hours. Assistant Professor HINKLE.

374. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garennes' *Introduccion a la Lengua Castellana*, first term; Ramsey's *Elementary Spanish Reader*, second term. Senior elective. Three hours a week, both terms. Assistant Professor HINKLE.

375. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had one year's work or more in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

MILITARY SCIENCE.

390. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gal-

lery and range target practice. Three hours a week. Required of all classes except Seniors. Seniors may take either the drill or three extra hours in some other subject instead. Lieutenant **SPURGIN** and Cadet Officers of the Battalion.

391. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One hour a week. Required of Sophomores. Lieutenant **SPURGIN**.

III. TEXTILE COURSES.

III (a). The Four-year Course in Textile Industry.

THE TEXTILE DEPARTMENT.

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

TEXTILE INSTRUCTION.

In this department two courses of instruction are offered, the four-year course, leading to the degree of Bachelor of Engineering, and the two-year course in carding and spinning, weaving, designing, and dyeing.

Four-year Course.

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

Two-year Course.

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

Textile Building and Equipment.

The textile building is located on the west campus. It is a two-story brick building one hundred and fifty by seventy-five feet, with a basement. Throughout, its construction is similar to that of a cotton mill, being an illustration of standard construction in this class of buildings. The basement is fitted up with a laboratory and classroom for instruction in dyeing and with dyeing machinery. On the first floor are located the hand and power looms and the necessary warp-preparation and finishing machinery. The carding and spinning machinery is located on the second floor. Electricity is used as a motive power, the machinery of each department in the building being driven by a separate motor. The machinery equipment consists of the latest types of cotton-mill machinery, manufactured by American builders.

Power and Power Transmission.

One 25-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving carding and spinning machinery.

One 15-horsepower 3-phase 550-volt motor, made by General Electric Company, for driving weaving machinery.

One 10-horsepower 3-phase 550-volt motor, made by Fairbanks-Morse Company, for driving dyeing machinery.

Pulleys, shafting, hangers, and couplings, made by Jones & Laughlin Company, Ltd., Pittsburg, Pa.

Carding Department.

Opening Room.—One cotton gin, made by Continental Gin Company, Birmingham, Ala. One thread extractor, made by Kitson Machine Company, Lowell, Mass. One combination opener and breaker lapper, made by Kitson Machine Company, Lowell, Mass. One 40-inch single beater finisher lapper, with patent carding beater, made by Kitson Machine Company, Lowell, Mass.

Carding Room.—One 40-inch revolving flat card, 110 flats, with collier, made by Whitin Machine Works, Whitinsville, Mass. One 40-inch revolving flat card, 110 flats, with collier, made by Potter & Johnston Company, Pawtucket, R. I. One single railway head, with collier, leather rolls, made by Whitin Machine Works, Whitinsville, Mass. One drawing frame, four deliveries, metallic rolls, made by Whitin Machine Works, Whitinsville, Mass. Two drawing frames, four deliveries, leather rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I. One sliver lap machine, one ribbon lap machine, and one two-head combing machine, made by

Whitin Machine Works, Whitinsville, Mass. One two-head Nasmith comber, made by John Hetherington & Sons, Ltd., Manchester, England. One 36-spindle slubber for 11 by 5½-inch bobbin, with ball-bearing top rolls; one 48-spindle intermediate roving frame for 9 by 4½-inch bobbin; one 64-spindle fine roving frame for 7 by 3½-inch bobbin, with ball-bearing top rolls; one 80-spindle jack roving frame for 6 by 2½-inch ribbon, with ball-bearing top rolls, made by Woonsocket Machine and Press Company, Woonsocket, R. I.

Spinning Department.

Spinning Room.—One 120-spindle spinning frame for warp, tape drive, with combination build; one 74-spindle spinning frame for filling, made by Whitin Machine Works, Whitinsville, Mass. One 180-spindle spinning frame for warp, tape drive, with combination build; one 180-spindle spinning frame, tape drive, with combination build, made by Fales & Jenks Machine Company, Pawtucket, R. I.

Spooling, Twisting, and Winding.—One 100-spindle spooler, made by Whitin Machine Works, Whitinsville, Mass. One 96-spindle wet twister, made by Whitin Machine Works, Whitinsville, Mass. One 50-spindle reel, one-half live, one-half dead spindles, made by D. A. Tompkins Company, Charlotte, N. C. One 24-spindle skein winder, made by Oswald Lever Company, Philadelphia, Pa. One 6-spindle universal winding machine, made by Universal Winding Company, Boston, Mass. One section warper, 400 ends, made by T. C. Entwistle Company, Lowell, Mass.

Weaving Department.

Warp Preparation.—One 12-spindle bobbin-winding machine, made by Jacob K. Altemus, Philadelphia, Pa. One 40-spindle bobbin-winding machine, made by Universal Winding Company, Boston, Mass. One beaming machine, made by Lewiston Machine Company, Lewiston, Me. One beaming machine, complete, made by the T. C. Entwistle Company, Lowell, Mass. One slasher, made by Cohoes Machine Company, Cohoes, N. Y.

Looms.—Six narrow sheeting looms, one wide sheeting loom, two 4 by 1 box gingham looms, one 16-harness dobby, two 20-harness dobby looms, 4 by 1 box, made by Whitin Machine Works, Whitinsville, Mass. Two sheeting looms, one 12-harness dobby loom, 2 by 1 box, with leno motion, one 25-harness dobby loom, 4 by 1 box, one terry towel loom, 3 by 1 box, 16-harness dobby, one 4 by 4 box Gem loom, 20-harness head motion, one 4 by 1 box loom with 400-hook Halton jacquard, double-lift single cylinder, one 4 by 4 box loom with 400-hook jacquard, one 4 by 4 box loom with 1248-hook jacquard,

one 4 by 1 box loom with Halton table damask jacquard, one carpet jacquard, made by Crompton & Knowles Loom Works, Worcester, Mass. One 25-harness dobby loom, made by Saco-Lowell Shops, Lowell, Mass. One bag loom, made by Lewiston Machine Co., Lewiston, Maine. One Stafford automatic sheeting loom, one Stafford automatic 15-harness dobby towel loom, made by the Stafford Company, Readsville, Mass.

Finishing.—One No. 25 railway sewing and rolling machine, one inspecting machine, one brushing machine, one No. 3 calender rolling machine.

Dyeing Department.

The Dyeing Department is located in the basement of the Textile Building, and consists of an experimental dyeing laboratory with desk room sufficient for thirty students, a lecture-room, a stock-room, an office, and a room seventy by fifty feet, which is fitted up to give instruction in practical dye-house work.

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

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

- Farbwerke-Hoechst Company, New York.
- Badische Company, New York.
- Farbenfabriken of Elberfeld Company, New York.
- American Dyewood Company, New York.
- Berlin Aniline Works, New York.
- Cassella & Co., New York.
- Kalle & Co., New York.
- Geisenheimer & Co., New York.

Dye-house Equipment.—Seven dye vats; one 10-gallon steam-jacketed copper kettle; one steam aging box; one Franklin dyeing machine; one 5-gallon steam-jacketed copper kettle; one Tolhurst Machine Works hydro-extractor; one Schaum & Uhlinger hydro-extractor; one Mather & Platt cloth printing machine.

A full equipment of analytical balances and other necessary apparatus for experimental work is provided.

III (a). The Four-year Course in Textile Industry, leading to the degree of Bachelor of Engineering.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.*	
	1st Term.	2d Term.
Carding and Spinning, 400†.....	1	1
Weaving, 401.....	2	2
Mechanical Drawing, 430.....	2	2
Shop Lectures, 431.....	2	--
Woodwork, 432.....	2	2
Forge Work, 433.....	--	2
Algebra, 441.....	5	5
Geometry, 442.....		
Inorganic Chemistry, 420.....	2	2
Inorganic Chemistry (laboratory), 421.....	1	1
Composition and Rhetoric, 450.....	3	--
American Literature, 451.....	--	3
Military Drill, 480.....	3	3
Totals.....	23	23

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

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

Sophomore Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Carding and Spinning, 400.....	2	3
Weaving, 401.....	2	3
Textile Designing, 402.....	2	1
Cloth Analysis, 403.....	--	1
Elementary Physics, 440.....	3	3
Analytical Chemistry (qualitative), 422.....	3	3
Drawing, 430.....	--	2
Advanced Algebra; }.....	5	--
Trigonometry, 445 }		
Advanced Rhetoric, 452.....	3	3
Public Speaking, 453.....	--	
Military Drill, 460.....	3	3
Military Tactics, 481.....	1	1
Totals.....	24	23

‡First five weeks.

Junior Year.

Carding and Spinning, 400.....	4	4
Weaving, 401.....	3	3
Textile Designing, 402.....	2	1
Cloth Analysis, 403.....	--	1
Dyeing, 410.....	2	2
Dyeing (laboratory), 411.....	2	2
Steam Engines and Boilers, 435.....	2	2
Motors, 439.....	2	2
English Literature, 454.....	3	3
Military Drill, 480.....	3	3
Totals.....	23	23
Modern Languages, 460, 463 (elective).....	3	3

Senior Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Carding and Spinning, 400.....	4	4
Weaving, 401.....	4	4
Textile Designing, 402.....	3	3
Cloth Analysis, 403.....	1	1
Dyeing, 410.....	1	1
Dyeing (laboratory), 411.....	3	3
Mill Accounting and Mill Costs, 404.....	1	1
Machine-shop Work, 434.....	2	2
Elect three periods from the following:		
Journals, 455.....	3	--
Classics, 456.....	--	3
Economics, 457.....	--	3
Military Drill, 480.....	3	3
Modern Languages, 461, 464.....	3	3
Totals.....	22	22

Subjects of Instruction.

400. Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: Classifying the plant, its growth, varieties, ginning, baling and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers, railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts, speed of parts, production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-books: Taggart's *Cotton Spinning*. Required of Freshmen, Sophomores, Juniors, and Seniors. Mr. Dick.

401. Weaving.—Lectures and practice in warp preparation, operating and fixing looms, cloth-finishing machinery. Warp preparation; pin frame warper; section warper; beam warper; construc-

tion of beam warper, stop motion, measuring motion, creel; pattern warp making; long and short chain beamers. Slashing: Steam cylinder slasher; hot-air slasher; construction of slasher, creel, cylinder, immersion roll, squeeze rolls, drying fan, separator rolls, winding yarn on beam, cone drive, slow motion, measuring and cut marking motion. Sizing: Construction of size kettle; size mixing and boiling; division of sizing ingredients; value of ingredients; sizing recipes for light, medium, and heavy sizing. Loom-mounting: Reeds and harnesses; drawing in and putting warps in loom. Looms: Hand looms and power looms; construction of plain loom; principal movements in weaving; let-off and take-up motions; filling stop motion; warp stop motion. Cams and their construction. Magazine looms, construction and advantages. Drop box looms: Chain building for box looms; changing boxes to have easy running looms; construction and value of multipliers; timing and fixing box motions. Pick and pick-looms. Box-chain and multiplier-chain building; arrangement of colors in boxes to give easy-running loom. Ball and shoe-pick motion. Construction and fixing of head motion. Dobby, single and double index; construction and fixing of dobbie; extra appliances necessary for weaving leno, towel, and other pile fabrics. Value of easers; half motion; and jumper attachment for leno. Springs and spring-boxes. Pattern chain building. Jacquard: Single and double lift; construction and tie-up. Weave-room calculations, speed and production calculations, relative speed of looms, counts of cotton harness. Finishing: Inspection of cloth; singeing and brushing; calendering, tentering; folding and packing for the market. Equipment necessary for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: *Nelson's Weaving, Plain and Fancy*. Required of Freshmen, Sophomores, Juniors, and Seniors in the Four-year Course, and of first- and second-year students in the Short Course. Professor NELSON, Mr. STEED.

402. Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves: Plain, twill, satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves, plain and fancy basket weaves, warp and filling rib weaves. Broken twills, curved twills, corkscrew twills, entwining twills. Granite weaves, satin shading. Combination of weaves; figured weaving on plain ground. Satin and figured stripes on plain ground. Spots arranged in different

orders on plain, twill, satin ground. Imitation leno, honeycomb weaves. Bedford cords and combination with other weaves. Wave designs, pointed twills, diamond effects. Plain and fancy piques. Double plain, figured double plain. Double cloths. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp; cloths ornamented with extra filling. Cotton velvet, Corduroy. Matelasse, leno weaves with one, two, and more sets of doups. Principles of working both top and bottom doups. Combination of plain and fancy weaves with leno. Methods of obtaining leno patterns. Jacquards. Distribution and setting out of figures for geometrical and floral effects. Distributing figures to prevent lines. Areas of patterns. Preparation of sketches. Transfer of sketches to design paper. Painting in the design with different weaves according to sketch. Shading the patterns. Card cutting and lacing. Required of Sophomores, Juniors, and Seniors. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

403. Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of Sophomores, Juniors, and Seniors. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

404. Mill Accounting and Cost Finding.—The general fundamental principles of the various systems of cost-finding as applicable to the different classes of manufactured products are carefully explained, as well as questions of commissions, discounts, depreciation, inventories, distribution of expenses, etc. As a clear understanding of accounting is necessary for intelligent cost-finding, the method of keeping accounts is studied in detail. The general idea is to impress on the student the relative cost of production for any class of manufactured product and to show how the different processes of manufacturing influence cost. One period, first and second terms. Required of Seniors. Assistant Professor HALSTEAD.

DYEING COURSE.

This course is especially for those who wish to engage in any branch of Textile Chemistry, Dyeing, Bleaching, Finishing, or in the manufacture or sale of dyestuffs and chemicals used in the textile industry, and is designed to give a scientific technical education to those who desire to embrace these branches of industrial technology.

Dyeing as an art has long been practiced, but with the introduction of scientific methods it is rapidly developing and assuming a position in the front rank of applied sciences.

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

III (b). The Four-year Course in Dyeing, leading to the degree of Bachelor of Science.

Freshman Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Carding and Spinning, 400.....	1	1
Weaving, 401.....	2	2
Mechanical Drawing, 430.....	2	2
Shop Lectures, 431.....	2	--
Woodwork, 432.....	2	2
Forge Work, 433.....	--	2
Algebra, 441.....	5	5
Geometry, 442.....	--	
Inorganic Chemistry, 420.....	2	2
Inorganic Chemistry (laboratory), 421.....	1	1
Composition and Rhetoric, 450.....	3	--
American Literature, 451.....	--	3
Military Drill, 480.....	3	3
Totals.....	23	23

Sophomore Year.

Carding and Spinning, 400.....	2	3
Weaving, 401.....	2	3
Textile Designing, 402.....	2	1
Cloth Analysis, 403.....	--	1
Elementary Physics, 440.....	2	2
Analytical Chemistry (qualitative), 422.....	3	3
Drawing.....	--	2
Advanced Algebra, 444 } Trigonometry, 445 }	5	--
Advanced Rhetoric, 452.....	3	3
Public Speaking, 453.....	--	
Military Drill, 480.....	3	3
Military Tactics, 481.....	1	1
Totals.....	23	23

Junior Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Dyeing, 410.....	2	2
Dyeing (laboratory), 411.....	3	3
Organic Chemistry, 424.....	2	2
Organic Chemistry, Laboratory, 425.....	3	3
Analytical Chemistry, Quantitative, 426.....	4	4
English Literature, 454.....	3	3
German 460.....	3	3
Military Drill, 480.....	3	3
Totals.....	23	23

Senior Year.

Dyeing, 410.....	3	3
Dyeing (laboratory), 411.....	2	2
Analytical Chemistry, 426.....	8	8
German, 461.....	3	3
Elect six periods from the following:		
Journals, 455.....	3	--
Classics, 456.....	--	3
Economics, 457.....	--	3
Military Drill, 480.....	3	3
Totals.....	22	22

Subjects of Instruction.

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

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

The course of lectures, as outlined above, will include the consideration of many difficult problems that arise in the dye-house, with especial reference to the dyeing, mercerizing, and finishing of cotton yarns and pieces. Required of Juniors and Seniors in Textile Industry. Assistant Professor HALSTEAD.

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

CHEMISTRY.

420. Inorganic Chemistry.—Hessler and Smith's *Essentials of Chemistry*. The common elements and their principal compounds, together with some of the fundamental principles of the science are studied by means of lectures and recitations. Two periods. Required of Freshmen. Doctor FREDERICK and Mr. MULLEN.

421. Inorganic Chemistry.—Laboratory work. Hessler and Smith's *Laboratory Exercises*. Here, under the eye of the instructor, experiments illustrating and emphasizing the work of the classroom are performed by the student. One period. Required of Freshmen. Fee, \$2. Doctor FREDERICK.

422. Analytical Chemistry.—Tower's *Qualitative Chemical Analysis*. A discussion of the principles involved in chemical analysis, together with laboratory work. The student is given extended practice in the identification of the more common ions, and in the complete analysis of mixtures of pure salts, commercial products, alloys, and minerals. Three periods. Required of Sophomores. Fee, \$4. Doctor MILLER.

423. Analytical Chemistry.—Lincoln and Walton's *Quantitative Analysis*. Gravimetric and volumetric analysis. Special attention is given to the determination of elements in substances of special interest to textile students. Four periods. Required of Juniors in Dyeing. Fee, \$4. Doctor WILLIAMS.

424. Organic Chemistry.—Moore's *Outlines of Organic Chemistry*. A study of the fundamental principles of organic chemistry and of the most important organic compounds. Two periods. Required of Juniors in Dyeing. Doctor DOBBINS.

425. Organic Chemistry.—Laboratory work. Orndorff's *Laboratory Manual*. A series of experiments illustrating the methods used in the preparation of the principal classes of organic compounds and the fundamental reactions involved in these transformations. Three periods. Required of Juniors in Dyeing. Fee, \$3. Doctor DOBBINS.

426. Analytical Chemistry.—Quantitative Analysis, advanced. A continuation of Course 423. Eight periods. Required of Seniors in Dyeing. Fee, \$8. Doctor WILLIAMS.

MECHANICAL ENGINEERING.***Freshman Year.**

101. Engineering Lectures—First Term.—A series of lectures intended to acquaint students with general engineering terms and principles; also with materials used in engineering work, such as lumber, iron, steel, copper, brass, cement, coal, and other materials. Lantern slides are used wherever possible. Two periods. Required of Freshmen in Engineering and Textile Industry. Professor **SATTERFIELD** and Assistants.

103. Mechanical Drawing—First Term.—Instruction in care and use of instruments; lettering, geometrical drawing; projection drawing; isometric and cabinet projections; drawings from working sketches of machine details; tracing; blue-printing; elements of descriptive geometry; cylinders; cones; prisms; intersections and development; miscellaneous problems. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. **BRIGGS**.

104. Mechanical Drawing—Second Term.—Continuation of 103. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. **BRIGGS**.

Note.—Each student will be required to furnish, at his own expense, the following outfit. To insure uniformity in grade of instruments and other supplies, the Department keeps for sale, practically at cost, the articles named below. These may be purchased elsewhere, but must be approved by the Department. Estimated cost of outfit, \$12 to \$15.

Text-book.

Drawing board, 22x32 inches.

T-square, 30 inches.

60° triangle, 9 inches, transparent.

45° triangle, 7 inches, transparent.

12-inch triangular architect's scale.

4H pencil. H or F pencil.

Erasers for ink and pencil.

Penholder with five points.

Pencil-sharpener.

Instrument set consisting of:

6-inch compass with pen, pencil, and lengthening bar.

5¼-inch dividers with hairspring adjustment.

3-inch bow dividers, 3-inch bow pencil, 3-inch bow pen.

5¼-inch ruling pen.

*For further information, see Course in Mechanical Engineering.

105. Wood Shop Work—First Term.—Elementary instruction in bench work, involving the use of ordinary hand tools, such as planes, saws, squares, chisels, etc. All exercises are made from blue-prints and sketches. This work leads up largely to cabinet lines, such as bookcases, tables, drawing boards, and similar things. Special attention is given to making cabinets, tables, and other articles for the different laboratories, and also to a general line of repairing for the College. The student also gets a good working knowledge of wood-working machinery, such as hand saw, jig saw, rip saw, planers, boring machines, jointers, and other machines. They also get good experience in hand finishing, scraping, gluing, sand-papering, staining, and varnishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

106. Wood Shop Work—Second Term.—Work similar to that outlined under 105. During the latter half of the spring term the time is devoted principally to wood-turning, which includes turning between centers, face plate, chuck work, polishing, and finishing. Two periods. Required of Freshmen in Engineering and Textile Industry. Mr. WHEELER, Mr. MARTIN.

325. Heat Engines—First Term.—Nature and measurements of the units of heat, work, and power as used in steam engineering. A study of the properties of steam; use of the "steam-tables" for solving problems. The theory of steam calorimeters, mechanical mixtures, and combustions of fuels. The application of the above to boilers for the purpose of determining rating, capacity, and efficiency. A critical examination of the function of the various boiler auxiliaries. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisites, Physics 281, Algebra 343. Assistant Professor VAUGHAN.

326. Heat Engines—Second Term.—The study of elementary thermodynamics as applied to the steam and gas engine cycles. The steam engine, including classification and details, valves, valve gears, and governors. Determination of indicated and brake horsepower and heat efficiency from given conditions. Steam turbines and gas engines will be studied briefly. Two periods. Required of Juniors in Electrical and Textile Engineering. Prerequisite, M. E. 325. Assistant Professor VAUGHAN.

ELECTRICAL ENGINEERING.

439. Electric Motors.—The elementary laws of electric currents, principles, construction, operation, and care of electrical machinery, electric lamps and illumination. A study of the use of electrical machinery in factories, with special reference to textile mills. Two

periods. Required of Juniors in Textile Industry. Associate Professor McINTYRE.

PHYSICS.*

440. Textile Physics.—As textile work continually presents the operations of forces in machines and the more intricate problems of humidity and elasticity, a thorough course in Physics is required of all Textile students. This course emphasizes the particular problems met in textile work and gives a broad basis for interpretation of related engineering problems. The work embraces lectures, recitations on text-book assignments, and practical measurements in the laboratory. Lectures are given with demonstrations of the action of forces in machines and materials as nearly as possible like those the student will meet in practical textile work. The historical development of the science is discussed to give the students a broader outlook and to stimulate a desire for further study. These demonstrations and the work in the laboratory are made with actual machines and problems taken from actual practice. Two periods of recitation and one period of demonstration or laboratory work throughout the year. Required of Sophomores. Assistant Professor PRITCHETT.

MATHEMATICS.

441. Algebra.—Wells's *New Higher Algebra*. Begins with quadratic equations and completes summation of series, embracing ratio and proportion, variation, the progressions, the binomial theorem, undetermined coefficients, logarithms, compound interest and annuities, permutation, combinations, and continued fractions. At the beginning of the term a review is usually given on involution, evolution, theory of exponents, and radicals. Five periods, first term; five periods, second term to February 15. Required of Freshmen. Prerequisites: For first term, entrance requirements; for second term, the work of the first term, or, in case of failure, a term standing of 60 per cent or more, and a final examination grade of at least 40 per cent, on the work of the first term. Professor YATES, Mr. HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

442. Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in Plane Geometry, including numerous original exercises. Second term. Five periods, from February 15 to end of term. Required of Freshmen. Prerequisite, entrance requirements. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

*For further information, see Course in Electrical Engineering.

444. Advanced Algebra.—Wells's *Higher Algebra*. The general theory of equations, the solution of higher equations, determinants, etc. Required of Sophomores. One period, first term. Prerequisites, 441 and 442. Professor YATES, Assistant Professor HARBELSON, Mr. SCARBOROUGH, Mr. JETER.

445. Trigonometry.—Wells's *Plane and Spherical Trigonometry*. Plane Trigonometry. Definitions of the trigonometric functions; derivation of formulæ, with their application. Solution of plane triangles, etc. Spherical Trigonometry. Solution of spherical triangles. This course includes the solution of many practical problems. Required of Sophomores. Four periods, first term. Prerequisites, 441 and 442. Professor YATES, Assistant Professor HARBELSON, Mr. SCARBOROUGH, Mr. SMITH.

ENGLISH.

450. English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of Freshmen. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

451. American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of Freshmen. Assistant Professor PRATT, Mr. WEBBER.

452. Advanced Rhetoric.—The principles of style and the forms of discourse constitute the basis of the work. Scientific exposition in particular is studied in selected essays and addresses; and in frequent essays the principles learned are put into practice. Three periods, first and second term to March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

453. Public Speaking.—The principles governing the preparation and the delivery of public addresses are given in text-book and in lectures. The reading in class of addresses in various styles, the writing of several papers by each member of the class, and practice in delivery, complete the work. Three periods after March 1. Required of Sophomores. Associate Professor SUMMEY, Assistant Professor PRATT.

454. English Literature.—The inductive study of the development of English poetry and prose is pursued in the works of standard

writers of the different periods. The continuity is emphasized by a text-book on the history of the literature. Occasional essays and parallel reading form an important part of the work. The purpose of the course is to cultivate in the student a taste for the best writings of the greatest writers. Three periods through the year. Required of Juniors. Professor HARRISON, Associate Professor SUMMEY.

455. Journals.—To give practical knowledge of technical and of other standard journals is the purpose of this course. The frequent essays required are mainly of scientific and technical character. Three periods, first term. Open to Seniors. Professor HARRISON.

456. Classics.—The lives and works of the great scientists, and of other great writers, particularly of the nineteenth century, are studied in this course. Essays will be continued as in the first term. Three periods, second term. Open to Seniors. Professor HARRISON.

ECONOMICS.

457. Railroad Transportation.—A consideration of the different systems of railroad rates as affecting the shipment of farm products and the location and development of industries generally. Designed to meet the needs of students in Engineering, Textile Industry, and Agriculture. Three periods, first term. Elective for Seniors. Professor CAMP.

MODERN LANGUAGES.

The purpose of the work in this department is to enable the student to read and become acquainted with German, French, and Spanish scientific literature. Grammar is taught only secondarily and as an aid in translation.

Work in translating is begun early and continued throughout the course. The written and spoken knowledge of the languages is developed in proportion to the student's ability to translate.

Two years work in German is required of students taking the Dyeing course, and it is recommended that the students of this course take the third year's work also. Credit towards a degree is allowed for the successful completion of any of the work.

460. Beginner's German.—Grammar, composition and translation. Bacon's *German Grammar*. Reader to be selected. Elective for Textile Juniors. Required of Juniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

461. Introductory Scientific German.—Simple scientific German of a general nature the first term, followed by Physical and Chemical

German the second term. Gore's *German Science Reader* and Walentin's *Grundzüge der Naturlehre*. Elective for Textile Seniors. Required of Seniors in Dyeing. Both terms, three hours. Assistant Professor HINKLE.

463. Beginner's French.—Grammar, composition, and translation the first term. Introductory scientific French the second term. Glese's *Graded French Method*. Bowen's *First Scientific French Reader*. Junior elective. Both terms, three hours. Assistant Professor HINKLE.

464. Beginner's Spanish.—Grammar, composition, and translation. Marion y des Garenas' *Introduccion a la Lengua Castellana*, first term; Ramsey's *Elementary Spanish Reader*, second term. Senior elective. Three hours per week, both terms. Assistant Professor HINKLE.

465. Intermediate Spanish.—A continuation of Beginner's Spanish. Designed primarily to develop rapid reading and translation and conversation. A number of easy Spanish stories are read. Some attention is given to composition and letter-writing. Open to students who have had not less than one year's work in the language. Senior elective. Three hours, both terms. Assistant Professor HINKLE.

MILITARY SCIENCE.

480. Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier, squad, company and battalion; ceremonies, including inspection, parade, review and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

481. Tactics.—Theoretical instruction in infantry drill regulations, field-service regulations, map reading, and small-arms firing manual. One period a week. Required of Sophomores. Lieutenant SPURGIN.

TWO-YEAR COURSE IN TEXTILE INDUSTRY.

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

III (c). The Two-year Course in Textile Industry.

First Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Carding and Spinning.....	2	2
Weaving.....	3	3
Textile Designing.....	2	1
Cloth Analysis.....	--	1
Mechanical Drawing.....	2	2
Shop Lectures.....	2	--
Forge Work.....	--	2
Algebra.....	5	5
Plane Geometry.....	--	
English.....	3	3
Military Drill.....	3	3
Totals.....	22	22

Second Year.

Carding and Spinning.....	5	5
Weaving.....	4	4
Textile Designing.....	2	1
Cloth Analysis.....	--	1
Dyeing.....	3	3
Machine-shop Work.....	3	3
English.....	3	3
Military Drill.....	3	3
Totals.....	22	22

Subjects of Instruction.

Carding and Spinning.—Lectures and recitations; practice in operating card and spinning room machinery. Cotton: classifying the plant; its growth; varieties; ginning, baling, and marketing the raw staple. Cotton at the mill; selecting and mixing. Openers and lappers; cards; sliver lap machines; ribbon lap machines; combers; railway-heads; drawing-frames; slubbers; intermediate; speeders; jacks. Ring spinning-frames and mules. Spoolers. Twisters; reels; cone-winders. Construction and functions of each machine; making the various calculations. Drafts; speed of parts; production. Producing yarns of different counts, single and ply. Testing yarns for breaking strength and elasticity. Text-book: Taggart's *Cotton Spinning*. Required of first- and second-year students. Mr. DICK.

Weaving.—Lectures on construction of plain, twill, sateen, gingham, pick and pick looms are given; also on construction of dobbies and jacquards.

Lectures begin with the construction of plain loom, first taking up the principal movements in weaving, then the various secondary or auxiliary movements, and the relation and timing of one movement to another. Additional motions and parts required to be added to a plain loom in order to weave twill and sateen cloths. Magazine looms; construction and advantages. Drop box looms; construction of the various motions; arranging colors in boxes; methods of building box chains. Dobby: construction of single and double index; setting, and starting up dobbie on loom; fixing dobbie. Pick and pick looms: construction of loom; construction of head motion; building box chains to have easy-running loom. Jacquard: single and double lift; construction and tie-up. Weave-room calculations for speed and production; counts of reed and cotton harness. Finishing cotton fabrics. Necessary equipment for warp preparation, weaving, finishing; approximate cost of production of fabrics in the different processes. Text-book: Nelson's *Weaving, Plain and Fancy*. Required of first- and second-year students. Professor NELSON, Mr. STEED.

Textile Designing.—Lectures and practice in designing. Method of representing weaves on design paper. Foundation weaves; plain; twill; satin. Ornamentation of plain weave; color effects on plain weave. Derivative weaves; plain and fancy basket weaves; warp and filling rib weaves. Broken twills; curved twills; corkscrew twills; entwining twills. Granite weaves; satin shading. Combina-

tion of weaves; figured weaving on plain ground. Fancy satin and figured stripes on plain ground. Spots arranged in different orders on plain, twill, satin ground. Imitation leno; honeycomb weaves. Bedford cords and combination with other weaves. Wave design; pointed twills; diamond effects. Cloths backed with warp; cloths backed with filling. Cloths ornamented with extra warp. Cloths ornamented with extra filling. Combination of plain and fancy weaves. Practical application of weaves to fabrics. Advanced designs. Required of first and second year students. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

Cloth Analysis and Fabric Structure.—Calculating particulars of cloth from data ascertained from samples. Shrinkages. Dents in patterns; patterns in warp. Drafting and pattern chain building. Reed and harness calculations. Calculations to obtain quantities of warp and filling in stripe and check fabrics. To find number of threads per inch, using a given weight of warp; also number of picks per inch, using a given weight of filling. Yarn calculations. System of numbering woolen, worsted, silk, linen, and cotton yarns. Determination of one system of yarn to that of another. Textile calculations. Determining the number of threads and picks per inch to make a perfect cloth. Calculations to determine the texture in an unequally reeded fabric. Diameter of threads. Balance of cloth. Texture for double cloth. Required of first- and second-year students. Professor NELSON, Assistant Professor HALSTEAD, Mr. STEED.

DRAWING AND SHOP WORK.

Mechanical Drawing.—Work in the use of the pencil; technical sketches of objects, usually parts of a machine. Geometric drawing; isometric and cabinet drawing; elementary projections; drawings made to scale from working sketches of pieces of a machine. Elementary principles of descriptive geometry; cylinders, cones, and prisms; intersection and development of surfaces; miscellaneous problems. Two periods. Required of first-year students. Mr. BRIGGS.

Forge Work.—Exercises in working with iron, welding; use and care of forge tools and fires. Two periods, second term. Required of first-year students. Mr. WHEELER.

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

MATHEMATICS.

Algebra.—Wells's *New Higher Algebra*. A thorough treatment of Elementary Algebra, beginning with simple equations, simultaneous equations and problem solving, involution, evolution, theory of exponents and radicals, quadratic equations, ratio and proportion, binomial theorem, and progression. Five periods, first term. Required of first-year students. Assistant Professor HARRELSON, Mr. JETER, Mr. SMITH.

Plane Geometry.—Wentworth and Smith's *Plane and Solid Geometry*. A complete course in Plane Geometry, including numerous original exercises. Five periods, second term. Assistant Professor HARRELSON, Mr. SCARBOROUGH, Mr. JETER, Mr. SMITH.

Drill.—Calisthenic exercises; bayonet exercises; military signaling; school of the soldier; squad, company, and battalion; ceremonies, including inspection, parade, review, and guard mounting; guard duty; marches and minor tactics; attack and defense; gallery and range target practice. Three hours a week. Lieutenant SPURGIN and Cadet Officers of the Battalion.

ENGLISH.

First-year English.—This is a thoroughly practical course in the elements of grammar and of composition, especially spelling, sentence and paragraph structure, and letter-writing. Some reading is done in class, and supplementary reading is assigned for private study. Three hours a week. Required of first-year students. Mr. WEBER.

Additional Subjects in the Second Year.

Dyeing.—The object of this course is to give the student a sound practical knowledge of the fundamental principles which underlie the arts of bleaching, dyeing, mercerizing, etc., cotton yarns and fabrics. The manipulation of the various machines used in bleaching, dyeing, and mercerizing is carefully explained. The physical and chemical properties of the material to be dyed receive first consideration, followed by a study of the adaptability of water for bleaching, dyeing, mordanting, etc. The practical application of the dyestuffs themselves is treated in the most thorough and detailed manner, *e. g.*, the substantive dyestuffs dyed direct, diazotised and developed, after-treated with metallic salts, topped with basic dyes, etc., the basic dyestuffs, sulphur dyestuffs, indanthrene dyestuffs,

etc. Practice in color-mixing and matching is given. The student in this way acquires a collection of several hundred dyed samples which, when mounted in his pattern book, serve as a valuable reference. The course is supplemented by lectures, which will include the consideration of many difficult problems that arise in the dye-house. Three periods. Required of second-year students. Assistant Professor HALSTEAD.

Machine Drawing.—Sketching and drawing of machine parts, principally of textile machinery. Detail working drawings. The design of cams to give specified motions. Tracing and blue-printing. Two periods. Required of Textile Sophomores. Mr. RICHARDSON.

English Composition and Rhetoric.—After a review of the principles of English grammar, special attention is given to the selection of subjects, the planning of essays, and the study of words, sentences, and paragraphs. Frequent themes are required, the work being directed mainly upon the mechanics of writing and the making of reports on scientific studies. Required of second-year students. Three periods, first term. Assistant Professor PRATT, Mr. WEBBER.

American Literature.—The study of the history of American literature is accompanied with the reading and analysis in class of the writings of representative American authors. Essays are based largely upon class and parallel reading. Three periods, second term. Required of second-year students. Assistant Professor PRATT, Mr. WEBBER.

COURSES FOR TEACHERS.*

The courses for teachers are intended for the education of teachers, both men and women, chiefly along industrial lines. Industrial education, particularly in agriculture, is being introduced into our public schools, and there is a constant demand for teachers well trained in these subjects. It is hoped by means of these courses to help supply this demand. Our School Law already requires agriculture to be taught in the public schools, and manual work will doubtless be added. The courses are devoted largely to agriculture and nature study, and include also a review of other public school studies.

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

*See also Normal Division of Agricultural Course, page 57.

IV. Courses for Rural Teachers.

(a) Two-year Course.

(b) One-year Course.

(c) Four-weeks Summer Course.

IV. (a) TWO-YEAR COURSE.

First Year.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Physics or Mathematics.....	5	5
Chemistry.....	3	3
English.....	3	3
Botany.....	3	3
Zoology.....	--	3
Agriculture.....	3	--
Plant Propagation.....	3	--
Vegetable Gardening.....	--	3
Physiology.....	--	3
Farm Management.....	3	--
Totals.....	23	23

Second Year.

Landscape Gardening.....	--	3
Practical Pomology.....	3	--
Soils.....	3	3
Poultry.....	3	--
Plant Diseases.....	3	2
Economic Entomology.....	--	3
Breeds.....	--	3
Dairy.....	3	--
Agriculture.....	4	4
Elective.....	4	4
Totals.....	22	23

IV. (b) ONE-YEAR COURSE.

SUBJECTS.	PERIODS A WEEK.	
	1st Term.	2d Term.
Botany.....	3	3
Zoology.....	--	3
Agriculture.....	3	--
Plant Propagation.....	3	--
Vegetable Gardening.....	--	3
Physiology.....	--	3
Soils.....	3	3
Poultry.....	3	--
Breeds.....	--	3
Dairy.....	3	--
Elective.....	5	5
Totals.....	23	23

THE SUMMER TERM OF AGRICULTURE FOR TEACHERS.

With the establishment of 215 State high schools, in which the most important subject of instruction is agriculture, and with the requirement that this subject be taught also in the common schools, the demand for teachers trained in the sciences upon which agriculture is founded, and in their practical application, has become imperative. The Summer Term of Agriculture has been established to afford teachers the opportunity to equip themselves to meet this demand.

All the resources of the agricultural department of the College in buildings, farms, livestock, and equipment, are used for the benefit of the Summer Term. The entire faculty of this department, so far as needed, form the staff of instructors.

As it is of course impossible adequately to cover all the branches of agriculture in one session of four weeks, the course of study is arranged progressively for four years. Provision is made, however, for the immediate demands upon the teacher by giving in the first year of the course the essentials for successful school instruction in agriculture. A certificate of work done is issued at the end of each session, and upon the completion of the course there is conferred a full certificate which the State Superintendent of Public Instruction agrees to accept in lieu of examination on the subjects taken.

A special number of the College Record is issued in March, giving full information concerning courses of instruction, expenses, and other matters of the Summer Term. A copy of this will be sent upon application to the Registrar of the College.

RULES FOR ADVANCED DEGREES.

Two degrees are conferred: The Engineering Degree to non-resident graduates of the engineering courses, and Master of Science to resident students pursuing graduate work.

ENGINEERING DEGREES.

1. The degree of Civil Engineer, Mechanical Engineer, or Electrical Engineer may be conferred upon graduates of the several engineering departments of the College not sooner than three years after graduation.

2. Each candidate for an engineering degree must file his application for enrolment not later than October 5th.

3. He must file with his application a statement of the work he has done since graduation and the title of the thesis which he will present.

4. The record of the work and the subject of the thesis must be approved by the Faculty's standing committee on graduate students before the applicant will be enrolled as a candidate for a degree.

5. The completed thesis must be submitted in approved form not later than May 1. Reports, designs, or drawings made in the regular course of his employment will not be accepted.

6. A candidate must submit with his thesis tangible records of the work he has done and upon which his application for the degree is based, such records to consist of complete drawings, detailed drawings, photographs, records of tests, or other such matter as will show the character of the work done and indicate the degree of responsibility that has been placed upon him.

7. If the record of the work done be approved and the thesis accepted by the Faculty, the candidate, upon notification, must present himself for examination not later than the Saturday preceding the annual commencement. The examination shall consist of oral questions on the subject-matter of the thesis and on the work done by the candidate since graduation.

MASTER OF SCIENCE.

The degree of Master of Science will be conferred on graduate students who fulfil the following requirements:

1. The candidate must have received the Bachelor's degree from this College or another institution having an equivalent course of study.

2. Not less than two years must intervene between the conferring of the Bachelor's degree and the Master's degree, unless the candidate has devoted his time exclusively to graduate study.

3. A course of study consisting of one major and two minors, aggregating sixteen periods, must be pursued during residence at the College, each period representing not less than 100 hours of actual work.

4. The major subject, covering eight periods, shall be strictly graduate work and selected in that department in which the Bachelor's degree was taken.

5. The two minor subjects, covering four periods each, shall be chosen from departments allied to the department in which the major subject is chosen. The work of a minor subject shall be of a grade not lower than that of the Junior year in those departments.

6. Work which has been done previous to receiving the Bachelor's degree or which has been accepted as credit towards any degree received shall not be accepted for credit towards the Master's degree at this College.

7. The major and minor subjects must be completed satisfactorily by May 1st preceding the conferring of the degree, at which time also must be presented in its complete form a satisfactory thesis, the theme of which must have been approved by the 5th day of October previous thereto.

8. The candidate must pass a satisfactory oral examination upon his thesis, major and minor subjects, before an examining committee composed of the professors in charge of the major and minor subjects, one or more members of the Committee upon Graduate Studies, and one or more other members of the Faculty, said examining committee to be appointed by the Faculty upon the nomination of the Committee upon Graduate Studies.

9. In case the applicant be employed by the College, Experiment Station, or State Department of Agriculture, he shall not be allowed to receive during any year credit for more than eight periods, to be distributed as follows: both minors, the major, or a minor and one-half the major. In this connection a year will extend from Commencement day to Commencement day.

10. No work done as a teacher shall be credited as work towards the degree.

11. At least eight periods must be devoted to work in the laboratory, field, greenhouse, dairy, or barn.

12. The thesis must involve some original work. References to literature should as far as possible be to original sources, and all

citations should follow the rules prescribed for the *Journal of Agricultural Research*.

13. Credit will not be allowed during any year unless the candidate shall have filed with the Registrar an approved course of study by October 5th of that year or a previous year.

14. Candidates for advanced degrees must register by October 5th of each year for which they wish to receive credit.

FORM OF THESIS.

The thesis must be presented on unruled white paper, 8 $\frac{1}{8}$ by 11 inches in size, twenty-pound Persian bond or the equivalent. A suitable title page, printed or typewritten, must be prepared. The thesis must be neatly typewritten, properly paged, leaving a margin of 1 $\frac{1}{2}$ inches on the left for binding, the writing to be on one side of the page only. All drawings or diagrams must be neatly and carefully prepared, and where the size of paper necessary is larger than that of the page it must be of such size as conveniently to fold in with the thesis.

The thesis shall become the property of the College and will be placed on file.

DONATIONS.

To the Department of Electrical Engineering and Physics.

Through the bequest of the late William Kearny Carr this Department received the entire equipment of his excellent private physical laboratory. This contains a large number of pieces of very fine apparatus, particularly for the study of sound, light, and electrical radiations. This apparatus has been installed in a separate room fitted up for it and is to be designated as the William Kearny Carr Physical Laboratory.

To the Textile Department.

American Enamel Company, Providence, R. I.—Lease and dye-rods.
American Moistening Company, Boston, Mass.—One hygrometer.
Bliss, Fabyan & Co., New York.—Sample fabrics.
Easton & Burnham Company, Pawtucket, R. I.—One reel.
Emmons Loom Harness Company, Lawrence, Mass.—Loom harness and reels.
Felton Brush Company, Atlanta, Ga.—Loom and other brushes.
Foster Machine Company, Westfield, Mass.—One Foster winder.
Hampton Company, Easthampton, Mass.—Mercerized yarns.
Hemphill Manufacturing Company, Pawtucket, R. I.—One Banner knitting machine.
Howard Bros. Manufacturing Company, Worcester, Mass.—Heddles.
Scott & Williams Company, Boston, Mass.—One knitting machine.
Southern Novelty Company, Hartsville, S. C.—Paper tubes and cones.
Steel Heddle Manufacturing Company, Philadelphia.—Heddles and heddle frames.
United States Bobbin and Shuttle Company, Providence, R. I.—Shuttles.
Wildman Manufacturing Company, Norristown, Pa.—One ribber.
American Dyewood Company, New York.—Sample dyes.
Atteaux & Co., Inc., Boston, Mass.—Sample dyes.
Berlin Aniline Works, New York.—Collection of shade cards.
Schoellkoff Aniline and Chemical Works, Inc., Buffalo, N. Y.—Sample dyes.
Solway Process Company, New York.—Soda, ash, caustic soda, etc.
Marsden, Orth & Hastings Company, Boston, Mass.—Sample dyes.
Canadian Textile Journal, Montreal, Canada.
Textile Manufacturer, Charlotte, N. C.

Southern Textile Bulletin, Charlotte, N. C.
Mill News, Charlotte, N. C.
Wool and Cotton Reporter, Boston, Mass.
Fiber and Fabric, Boston, Mass.
Textile World Journal, New York.
New York Journal of Commerce, New York.

To the Library.

Curtis, Robert S.—*Live-stock Judging*.
 Sir Gilbert Parker.—*The World in the Crucible*.
 Sir Gilbert Parker.—*Germany's Violations of the Laws of War*.
 1914-1915.
 Hueffer, Ford M.—*Between St. Denis and St. George*.
 Lord Sydenham of Combe.—*India and the War*.
 Waxweiler, Enrile.—*Belgium: Neutral and Loyal*.
 Publishers.—*Replies and Decisions of the New York Journal of
 Commerce*.
 Poe, Clarence.—*How Farmers Coöperate and Double Their Profits*.
 Poteat, William L.—*The New Peace*.
 Fulton, Harry R.—*The Essentials of Botany* (2 vols.).
 Stevens, Thomas W.—*The Pageant and Mask of St. Louis*.
 Harper, W. A.—*The Making of Men*.
 Publishers.—*Accident, Prevention, and Relief*.
 Fielde, Adele M.—*Parliamentary Procedure*.

To the Department of Horticulture.

W. C. Piver.—\$25 towards a power sprayer.

To the Poultry Science Department.

Collis Company, Clinton, Ia.—One sticking knife, one blood cup, one
 picking shackle.
 The Star Egg Carrier and Tray Manufacturing Company, Rochester,
 N. Y.—Egg crates.
 North Star Egg Case Company, Quincy, Ill.—Egg cases.
 V. W. Winchester, Baltimore, Md.—Egg case cushions.
 Frank Gaylor, New York.—Firefly egg tester.
 J. Bolglano & Son, Baltimore, Md.—Sanitary drinking fountains,
 sanitary feed troughs, and brooding coops.
 LaFore Foster Company, Philadelphia, Pa.—Egg cases for parcel
 post.
 The Hartley Steel Crated Box Company, Saginaw, Mich.—Egg cases.

- The Standard Paint Company, New York City.—Samples rubberoid roofing.
- The Edwards Manufacturing Company, Cincinnati, O.—Samples metal shingles.
- Indiana Steel Wire Company, Muncie, Ind.—Samples wire fencing.
- Wilson Bros., Easton, Pa.—Crown bone-grinder.
- Weiss-Peterson Box Company, Cairo, Ill.—Egg cases.
- International Hover Manufacturing Company, Browns Mills, N. J.—One incubator, one six-in-one exerciser.

To the Department of Mechanical Engineering.

- William C. Robinson & Son Co.—Oil at various times.
- Evinrude Motor Company.—One Evinrude row-boat motor.
- American Vulcanized Fibre Company.—Exhibit board of articles made from vulcanized fibre.
- Catalogue Equipment Company.—Additional volumes.
- Pike Manufacturing Company.—Exhibit board of cutting stones and wheels.
- S. C. Johnson Company.—Exhibit board of woods.
- United States Department of the Interior.—Board of American woods.
- Peerless Rubber Manufacturing Company.—Exhibit board of packings.
- American Injector Company.—A sectioned injector.
- American Steam Gauge and Valve Manufacturing Company.—Working parts of American ideal steam trap.
- Pressed Metal Radiator Company.—A pressed metal radiator for testing purposes.
- The C. E. Squires Company.—A Squires sectioned steam trap.
- Reliance Steam Gauge and Valve Company.—One sectioned steam trap.
- Clipper Belt Lacer Company.—New model belt lacer.
- Joseph Dixon Crucible Company.—Exhibit of products and a board showing the evolution of the lead pencil.
- V. D. Anderson Company, Cleveland, O.—Sectioned steam trap.
- National Tube Company, Pittsburg, Pa.—A large chart showing their products.
- B. F. Goodrich Rubber Company.—A photograph of their plant.
- Carborundum Company.—Samples of carborundum and aloxite.
- The Dole Valve Company.—Sectioned frictional valve for vapor steam heating.
- Wood & Sons.—Three foundry flasks.

Magazines and literature:

Heating and Ventilating Magazine.
Refrigerating Magazine.
Plumbing and Heating Magazine.
Southern Engineer, Atlanta.
National Builder, Chicago.
American Artisan and Hardware Record.
The Dodge Idea.

Trade papers from the following manufacturers: J. G. Brill Company, Philadelphia; Sullivan Machinery Company, Chicago; Goldschmidt Thermit Company, New York; Henry Disston Company, Philadelphia; Underfeed Stoker Company of America, Chicago; E. F. Houghton, Philadelphia; Joseph Dixon Crucible Company, Jersey City, N. J.; Cleveland Crane and Engineering Company, Cleveland; Cleveland Twist Drill Company, Cleveland; Hyman Supply Company, New Bern, N. C.; W. S. Tyler Company, Cleveland.

Literature for class work from The American Radiator Company, Philadelphia; American Injector Company, Detroit, Mich.; Bessemer Gas Engine Company, Grove City, Pa.; Dole Valve Company, Chicago; Reading Iron Works, Reading, Pa.; Association of American Portland Cement Manufacturers.

CATALOGUE OF STUDENTS.

GRADUATES.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
ENOS CLARKSON BLAIR, B.S.,	Raleigh,	Agr.
HERMON BURKE BRIGGS, B.E.,	West Raleigh,	M. E.
GEORGE CLEVELAND BUCK, B.A.,	Grimesland, R. 2,	Agr.
EVERETT HANSON COOPER, B.S.,	West Raleigh,	Agr.
HENRY LEON COX, B.S.,	West Raleigh,	Chem.
RICHARD OLIVER CROMWELL,	West Raleigh,	Agr.
CHARLES WEBB DAVIS, A.B.,	Beaufort,	C. E.
JOHN ISAAC HANDLEY, D.V.M.	West Raleigh,	Agr.
THOMAS ROY HART, B.E.,	Monroe,	Tex.
CLAUDE JACQUES HAYDEN, B.S.,	West Raleigh,	Agr.
VERNON RAY HERMAN, B.S.,	West Raleigh,	Agr.
FIELDING PICKLEN JETER, A.M.,	West Raleigh,	C. E.
HARVEY LANGILL JOSLYN, B.S.,	West Raleigh,	Agr.
ROBERT VERNON KNIGHT, B.S.,	Raleigh,	Agr.
SAMUEL GEORGE LEHMAN, B.S.,	West Raleigh,	Agr.
ROWLAND WILLIS LEIBY, B.S.,	Raleigh,	Agr.
JAMES RICHARD MULLEN, B.S.,	West Raleigh,	Chem.
EDGAR BYRON NICHOLS, B.E.,	West Raleigh,	M. E.
ROSCOE EDWARD PARKER, A.B.,	Raleigh,	Agr.
FRANK WILSON PROCTER, B.E.,	Raleigh,	E. E.
JOHN MERCER REEVES, A.B.,	Mount Airy,	Tex.
ARCHIE KNIGHT ROBERTSON, B.S.,	West Raleigh,	Agr.
JAMES BLAINE SCARBOROUGH, A.M.,	West Raleigh,	C. E.
LEON JACOB SCHWAB, B.E.,	Savannah, Ga.,	C. E.
HUBERT ZEIGLER SMITH, A.B.,	West Raleigh,	Chem.
HERBERT SPENCER, B.S.,	West Raleigh,	Agr.
JEFFREY FRANKLIN STANBACK, JR., A.B.,	Raleigh,	Chem.
ERNEST ELWOOD STANFORD, B.S.,	West Raleigh,	Agr.
HERBERT LEE TAYLOR, B.E.,	Baltimore, Md.,	M. E.
WALTER CLYBURN TAYLOR, B.E.,	Fall River, Mass.,	Tex.
JOHN JACKSON WELLS, B.E.,	Rocky Mount,	C. E.
BUXTON WHITE, B.S.,	West Raleigh,	Agr.
JOHN SPICER WILSON, B.E.,	Winston-Salem,	E. E.

SENIOR CLASS.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
CLAUDE SHUFORD ABERNETHY,	Hickory,	M. E.
OLIVER STANHOPE ANTHONY,	Shelby,	Tex.
JOSEPH ALEXANDER ARDREY,	Fort Mill, S. C.,	M. E.
CHARLES VERNON BAKER,	Raleigh,	C. E.
FRED ALLEN BAKER,	Kings Mountain,	E. E.
JERE WILSON BASON,	Sweptsonville,	Agr.
MARVIN EDDLEMAN BEATTY,	Charlotte, R. 29,	C. E.
JOHNNIE SAMUEL BENNETT,	Morehead City,	E. E.
JAMES SHEPHERD BONNER,	Washington,	E. E.
RODNEY LAW BOYLIN,	Wadesboro,	Agr.
CLAY DWIGHT BRITTAIN,	Summerfield,	C. E.
JAMES HEBER BROOKS,	Grifton,	Agr.
RALPH BROOKS,	Alliance,	Agr.
THOMAS WESTMORE BROOKS,	Stem,	M. E.
CLAUDIUS LEROY CARLTON,	Boykins, Va.,	E. E.
JAY VICTOR CHAMPION,	Raleigh,	M. E.
LOUIS GORHAM CHERRY,	Raleigh,	C. E.
CLETE WALTON CLARK,	Troy,	Agr.
JOHN CALHOUN COLLIER, JR.,	Goldsboro,	M. E.
WILLIAM SHAW CORBITT,	Henderson,	M. E.
SHERMAN GRADY CRATER,	Cycle,	Agr.
SIDNEY MOTT CREDLE,	Swan Quarter,	C. E.
CHESTER HANE CROWELL,	Newton,	M. E.
ROBERT VERNON DAVIS,	Fremont,	E. E.
JOHN ALEXANDER FARRIOR,	Raleigh, R. 4,	Agr.
MATTHEW MAURY FONTAINE,	Woodsdale,	E. E.
JOHN ALEXANDER FRAZIER,	Kings Creek,	C. E.
ZEBULON CLIFTON GARDNER,	Shelby, R. 6,	Agr.
AMZI NEALY GOODSON,	Concord,	E. E.
KENNETH LEE GREENFIELD,	Kernersville,	Agr.
ROBERT WILLIAMS HAMILTON, JR.,	Jonesville, S. C.,	Agr.
WILLIAM STEPHEN HAYWOOD,	Mount Gilead,	M. E.
LEONARD ORR HENRY,	Gastonia,	E. E.
EDGAR ALLEN HESTER,	Whiteville,	E. E.
ROBERT HUGH HILL,	Beaufort,	M. E.
RALPH HINTON HODGES,	Washington,	Agr.
THOMAS HALL HOLMES, JR.,	Goldsboro,	E. E.
DEAN RONEY HOLT,	Graham,	M. E.
PAUL NOBLE HOWARD,	Kinston,	C. E.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
JOHN LEBON JENKINS,	Charlotte,	E. E.
SIDNEY EARLE JENNETTE,	Lake Landing,	C. E.
LEANDER BROWNLOW JOHNSON,	Hendersonville,	Chem.
VICTOR ALLISON JOHNSTON,	Mooreville,	Agr.
REX LIVINGSTON KELLY,	Sanford,	E. E.
WOODFORD ARMSTRONG KENNEDY,	Warsaw,	Tex.
WILLIAM PENDLETON KENNEDY,	Warsaw,	E. E.
PAUL HANNER KIME,	Greensboro,	Agr.
ROBERT OPIE LEADAY,	Madison,	Tex.
JAMES WALTER MCLEOD,	Rowland,	Agr.
JOSEPH HENRY MASON,	Charlotte,	Tex.
SHERROD ERVIN MENZIES,	Hickory,	M. E.
JOHN DANIEL MILLER,	New London,	C. E.
TOMMY LEE MILLWEE,	Charlotte,	E. E.
CHARLES ALFRED MOORE,	Kinston,	E. E.
JOHN FRANK NEELY, JR.,	Pineville,	Agr.
DAVID BENJAMIN NOOE,	Pittsboro,	Agr.
REID ALLISON PAGE,	Biscoe,	Agr.
THOMAS CLAYTON PEGRAM,	Asheville, R. 4,	Tex.
JOHN BAILEY PRIDGEN,	Elm City,	C. E.
JACK ADDISON PUREFOY,	Asheville,	Agr.
PARKER ROYALL RAND,	Garner, R. 1,	Agr.
HENRY RANKIN,	Gastonia,	M. E.
LEWIS BANKS RAY,	Graham,	M. E.
DAVID MILLER REA,	Matthews,	C. E.
HUGH CALVIN REA,	Matthews,	Agr.
WALLACE WHITFIELD RIDDICK,	West Raleigh,	C. E.
RAY MILLER RITCHIE,	Concord,	Agr.
PHILIP AUSTIN ROBERTS,	Red Springs,	C. E.
JOHN PAUL ROBERTSON,	Rowland,	Agr.
ZEB BLAINE ROBINSON,	Weaverville,	E. E.
WILLIAM HAYWOOD ROGERS, JR.,	Raleigh,	C. E.
LINDLEY MURRAY ROWE,	Burgaw,	C. E.
AUGUSTINE JOSEPH RUSSO,	Portsmouth, Va.,	C. E.
CLEMENT OSCAR SEIFERT,	New Bern,	C. E.
BROOKS WALKER SETZER,	Troutman,	E. E.
KARL SLOAN,	Statesville,	C. E.
BASCOM PIERCE SMITH,	Guilford College,	M. E.
PAUL ELWOOD SNEAD,	Reidsville,	E. E.
JOHN HENRY SPEAS,	East Bend,	Agr.
WILBUR BURNETTE SUMNER,	Asheville,	E. E.
REUBEN L. TATUM,	Coolemeec,	C. E.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
ALFRED TENNYSON TAYLOR,	McCullers,	Agr.
GROVER WILLIAM UNDERHILL,	Wendell,	Agr.
JACOB OSBORNE WARE,	Kings Mountain,	Agr.
GEORGE HENDERSON WEBB,	Morehead City,	C. E.
LIDEY RAND WELLONS,	Smithfield, R. 1,	Agr.
HARRY GRAVES WHARTON,	Greensboro,	Agr.
JOHN FRANKLIN WILLIAMS,	Bessemer City,	E. E.
PETER MCKELLAR WILLIAMS, JR.,	Fayetteville,	Agr.
HERMAN ELTON WINSTON,	Youngsville,	Tex.
JAMES HARVEY WITHERS, JR.,	Broadway,	Agr.

JUNIOR CLASS.

JOHN WELSFORD ARTZ,	Old Fort,	Agr.
JOHN WILLIAM AVERA,	Smithfield, R. 1,	Agr.
JOHN ROBIN BAUCOM,	Raleigh, R. 2,	Agr.
TYSON YATES BLANTON,	Moorestown,	Agr.
ZEB BOYCE BRADFORD,	Huntersville,	Tex.
WILLIAM STALEY BRIDGES,	Wakefield, R. 1,	M. E.
NOAH BURFOOT, JR.,	Elizabeth City,	Tex.
ALMON HILL CARTER,	Wallace,	Agr.
DaCOSTA MOORE CLARKE,	Asheville,	E. E.
AMBROSE SCHENCK CLINE,	Lincolnton,	Agr.
JAMES WESLEY COOPER,	Henderson,	Tex.
MILTON LEE CORRELL,	Lumberton,	Chem.
FRANCIS EDWIN COXE,	Red Springs,	E. E.
HARRY CRAWFORD,	Waynesville,	E. E.
WILLIAM PRESSLEY DAVIS,	Stovall,	C. E.
ALBERT GEORGE DAY,	Trenton, S. C.,	E. E.
WILLIAM CARTER DODSON,	Greensboro,	Tex.
MYNAR CECIL DONNELL,	Greensboro, R. 4,	Agr.
WILLIAM HENRY ELLIOT,	Thornwall,	Agr.
FREDERICK CARLTON GARDNER,	Rocky Mount,	C. E.
JOHN LEROY GREGSON, JR.,	Elizabeth City,	C. E.
ROBERT VANCE GRINDSTAFF,	Asheville,	M. E.
FRANK JOSHUA HAIGHT,	Balsam,	E. E.
CARL RUSH HARRIS,	Mount Gilead,	Tex.
JOHN FLEMING HARRIS,	Mapleville,	M. E.
ADOLPH THEODORE HARTMANN,	Charlotte,	C. E.
HENRY WADSWORTH HAYWARD,	Mount Gilead,	M. E.
JOHN WADE HENDRICKS,	Cana, R. 2,	Agr.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
BRUCE DUNSTON HODGES,	Washington,	C. E.
EDISON PARKER HOLMES,	North Wilkesboro,	E. E.
EDWARD HOLLAND HOLTON,	Winston-Salem,	Agr.
ROBERT MULLEN HOOPER,	Beaufort,	E. E.
WILLIAM RANSOM HOOTS,	Jennings,	Agr.
FRANK WILLIAM HOWARD,	Bridgeport, Conn.,	C. E.
JOHN ELI IVEY,	Norwood,	Agr.
LONA ALVIN JAYNES,	Fonta Flora,	M. E.
PAUL WORTHY JOHNSON,	Raeford,	Agr.
WALTER MYATT JOHNSON,	Chalybeate Springs,	E. E.
GEORGE HAROLD LAWRENCE,	Wickford, R. I.,	Agr.
JOSEPH LEE, JR.,	Landrum, S. C.,	Agr.
HENRY ALBERT LILLY,	Mount Gilead,	Agr.
JAMES ROBERT McARTHUR,	Greenville, R. 6,	Agr.
ROBERT WISSNER McGEACHY,	Raleigh,	C. E.
JACOB WYATT McNAIRY,	Lincolnton,	E. E.
FRANK COBLE McNEILL,	Cameron,	C. E.
ELBERT McPHEAL,	Red Springs,	Agr.
MARK STRUVE MARTENET,	Acme,	Agr.
WILLIAM EMERY MATTHEWS,	Maxton, R. 4,	C. E.
MORELL BATTLE MAYNARD,	Kerr,	M. E.
GORDON KENNEDY MIDDLETON,	Warsaw,	Agr.
EWING STEPHENSON MILLSAPS, JR.,	Statesville,	Agr.
TODD BOWMAN MISENHEIMER,	Charlotte,	Tex.
SAMUEL JOHN MITCHNER, JR.,	Garner,	M. E.
DANIEL A. MONROE,	Eagle Springs,	E. E.
WILLIAM FOWLER MORRISON,	Wilmington,	Tex.
EDWARD MOSEBY MURRAY,	Charlotte,	Tex.
ZACHARIAH ENNIS MURRELL, JR.,	Wilmington,	Agr.
JAMES CARTER PERRY,	Durants Neck,	M. E.
JULIAN HAWLEY POOLE,	Jackson Springs,	Agr.
WALTER ROSCOE RADFORD,	Cane River,	Agr.
HORACE BASCOMB ROBERTSON,	Asheville,	Tex.
JAMES HENRY ROGERS,	Hurdle Mills,	Agr.
HENRY FRED RUSH,	Raleigh,	Agr.
CHARLES REID RUSSELL,	Denton,	C. E.
DAVID MORTON SAINT SING,	Wise,	M. E.
DAVID FLOYD SASSER,	Goldsboro,	M. E.
WILLIAM KERR SCOTT,	Haw River, R. 1,	Agr.
NATHAN STOWE SHARP,	Waterloo, Iowa,	Tex.
THOMAS PARK SIMMONS,	Asheville,	C. E.
WILLIAM BARNHARD STAINBACK,	Henderson,	Tex.
JOHN ALPHEUS STALLINGS,	Durham, R. 6,	C. E.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
PAUL ERNSCLIFFE STALLINGS,	Concord, R. 6,	Agr.
CHARLES WHITSON STANFORD, JR.,	Teer, R. 1,	Agr.
REUBEN BENNETT STOTESBURY,	Swan Quarter,	Agr.
MICHAEL ALFRED STOUGH,	Cornelius,	Tex.
LOUIS JOSEPH SWINK,	Fentress, Va., R. 2,	Tex.
GURDON LUCIUS TARBOX,	Georgetown, S. C.,	M. E.
ERNEST CRAIG TURNER, JR.,	Mebane,	Agr.
NAPOLEON BONAPARTE TYLER,	Rich Square,	Agr.
LONNIE BASCOM WARD,	Mocksville, R. 2,	E. E.
NATHANIEL WARREN WELDON,	Norlina, R. 1,	Agr.
FRED MURROW WEST,	Wests Mill,	M. E.
DRUID EMMET WHEELER,	Asheville,	Tex.
GEORGE WHITSON,	Swannanoa,	E. E.
JOHN FRANCIS WILLIAMS, JR.,	Charlotte,	Chem.
ROY LEE WILLIAMSON,	Raleigh,	C. E.
LOUIS ERNEST WOOTEN,	Fountain,	C. E.
ROBERT CLEVELAND YOUNG,	Asheville,	Agr.

SOPHOMORE CLASS.

EDWARD ANDREW ADAMS, JR.,	Raleigh,	M. E.
BONYA CLOSSON ALLEN,	Clayton, R. 2,	M. E.
ORLA FINGER ASBURY, JR.,	Charlotte,	E. E.
WILBURN CLEGG AUSTIN,	Indian Trail,	M. E.
GEORGE GANZER AVANT,	Wilmington,	E. E.
LEON WAVERLY BAILEY,	Smithfield,	E. E.
BRUCE CRAYTON BAKER,	Fairmont,	Tex.
GEORGE GARLAND BAKER,	Washington,	M. E.
LOUIS WILLIAM BAKER,	Arlington, N. J.,	E. E.
ROBERT MORISEY BARDEN,	Warsaw,	C. E.
JAMES MONROE BARNHARDT,	Harrisburg, R. 2,	Agr.
PIERRE MCFARLAND BEALER, JR.,	Washington, D. C.,	Agr.
THOMAS AMBROSE BELK,	Mount Holly,	Agr.
FREDERICK NEIL BELL,	Concord,	E. E.
JAY LANG BENBOW,	Oak Ridge,	Agr.
WILMER ZADOCK BETTS,	Raleigh,	C. E.
GEORGE BENJAMIN BLUM,	Reidsville, R. 2,	Agr.
CECIL THEODORE BOST,	Hickory,	M. E.
FREDERICK JONES BOUNDS, JR.,	Weldon,	Tex.
DANA EDGAR BOWEN,	Burgaw,	Agr.
EBENEZER ERSKINE BOYCE,	Gastonia,	Tex.
ARMISTEAD JERMAN BOYD,	Warrenton,	Tex.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
FRANK BISHOP BRINN,	Hertford,	C. E.
BRYCE BENJAMIN BROWN,	Greenville,	E. E.
JESSE HERMAN CHAPPELL,	Rich Square, R. 1,	Agr.
MARSH HUTZLER CHEDESTER,	Asheville,	E. E.
HARPER NICHOLSON CHERRY,	Hendersonville,	Agr.
GILES ASHTON CLUTE, JR.,	Clinton,	Tex.
ROBERT BRICE COCHRAN,	West End,	M. E.
JAMES KIRK COGGIN,	New London, R. 2,	Agr.
DAVID STANTON COLTRANE,	Jamestown,	Agr.
WILLIAM THOMAS COMBS,	Leaksville,	C. E.
CHARLES KEARNEY COOKE, JR.,	Louisburg,	M. E.
GEORGE CHANDLER COX,	Cullowhee,	E. E.
RUSSELL ALEXANDER CROWELL,	Acton,	Agr.
WILLIE ANDERSON DAVIS,	Lucama,	Agr.
PAUL WRIGHT DELANEY,	Matthews, R. 27,	M. E.
MOSES MOORE DEW,	Wilson,	Agr.
WILLIAM SERGEANT DIXON, JR.,	Leasburg,	M. E.
E. MARION DOAR, JR.,	Georgetown, S. C.,	C. E.
FREDERICK EMMETT DUCEY,	Portsmouth, Va.,	Agr.
ALVAH DUNHAM,	White Oak, R. 1,	Agr.
JAMES DAVIDSON EBORN, JR.,	Bath,	Agr.
THOMAS BENJAMIN ELLIOTT,	Sanford, R. 3,	Agr.
WILLIAM HARRY ENTWISTLE,	Rockingham,	Tex.
PAUL BRANDON FLEMING,	Cleveland,	E. E.
LONDON CABELL FLOURNOY,	Charlotte,	E. E.
DANIEL ROBERT STEELE FRAZIER, JR.,	Kings Creek,	C. E.
EDWIN WOOD FULLER,	Raeford,	Tex.
EARLY BAXTER GARRETT,	Burlington, R. 7,	Agr.
BENJAMIN DUKE GLENN,	Greensboro,	Tex.
HARRY PERCY GRIER, JR.,	Statesville,	C. E.
WALTER DURHAM HAMPTON,	Brevard,	E. E.
THOMAS WHEELER HANCOCK, JR.,	Winston-Salem,	Agr.
ABRAM EDGAR HARSHAW,	Murphy, R. 2,	M. E.
JOHN RUBY HAUSER,	North Wilkesboro,	E. E.
EDWIN BYRON HAYNES,	Raleigh,	E. E.
CHARLES ESTES HENDERSON,	Henderson,	E. E.
JAMES ROBERT HERRON,	Charlotte,	E. E.
JOHN MOORE GRAY HICKS,	Wilmington,	Agr.
CLAUD REVERE HORN,	Mocksville,	E. E.
DAVID LUTTERLOH HUNT,	Brevard,	M. E.
JAMES LAWRENCE HUTTON,	Greensboro,	M. E.
JOHN JACOB JACKSON,	Kinston, R. 4,	Tex.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course</i>
SHOBER KEANER JACKSON,	High Point, R. 2,	Agr.
MURRAY GIBSON JAMES,	Springer,	Agr.
CARY JEFFRESS,	Fletcher, R. 1,	M. E.
WILLIAM COOKE JONES,	Raleigh,	M. E.
NOBLE LEWIS JORDAN,	Hendersonville, R. 3,	M. E.
WINFIELD KERR KEETER,	Marion,	E. E.
ROBERT PEARSON KELLY,	Cleveland,	M. E.
LYMAN KISER,	Reepsville,	Agr.
JAMES THOMAS LARKINS, JR.,	Garland,	C. E.
FRANK LEE LASSITER,	Wagram, R. 1,	M. E.
WILLIAM DANIEL LEE,	Asheville,	Agr.
WILLIAM EDWARD LEEPER,	Belmont,	C. E.
ELBERT FRANCIS LEWIS,	Greensboro,	C. E.
ROBERT LINGLE LEWIS,	Gastonia, R. 2,	C. E.
JAMES WILSON McARVER,	Gastonia,	Tex.
ZEB. ARCH MCCALL,	Elrod,	Agr.
JAMES EDGAR MACDOUGALL,	Amesbury, Mass.,	Tex.
NEILL ALEXANDER McEACHERN,	St. Pauls,	Agr.
FRANCIS KELTON MCKOY,	Wilmington,	Agr.
ROBERT EDWARD MADISON,	Webster,	M. E.
CHARLES BRIGGS MALONE,	Providence, R. I.,	M. E.
THOMAS JACKSON MARTIN, JR.,	Pelham,	M. E.
PEYTON HOWARD MASSEY,	Zebulon, R. 2,	Agr.
ELBERT MAXWELL,	Seven Springs,	E. E.
GRATZ BROWN MILLSAPS,	Statesville,	E. E.
EUGENE JAMES MOORE,	Winston-Salem,	Agr.
ED. CRANMER NEWTON,	Southport,	Agr.
JOHN ANDREW NORTHCOTT, JR.,	Winton,	E. E.
HENRY BLOUNT OSBORNE,	Clyde,	Agr.
THOMAS CARTER OSBORNE,	Clyde,	Agr.
WALTER LEAK PARSONS, JR.,	Rockingham,	Tex.
JOSEPH ANDERSON PATRICK,	Lowell, R. 1,	Agr.
ROBERT JAMES PEARSALL,	Dunn,	E. E.
HERBERT FLAVIUS PFAFF,	Tobaccoville,	Agr.
JUNIUS BISHOP POWELL,	Roxobel,	Agr.
WILLIAM WEYMAN PRICE,	Raleigh,	Agr.
FRANK HITCH PRITCHARD,	Swansboro,	E. E.
JOSEPH LUCIUS REED,	Asheville, R. 2,	Agr.
VICTOR ARTHUR RICE,	Southport,	Agr.
WILFRED HEHDON ROBBINS,	Raleigh,	Agr.
JOHN FRANKLIN ROCKETT,	Randleman, R. 1,	E. E.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
JOHN COLE ROSE,	Conway,	Agr.
JAMES MALCOLMSON RUMPLE,	Davidson,	M. E.
WILLIAMSON MARCELLUS RUSS,	Raleigh,	Agr.
DANIEL RUSSELL SAWYER,	Wilmington,	Agr.
ALLEN ERNEST SMITH,	Hope Mills, R. 2,	Agr.
FRANK PAUL SPAULDING,	Bristol, Va.,	C. E.
BEN BRYAN STOCKARD,	Greensboro,	E. E.
JAMES JEFFRIES SYKES,	Charlotte,	E. E.
LESLIE LANCASTER TAYLOR,	Rutherfordton,	Tex.
BEN TEMPLE,	Danville, Va.,	Agr.
JOHN SIMPSON TENNENT,	Asheville,	C. E.
HORACE CARTER THOMAS,	Cheoah,	C. E.
LOUIS DALE THRASH,	Asheville, R. 3,	Agr.
WILLIAM LAWRENCE TREVATHAN,	Rocky Mount,	C. E.
GEORGE BOSTON TROXLER,	Brown Summit,	Agr.
SUADE GOWER WALKER,	Rutherfordton, R. 4,	Agr.
GEORGE SPENCER WARREN,	Wilson,	Agr.
SYLVESTER HASSELL WARREN,	Hurdle Mills, R. 2,	Agr.
JOHN SANFORD WARWICK,	Laurinburg, R. 2,	E. E.
JAMES THADDEUS WEATHERLY,	Greensboro, R. 1,	Agr.
PERCY STANLEY WHITE,	Greensboro,	Agr.
PHILIP CHAFFIN YARBORO,	Osgood,	Agr.
YARO ZENISHEK,	Raleigh,	M. E.

FRESHMAN CLASS.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
ALBERTUS CORBETT ALEXANDER,	Swannanoa,	Agr.
BENNETT SERRILL ARNOLD,	Waynesville,	M. E.
JOSEPH WILSON AUSTIN,	Charlotte,	Agr.
WADE VANCE BAISE,	Pelham, R. 1,	C. E.
DUNCAN PATTERSON BALDWIN,	Ellerbe,	E. E.
PERCY OWEN BARBER,	Goldston,	C. E.
GABRIEL FRANCIS BARBREY,	Clinton,	C. E.
WILBUR BARNES,	Clayton,	Agr.
JOSEPH BRANCH BATCHELOR,	Raleigh,	Tex.
SAMUEL OTTO BAUERSFELD, JR.,	Hamlet,	Agr.
ANDREW WILLIAM BENGTONSON,	Norfolk, Va.,	E. E.
JAMES CYRUS BLACK, JR.,	Harrisburg,	Chem.
HERMAN MARMADUKE BLAKE,	Chadbourn,	M. E.
BALFOUR COWAN BLALOCK,	Norwood,	M. E.
HALBERT JOHNSTON BLUE,	Aberdeen,	Agr.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
GLENN LYON BOBBITT,	Henderson,	M. E.
JOHN HENRY WILLIAM BONITZ,	Wilmington,	C. E.
BARRETT WOODWARD BOULWARE,	Black Mountain,	E. E.
WILLIAM CROSWELL BOWEN,	Raleigh,	Agr.
ROBERT EDWARD BRACKETT,	Nealsville,	Agr.
CLARENCE ANDERSON BRAME,	Kenly,	Agr.
WILLIAM EDWARD BRATTEN,	Princess Anne, Va.,	Agr.
JOHN IRVING BROOKS,	Roxboro,	M. E.
JAMES EDWARD BROWN,	Greensboro,	Agr.
DALLAS MARION BUCHANAN,	Oxford,	Agr.
GEORGE EDWARD BUSH,	Granite Falls,	Tex.
THEODORE JACKSON CALDWELL,	Huntersville,	M. E.
PERCY LISTLE CANADY,	Wilmington,	Tex.
EXUM ANDERSON CHAMBLEE,	Zebulon,	E. E.
HENRY BURDETTE CHAPIN,	Aurora,	Agr.
JOHN FREDERICK CLARK,	Greensboro, R. 3,	Agr.
GEORGE LATTA CLEMENT,	Asheville,	Agr.
JAMES HAROLD CLICK,	Elkin,	Agr.
WILLIAM HENRY CLINARD, JR.,	Winston-Salem,	Tex.
JOHN BAPTISTE CLUTE,	Clinton,	C. E.
ROBERT LAMAR COCHRANE, JR.,	Charlotte,	Tex.
WILLIAM MARION COFFIN,	Greensboro, R. 1,	E. E.
ROBERT STUART COLLINS,	Catharine Lake,	E. E.
CECIL EDWARDS COOKE,	Graham,	Agr.
JOHN RICHARD CORNWELL,	Lincolnton, R. 1,	Agr.
WILLIAM HOWARD CORPENING,	Worry,	Agr.
JONATHAN EVANS COURTNEY,	Fayetteville,	Agr.
GEORGE CLINGMAN CRAWFORD,	Sugar Hill,	Agr.
JOHN ROBINSON CROOM,	Magnolia,	Agr.
WALTER BROOKS CROSS,	Huntersville, R. 20,	Tex.
WILLIAM ROY CUTHBERTSON,	Candler, R. 2,	E. E.
WILLIE JOSIAH DAVID,	Dillion, S. C.,	Agr.
HAROLD WILSON DAVID,	Morganton,	Tex.
JOSEPH JONATHAN DAVIS,	Louisburg,	Tex.
DALTON DENNIS DIXON,	Bessemer City,	E. E.
DREW EDWARD DIXON,	New Bern, R. 2,	Agr.
HUGH WOODY DIXON,	Elkin,	Agr.
LEROY DOCK,	Balsam,	Agr.
WILLIS FRANK DOWD, JR.,	Charlotte,	Tex.
HAROLD STUART DREW,	Union, S. C.,	Chem.
JULIAN CARROL DUNLAP, JR.,	Norwood,	Agr.
JOHN DIXON EDWARDS,	Snow Hill,	Agr.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
LAWRENCE ZOLLIE EGERTON,	Louisburg,	Tex.
CHARLES WESLEY EURE,	Halifax, R. 1,	Tex.
WILLIAM HAYWOOD EKUM,	Stantonsburg,	Agr.
CHARLES JACKSON FETNER,	Hamlet,	M. E.
ARTHUR CRAWFORD FOSTER,	Atlanta, Ga.,	Agr.
FURNEY RUFFIN FOUNTAIN,	Catharine Lake, R. 1,	E. E.
GEORGE WASHINGTON FREDERICK, JR.,	Wilmington,	C. E.
JOHN GATLING,	Raleigh,	E. E.
CARL JACK GOLDSTON,	Goldston,	C. E.
HOWARD HENLEY GORDON,	Raleigh,	Agr.
MYRON GREEN,	Marshville, R. 1,	E. E.
THURMAN MORRIS GREGORY,	Shiloh,	C. E.
JAMIE GRIGGS,	Wadesboro, R. 2,	M. E.
HENRY SPURGEON GROSE,	Loray, R. 1,	Agr.
DENNIS HENRY HALL, JR.,	High Point,	Agr.
LEVIS WILSON HANDLEY,	Raleigh,	Agr.
WILLIAM GUY HARGETT,	Comfort, R. 2,	Agr.
FORREST ELLIOTT HARRELL,	Sunbury,	E. E.
DAVID PAGE HARRIS,	Arden,	Agr.
JAMES SHOFFNER HATHCOCK,	Norwood,	Agr.
JESSE MEACHEM HENLEY,	Guilford College,	Agr.
HARRY LEE HERMAN,	Conover, R. 1,	Agr.
MARVIN BROWN HODGES,	Washington, R. 1,	Agr.
DAVID HENRY HODGIN,	Red Springs, R. 1,	Agr.
WILLIAM HERBERT HODGIN,	Jamestown,	Tex.
ROY LEE HOLLAND,	Winston-Salem, R. 7,	Agr.
SOLOMON LINN HOMEWOOD,	Burlington, R. 1,	Agr.
RAYMOND BRIGHT HOOKER,	Snow Hill, R. 3,	Agr.
HOWARD OBURN HOOPER,	Cullowhee,	Agr.
EKUM BOYD HORTON,	Raleigh,	E. E.
ALVIN HIX HOWELL,	Goldsboro,	C. E.
HILTON HUDNELL,	Washington,	Agr.
ARTHUR LEE HUMPHREY,	Wilmington,	E. E.
HENRY JACKSON HUNT, JR.,	Raleigh,	E. E.
EUGENE CARL JERNIGAN,	Benson,	Agr.
JOHN ALFRED JOHNSTON, JR.,	Weldon,	Agr.
WILLIAM DANIEL JOHNSTON,	Washington,	E. E.
FRED WARD JONES,	Grimesland,	Chem.
WILLIAM NATHANIEL HENRY JONES,	Raleigh, R. 1,	Agr.
CHARLES LESLIE KEERANS, JR.,	Charlotte,	Agr.
JULIAN FAISON KEITH,	Wilmington,	Agr.
CLYDE ALLRED KING,	Greensboro,	Chem.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
FRANK FULLER KING,	Statesville, R. 5,	Agr.
CHARLES DICKERSON KIRKPATRICK,	Charlotte, R. 2,	Agr.
ROBERT ARTHUR KOHLOSS, JR.,	Salisbury,	Chem.
ZACH. TAYLOR KOONCE, JR.,	Comfort,	Agr.
HARRY VANN LATHAM,	Belhaven, R. 1,	Agr.
JOEL BREVARD LAWRENCE,	Statesville, R. 5,	Agr.
CHARLIE RILEY LEONARD,	Lexington, R. 3,	Agr.
JAMES GILMORE LEONARD,	Lexington, R. 1,	E. E.
WILLIE ERNEST LEONARD,	Lexington, R. 3,	Agr.
ARCHIBALD GREGORY LEWIS,	Stovall,	Chem.
ALMON KEMP LINCOLN,	Pittsfield, Mass.,	M. E.
ROBERT FLOYD LIPPARD,	Lincolnton,	Tex.
WILLIAM CAREY LLOYD,	Chapel Hill, R. 3,	Tex.
CLINGMAN BENTON LONG,	Charlotte, R. 8,	M. E.
FORREST BAINIE LONG,	Charlotte, R. 3,	C. E.
PAUL HEDRICK LONG,	Thomasville, R. 3,	E. E.
PAUL THOMAS LONG,	Jackson,	Agr.
ALEXANDER BRYAN McCORMICK,	Rowland,	Agr.
HAMMOND SPRINGS McCOY,	Huntersville, R. 20,	Tex.
RALPH McDONALD,	Raleigh,	Tex.
HOMER ALISON MCGINN,	Charlotte,	Tex.
HARRY GALLAND MCGINN,	Charlotte, R. 3,	Tex.
HAL LYNDON MCKEE,	Sylva,	E. E.
NEILL ARCHIBALD MCKEITHAN, JR.,	Carthage,	C. E.
JOHN DWIGHT MCKEY,	Plant City, Fla.,	C. E.
ALEXANDER ARMSTRONG McLENDON,	Ashton,	E. E.
CARY STAMEY McLEOD,	Jackson Springs,	Agr.
RALPH WHATLEY MALONE,	Goldsboro,	C. E.
BENJAMIN WOODMAN MANIER,	Jacksonville, Fla.,	M. E.
ALLAN CHARLES MARTIN,	Winston-Salem,	Tex.
MELVILLE LEE MATTHEWS,	Henderson,	E. E.
BURTON FORREST MITCHELL,	Shelby,	Tex.
KIZER D. MORGAN,	Middlesex,	Agr.
THEODORE PAGE MORRIS,	Gastonia,	Agr.
ROBERT RAYMOND MORRISON,	Concord,	Agr.
FRANK CARNEY MORROW,	Teer, R. 1,	Agr.
MOSES TYSON MOYE,	Farmville, R. 1,	M. E.
WILLIAM CAREY MURRELL,	Wilmington,	E. E.
JOHN HENRY NEWCOMB,	Charlotte,	E. E.
WILLIAM GRADY NEWELL,	Charlotte,	Agr.
WALTER MOORE NOBLE,	Selma,	M. E.
ARCHIE TILLMAN ODOM,	Gibson, R. 2,	Agr.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
PAUL SHEPARD OLIVER,	Marietta, R. 1,	Agr.
DAVID ADOLPHUS JAMES ORRELL,	Rocky Mount,	E. E.
DWIGHT HENDRICKS OSBORNE,	Greensboro, R. 3,	Agr.
OSCAR ALBERT PAINE,	Statesville, R. 3,	Agr.
GEORGE MASON PARKER,	Woodland,	C. E.
FRANK EDWARD PARROTT,	Creedmoor, R. 1,	Agr.
CLARENCE LEALAND PASOUR,	Dallas,	Agr.
EDWIN PATE,	Laurel Hill,	Agr.
LLOYD GRANT PENNEY,	Elkin,	Chem.
CHARLES FULLER PHILLIPS,	Thomasville, R. 4,	Agr.
ZEB. VANCE POTTER,	Vandemere,	Tex.
JAMES ROBERT PRATT,	Raeform,	M. E.
PALMER WILLIAM PRESSLY,	Bartow, Fla.,	E. E.
WILLIAM HENRY RAGAN, JR.,	High Point,	Chem.
MORRIS SHUFORD RAMSAUR,	Lincolnton,	Agr.
LAWRENCE SAMUEL RANKIN,	Gastonia,	Agr.
JAMES LATHAN REA,	Matthews, R. 27,	Agr.
OWEN TATUM REDWINE,	State Road,	Agr.
OSCAR LAFAYETTE RHODES,	Warsaw,	Tex.
WILLIAM THOMAS RICE,	Wilson,	Agr.
SEBASTIAN SPRUILL RICHARDSON,	Raleigh,	E. E.
GEORGE RANDOLPH ROBINSON,	Rocky Mount,	E. E.
BERNICE UMSTEAD ROSE,	Conway,	Agr.
IRA WOODALL ROSE,	Rocky Mount,	C. E.
WILLIAM IRKSON ROUSE,	Rose Hill, R. 3,	C. E.
HARRY TATEM ROWLAND,	Middleburg,	Tex.
HORACE RALPH ROYSTER,	Shelby,	Tex.
MARION POLK SANFORD,	Stem,	Agr.
GALES WEBB SCROGGS,	Statesville, R. 2,	C. E.
WALTER DUPRE SHIELDS,	Scotland Neck,	Tex.
WALTER LEITH SHUFING,	Morganton,	E. E.
CHARLES BASIL SKIPPER, JR.,	Lumberton,	Tex.
GRAHAM MUNROE SLOAN,	Black Mountain,	Tex.
EDWARD CHAMBERS SMITH, JR.,	Raleigh,	C. E.
JOSEPH WARREN SPENCER,	Fort Caswell,	C. E.
FREDERICK WILLIAM STAUDT, JR.,	Raleigh,	E. E.
HUGH MARTIN STOFFREGEN,	Fredericksburg, Va.,	C. E.
JAMES GRAY STOKES,	Burgaw,	Agr.
THOMAS RODNEY STOVER,	Crouse,	M. E.
FRANK BELLAMY STRAUSS,	Bolton, R. 2,	Agr.
VERNON SUITT,	Durham, R. 4,	E. E.
JACOB NEEKY SUMMERELL,	China Grove, R. 2,	Tex.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
THOMAS BLOUNT SUMNER,	Hertford,	E. E.
WILLIAM WHITMEL SWAIN, JR.,	Henderson, R. 1,	Agr.
CARL TAYLOR,	Wilson,	E. E.
JOHN ROY TAYLOR,	Norwood,	Agr.
ROGER VERNON TERRY,	Danville, Va.,	E. E.
AUGUSTUS BRYAN THRASH,	Asheville,	Tex.
JOSEPH BENTON TURLEY,	Clayton,	Agr.
WILLIAM DANIEL VAN DERBURGH,	Charlotte,	Tex.
WARNER MINNIEWEATHER VERNON,	Raleigh,	Agr.
AUBREY BRYANT WADDELL,	Louisburg,	Tex.
JEW IRVIN WAGONER,	Gibsonville, R. 1,	Agr.
EARL DEWITT WALDIN,	Miami, Fla.,	E. E.
JOHN WALTER WALKER,	Raeford,	Agr.
SAMUEL STANHOPE WALKER,	Martinsville, Va.,	Tex.
ZEB. VANCE WALSER, JR.,	Lexington,	E. E.
GORDON WELLS WARREN,	Durham, R. 7,	Chem.
WILLARD JAVEZ WARREN,	Durham, R. 7,	Agr.
HENRY CARPENTER WARWICK,	Slab Fork, W. Va.,	C. E.
ROBERT EARLE WATSON,	Swan Quarter,	Chem.
ROBERT PHIFER WATSON,	Salisbury, R. 4,	Tex.
HERBERT CARLYLE WEATHERS,	Raleigh,	M. E.
PERRY ARTHUR WEEKS,	Whitakers, R. 4,	Agr.
EARL PARKS WELCH,	Charlotte, R. 7,	Agr.
JAMES ASHBY WHARTON,	Greensboro,	Agr.
THOMAS WILLIAMS WHISNANT, JR.,	Charlotte,	Agr.
THOMAS McALISTER WHITE,	Ramseur,	E. E.
WYATT YELVERTON WHITLEY,	Fremont,	E. E.
B. CUNDIFF WILLIAMS,	Manassas, Va.,	Agr.
HERNAN CLIMER WILSON,	Greensboro,	Tex.
RUFUS DUNLOP WILSON,	Burlington,	C. E.
CHARLES BARKLEY WOOLLEY,	Salisbury,	Agr.
JAMES GARRETT WRAY,	Cane River,	M. E.
WILLIAM THOMAS WRAY,	Wilson,	Tex.
EDWARD KENDALL WRIGHT,	Wilson,	Agr.
PAUL ROBERT YARBROUGH,	Winston-Salem, R. 2,	Agr.
THOMAS GRADY YOUNG,	Micaville,	E. E.

TWO-YEAR COURSES.

First Year.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
FRANK BROWN ALEXANDER,	Charlotte,	Agr.
WILLIAM HENRY ALLEN, JR.,	Louisburg,	Agr.
JOHN LEMON BAILEY, JR.,	Elm City,	Agr.
WILLIAM OTHO BAKER,	Rocky Mount, R. 1,	Agr.
SAMUEL BEHREND, JR.,	Wilmington,	Agr.
JAMES VAN BROWN,	Asheville,	Agr.
OTIS CARSON BROWN,	Rich Square, R. 2,	Agr.
HENRY THOMAS BROWNE,	Woodland, R. 1,	Agr.
JAMES RUSSELL BRUMMITT,	Henderson, R. 4,	Agr.
WILLIAM ALBERTA BURGESS,	Columbus,	M. A.
WILLIE JAMES EVANS,	Burlington,	Tex.
GILES FREDERICK EWING,	Fayetteville,	M. A.
JULIAN ESMUND FINCH,	Bailey, R. 1,	Agr.
CHARLES LEON FOUNTAIN, JR.,	Tarboro, R. 4,	Agr.
JAMES HERBERT GARDNER,	Macon, R. 3,	Agr.
DEWEY EDISON GROOME,	Greensboro, R. 3,	Agr.
EDWARD JOSEPHUS HANSON,	Wilmington,	Agr.
ELLIS RAY HODGIN,	Roanoke, Va.,	Agr.
JOHN ROBERT HOUK,	Morganton, R. 5,	M. A.
ALGERNON LEE HUBBARD, JR.,	Fayetteville,	M. A.
JOHN DAVID HUNTER,	Charlotte,	Tex.
HENRY WOOD JOHNSTON,	Mebane,	M. A.
DAVID LEROY LATHAM,	Surry,	Agr.
DEVAIR CRAVEN LENTZ,	Raeford,	Agr.
FRED HAMPTON LEONARD,	Ramseur,	M. A.
WILLIAM ARTHUR LEWIS,	Biscoe,	Agr.
WILLIAM LESLIE LEWIS,	Raleigh,	M. A.
LOUIE CARLISLE LOFTIS,	Brevard,	M. A.
JOHN BLACK MCAULEY,	Huntersville, R. 21,	Tex.
ROB ROY MCGREGOR,	Laurinburg, R. 1,	M. A.
HOWELL FOSTER MASSEY,	New York, N. Y.,	M. A.
THOMAS MORRILL MEWBORN,	Kinston,	M. A.
JOHN MCDOWELL MICHAL, JR.,	Woodrow,	M. A.
ROBERT JAMES MURPHY,	Greensboro,	Agr.
NOAH STRONG PERRY,	Kinston,	Agr.
WILLIAM EARLE PICKETT,	Efland, R. 1,	M. A.
CLYDE L. RICHARDSON,	Monroe,	Agr.
RAYMOND WHITMORE RIDDICK,	Spring Hill,	Agr.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
MALCOLM ANDREW ROUSSEAU,	North Wilkesboro,	Agr.
EUGENE BRADLEY SIMONS,	Statesville,	Tex.
FRED JENNINGS STANBACK,	Mount Gilead,	Tex.
JOHN HENRY SULLIVAN,	Holyoke, Masa.,	Tex.
VINCENT WRIGHT TABB,	Portsmouth, Va.,	M. A.
MOSES ALSTON TYSON,	Stantonsburg, R. 2,	Agr.
ROBERT BENJAMIN WHELESS,	Louisburg, R. 1,	Agr.
JOSEPH HESTER WHITAKER,	Franklinton,	M. A.
JOSEPH HARRY WHITENER,	Stanley, R. 1,	Agr.
ADAM JACKSON WHITLEY, JR.,	Smithfield, R. 1,	Agr.
WILLIAM REID WILSON,	Stovall, R. 1,	M. A.
EDWIN SNYDER WOODWARD,	Warsaw, R. 2,	M. A.

Second Year.

RAYMOND MOSER BUTNER,	Bethania,	Agr.
WILLIAM HEMAN HALL,	Rose Hill, R. 1,	Agr.
LEWIS MORGAN LEACH,	Thomasville,	Agr.
KENNETH REID LEWIS,	Gastonia, R. 2,	Vet.
CAREY PHARR LOWRANCE,	Mooreville, R. 3,	Agr.
COLIN SHAW MCARTHUR,	Laurinburg,	Agr.
JAMES THOMAS MABRY,	Norwood,	Agr.
EDMUND JORDAN PRUDEN,	Aulander, R. 1,	Agr.
EDWARD LINDSAY SHUFORD, JR.,	Hickory,	Vet.
WILLIAM BOYD TAYLOR,	Soudan, Va.,	M. A.
BRYAN BEATRICE WAGONER,	Whitehead,	M. A.

ONE-YEAR COURSE IN AGRICULTURE.

<i>Name.</i>	<i>Postoffice.</i>
WILLIAM WILCOX BARBER,	Wilkesboro.
PAUL BRYAN BELANGA,	Creswell.
TRADDEUS LAWRENCE BLUE,	Carthage, R. 3.
HARRY LUCAS BROOKS,	Alliance.
HORACE DOWNS CROCKFORD,	Charlotte, R. 5.
ROY CHURCHWELL CROWELL, JR.,	Acton.
JOHN ROWLAND ENGLISH, JR.,	Monroe.
WILLIAM JUSTIN FLOWE,	Harrisburg, R. 2.
ALVIN JOSEPH GAY,	Garysburg, R. 2.
LEONARD EARL HODGES,	Washington.
CALIER ELBERT KEARNS,	Farmer.
HENRY BRIDGERS KENNEDY,	Goldsboro.

<i>Name.</i>	<i>Postoffice.</i>
EARL SETTLEMYRE LIPPARD,	Barium Springs.
GEORGE BALDWIN MCCOY,	Washington, D. C.
PHILBRICK MCCOY,	Washington, D. C.
HAROLD SMOOT MCGILL,	Florence, S. C., R. 2.
WILLIAM LOVE MCINTYRE,	Wilmington.
ERNEST L. QUINCEY,	Merry Hill.
EARL WILSON RHYNE,	Dallas, R. 2.
LESLIE BURFOOT SANDERLIN,	Shiloh.
SETH THOMAS WALTON,	Jacksonville, R. 3.
THOMAS BRICKLE WELDON,	Norlina.

WORK COURSE—AGRICULTURE.

First Year.

WILLIAM FRANKLIN ALBRIGHT,	Waynesville.
NORMAN ALEXANDER,	Liberty, R. F. D.
RUFUS ELLIS ALLEN,	Waynesville.
ROBERT RAY ARLEDGE,	Columbus.
ALVIN STARLING BRIDGES,	Wakefield, R. 1.
JASON LEANDER GILLESPIE,	Calvert.
EMMETT CHARLES HIGSMITH,	Watha, R. 1.
ZEB. VANCE KISER,	Matthews, R. 1.
BART REGAN MELVIN,	White Oak, R. 2.
JOSEPH HERBERT SMITH,	Cornelius.
OLIVER FRANCES TAYLOR,	Ararat, R. 1.
CHARLES HENRY WARREN,	Lenoir.

Second Year.

LEWIS WHITLEY BARTHOLOMEW,	Raleigh, R. 5.
LEROY EATON FREEZOR,	Winston-Salem, R. 1.
SAMUEL WADE FURCHES,	Mocksville, R. 2.
JAMES FLEET HOLIDAY,	Snow Camp, R. 1.
JOHN LLOYD JENKINS,	Gastonia, R. 4.
SAMUEL TATE LATTA, JR.,	Hillsboro, R. 1.
CORAN STEPHEN ROLLINS,	Ellenboro, R. 1.
BLAKE CONWAY WELLS,	Canton, R. 2.
VAN CARSON WELLS,	Canton, R. 2.

SPECIAL.

<i>Name.</i>	<i>Postoffice.</i>	<i>Course.</i>
JAMES LAFAYETTE FOY,	Pollocksville,	C. E.

WINTER COURSES.

Agriculture.

<i>Name.</i>	<i>Postoffice.</i>
CARL CORNELIUS BARGER,	Salisbury, R. 6.
LUTHER BOWMON BARRIER,	Mount Pleasant, R. 1.
BYRON BIZZELL,	Newton Grove, R. 2.
REECE EDWARD BROWN,	Charlotte, R. 12.
ROBERT WALTER COLE,	Carbonton.
FRANK MONROE DAVIS,	Edgar.
GEORGE COLUMBUS DEES,	Grantsboro.
FRANCIS BRUNER EFIRD, JR.,	Winston-Salem.
HARVEY WILSON FARLOW,	Randleman, R. 3.
JONAS RICHARD FUTRELL,	Conway, R. 1.
ANDREW MORTIMER GARDNER,	Nashville, R. 2.
JAMES SWINDELL HALL,	Wilmington, R. 2.
HOUSTON TAILOR HIGHFILL,	Mayodan, R. 1.
JAMES GRAHAM LANE,	Auburn.
NEWTON CARVER LEE,	Newton Grove, R. 2.
WALTER AVERA LILES,	Zebulon, R. 1.
HARRY LENOX LUBIN,	New York, N. Y.
CHARLES PAYNE MASON,	Pinehurst.
VERNE GOODMAN MOSER,	Asheville, R. 1.
LOUE NUSSMAN,	Mount Pleasant.
JOSEPH ANDERSON PATRICK,	Lowell, R. 1.
ORLANDO REDIC POLLARD,	Tarboro.
FRANK RAY RAILEY,	Margarettsville.
FRANK STONE SPRATT,	Charlotte, R. 3.
BENJAMIN DAVID STEPHENSON,	Pendleton.
GEORGE RALPH STRICKLAND,	Middlesex, R. 2.
HAYWOOD RALSTON THOMPSON,	Milton, R. 1.
FRED WILKISON TILSON,	Mars Hill.
ALLISON WILLIAM TRUST,	East Arcadia.

GRADUATE VETERINARIANS.

MOORE B. BLACKSTOCK,	Spartanburg, S. C.
THOMAS R. BRITT,	Newton Grove, R. 1.
J. F. FOLEY,	Kinston.
WILLIAM ISAAC HOBBS,	Clinton.
T. E. JAGO,	Athens, Ga.
ALBERT CARL JONES,	High Point.
WILLIAM HENRY KERN,	Winston-Salem.

<i>Name.</i>	<i>Postoffice.</i>
MILTON M. LEONARD,	Asheville,
TIMOTHY ARCHIE MONK,	Goldsboro.
JULIUS ISAAC NEAL,	Sanford.
ROY H. PARKER,	Gastonia.
REDDING STANCILL SUGG,	Washington.

SUMMER TERM IN AGRICULTURE.

First Year.

<i>Name.</i>	<i>Postoffice.</i>
ALLIE BRYAN COMBS,	Bryson City.
JACKSON HAMILTON,	Pineville.
JOSEPH P. HARRIS,	Middleburg.
FRED IRVIN HOWARD,	Abbotsburg.
SADIE JUNIUS HUSKETH,	Durham, R. 3.
HOWARD HOFFMAN MCKEOWN,	Mocksville.
HILLIARD JOSHUA MASSEY,	Severn.
LYCURGUS ELISHA MAUNEY,	Murphy.
THOMAS LEWTER REVELLE,	Conway.
HERBERT SCHOLZ,	Macon.
CLARENDON RIVERS SPENCER,	Whiteville.
CHARLES HOUSTON UTLEY,	Apex.
EMILY HUNT WALKER,	Raleigh.

Second Year.

ARTHUR VANCE COLE,	Durham.
JERRY DAY,	Blowing Rock.
MARCUS BAXTER DRY,	Cary.
JAMES HUTCHINS,	Hoffman.
ELIHU PINCKNEY MENDENHALL,	Monroe, R. 5.

SUMMER SCHOOL FOR DEMONSTRATION AGENTS.

August, 1915.

<i>Name.</i>	<i>Postoffice.</i>	<i>County.</i>
C. R. HUDSON,	Raleigh,	Wake.
T. E. BROWNE,	West Raleigh,	Wake.
A. K. ROBERTSON,	West Raleigh,	Wake.
E. S. MILLSAPS,	Statesville,	Iredell.
T. D. MCLEAN,	Aberdeen,	Moore.
R. W. FREEMAN,	Wilson,	Wilson.

<i>Name.</i>	<i>Postoffice.</i>	<i>County.</i>
J. P. KERR,	Haw River,	Alamance.
E. C. TURNER,	Mebane,	Alamance.
J. W. CAMERON,	Polkton,	Anson.
R. K. CRAVEN,	Abbotsburg,	Bladen.
J. F. LATHAM,	Surry,	Beaufort.
R. T. MELVIN,	Supply,	Brunswick.
E. D. WEAVER,	Weaverville,	Buncombe.
A. J. BLANKENSHIP,	Yanceyville,	Caswell.
H. H. B. MASK,	Newton,	Catawba.
R. L. EDWARDS,	Ore Hill,	Chatham.
J. D. FLETCHER,	Fayetteville,	Cumberland.
R. M. GIDNEY,	Shelby,	Cleveland.
G. M. GOFORTH,	Lenoir,	Caldwell.
R. D. GOODMAN,	Concord,	Cabarrus.
J. J. HENDREN,	Chadbourn,	Columbus.
J. W. SEARS,	Vanceboro,	Craven.
L. C. GILSTRAP,	Murphy,	Cherokee.
E. D. BOWDITCH,	Hayesville,	Clay.
M. R. MCGIRT,	Durham,	Durham.
J. B. STEELE,	Lexington,	Davidson.
D. J. MIDDLETON,	Warsaw,	Duplin.
ZENO MOORE,	Whitakers,	Edgecombe.
JOHN A. BOONE,	Franklinton,	Franklin.
BRUCE ANDERSON,	Winston-Salem,	Forsyth.
E. H. ANDERSON,	Greensboro,	Guilford.
B. P. FOLK,	Gastonia,	Gaston.
J. A. MORRIS,	Oxford,	Granville.
J. E. MEWBORN,	Snow Hill,	Greene.
T. L. BROWN,	Waynesville,	Haywood.
R. N. LOOPER,	Raeford,	Hoke.
N. B. STEVENS,	Scotland Neck,	Halifax.
J. A. PATTERSON,	Airlie,	Halifax.
W. H. TURLINGTON,	Duke,	Harnett.
E. L. PERKINS,	Hendersonville,	Henderson.
G. E. DULL,	Statesville,	Iredell.
W. C. BOONE,	Kinston,	Lenoir.
J. H. HENLEY,	Sanford,	Lee.
W. L. SMARR,	Lincolnton,	Lincoln.
M. A. BENNETT,	Jackson Springs,	Montgomery.
J. A. BOONE, JR.,	Aberdeen,	Moore.
R. C. BARRETT,	Carthage,	Moore.
J. R. SAMS,	Marshall,	Madison.

<i>Name.</i>	<i>Postoffice.</i>	<i>County.</i>
A. L. SILER,	Franklin,	Macon.
J. L. HOLLIDAY,	Williamston,	Martin.
R. W. GRAEBER,	Charlotte,	Mecklenburg.
W. R. BAILEY,	Marion,	McDowell.
J. P. HERRING,	Wilmington,	New Hanover.
E. P. JOSEY,	Nashville,	Nash.
P. C. WILLIAMS,	Chapel Hill,	Orange.
F. A. BROWN,	Roxboro,	Person.
G. H. HIGHSMITH,	Currie,	Pender.
B. T. FERGUSON,	Greenville,	Pitt.
G. W. FALLS,	Elizabeth City,	Pasquotank.
G. W. BYARS,	Hamlet,	Richmond.
L. E. BLANCHARD,	Lumberton,	Robeson.
W. B. CRUMPTON,	Salisbury,	Rowan.
I. H. FAUST,	Ashboro,	Randolph.
F. S. WALKER,	Reidsville,	Rockingham.
S. J. LENTZ,	Norwood,	Stanly.
W. P. HOLT,	Danbury,	Stokes.
J. A. TURLINGTON,	Salemburg,	Sampson.
MCDONALD DAVIS,	Clinton,	Sampson.
J. W. JOHNSON,	Mount Airy,	Surry.
T. J. W. BROOM,	Monroe,	Union.
S. R. BIVENS,	Henderson,	Vance.
F. B. NEWELL,	Warrenton,	Warren.
O. O. DUKES,	Wilson,	Wilson.
W. H. CHAMBLEE, JR.,	Zebulon,	Wake.
A. G. HENDREN,	Straw,	Wilkes.
J. C. DOBBINS,	Marler,	Yadkin.
F. E. PATTON,	Burnsville,	Yancey.

SUMMARY.**By Classes.**

Graduate.....	33
Senior.....	91
Junior.....	88
Sophomore.....	127
Freshman.....	220
Short Courses:	
Agricultural, 2 years.....	34
Mechanic Arts, 2 years.....	19
Textile, 2 years.....	6
Agricultural, 1 year.....	22
Agricultural, work, 2 years.....	21
Veterinary, 2 years.....	2
Agricultural, winter, 4 weeks.....	29
Graduate Veterinary, winter, 1 week.....	12
Summer School.....	18
Special.....	1
Total.....	723

By Courses.

Agricultural, including short courses in agriculture and veterinary science.....	367
Chemical.....	17
Civil Engineering.....	76
Mechanical Engineering, including Mechanic Arts.....	83
Electrical Engineering.....	103
Textile, including short courses.....	77
Total.....	723
Summer School for Demonstration Agents.....	77

TWENTY-SIXTH ANNUAL COMMENCEMENT.

MAY 25, 1915.

DEGREES CONFERRED.

BACHELOR OF SCIENCE.

In Agriculture.

Joseph Brandon Bruner,
Guy Winston Commander,
Rutledge Hughes Field,
Peter Melvin Gilchrist,
John Hubbard Hall, Jr.,
Russell Peyton Harris,
Vernon Ray Herman,
Herndon Hopkins,
John Stewart Howard,
Waverly Fletcher Kilpatrick,
Robert Vernon Knight,
Irvin Tracy Lewis,

Jesse Webb Lindley,
Robert Timberlake Newcomb,
John Gay Pinner,
Carl Clawson Proffitt,
Charles Landon Proffitt,
John Duncan Ray,
Walter Johnston Smith, Jr.,
Herbert Spencer,
Daniel McGilvary Tate,
Arthur Lee Teachey,
Jesse Ernest Trevathan,
Buxton White.

In Chemistry.

Henry Bacon Constable,

Frederick Carl Wiggins.

William Victor Pearall,

BACHELOR OF ENGINEERING.

In Civil Engineering.

John Cline Carpenter,
John William Cox,
Dallas Thornton Dally,
Leonidas Polk Denmark,
Charles Patterson Eldridge,
Harry Benjamin Henderlite,

Henry Kollock Witherspoon.

Joseph Raoul Leguenee,
Karl Osborne,
William Owen Potter,
Joseph McKay Spears,
James Hugh Ward,
John Rodman Williams,

In Electrical Engineering.

Henry Milton Alexander,
John Mann Carter,
Raymond Crowder,
Aaron Conard Fluck,

Will Miller Watson.

Henry Mercer Harshaw,
George Linwood Jeffers,
Donald Grattan McArn,
Landon Coats Rosser,

In Mechanical Engineering.

Beverly Moss Blount,
Edward Lamar Cloyd,
Edward Livingston Cotton,
William King Eldridge,
William Benjamin Foster,
Frank Temple Gray,

Forrest Egan Wyzong.

David Lee Hooper,
Frank Kipp Kramer,
William Daniel Martin,
Asa Gray Phelps,
Frank Wilson Procter,
Charles Wright Weaver,

In Textile Industry.

Lewis Carroll Atkinson.

James Holmes Haddock,
Whiteford Ingersoll Smith.

MASTER OF SCIENCE.

In Agriculture.

Harry Curtis Young.

In Chemistry.

Fleming Bates Sherwood.

CIVIL ENGINEER.

Thomas Fenner Gibson,

Guy Francis Hinshaw,
John Franklin Ziglar.

MECHANICAL ENGINEER.

John William Harrelson,

Rufus Williams Hicks, Jr.,
Fred Barnett Wheeler.

ELECTRICAL ENGINEER.

Frank Curtis Michael.

TEXTILE ENGINEER.

Lovic Rodgers Gilbert.

HONORS.

HONORS IN SCHOLARSHIP.

For Four Years.

J. C. Carpenter,
R. H. Feild,

A. C. Fluck,
F. K. Kramer,
W. D. Martin,

H. Spencer,
B. White.

FOR 1914-1915.

Senior Class.

J. C. Carpenter,
J. W. Cox,
R. H. Feild,
A. C. Fluck,
J. H. Hall, Jr..

R. P. Harris,
H. B. Henderlite,
J. S. Howard,
F. K. Kramer,
W. D. Martin.

J. D. Ray,
H. Spencer,
J. E. Trevathan,
B. White,
F. C. Wiggins.

COMMENCEMENT

Junior Class.

J. V. Champion,
S. G. Crater,
K. L. Greenfield,
R. W. Hamilton, Jr.,
E. K. Herman,
R. H. Hodges,

D. R. Holt,
R. O. Lindsay,
J. H. Mason,
J. D. Miller,
J. B. Pridgen,
H. Rankin,

L. B. Ray,
R. M. Ritchie,
K. Sloan,
P. E. Sneed,
G. W. Underhill,
J. O. Ware,

Sophomore Class.

A. S. Cline,
J. E. Ivey,

F. S. Klutts,
W. E. Matthews,
G. K. Middleton,

W. W. Riddick,
W. K. Scott.

Freshman Class.

W. Z. Betts,
J. K. Coggin,

G. C. Cox,
R. L. Hayes,

B. B. Stockard,
Y. Zenishek.

Two-Year Courses.**FIRST-YEAR AGRICULTURAL.**

R. M. Butner,

C. P. Lowrance.

FIRST-YEAR VETERINARY.

K. R. Lewis.

Honors for Punctuality.

J. W. Bason,
J. F. Clark, Jr.,
A. S. Cline,
J. K. Coggin,
S. M. Credle,
H. W. Davis,
L. E. Feesor,
S. W. Furches,

R. L. Kelly,
P. H. Kime,
J. T. Larkins, Jr.,
J. D. Miller,
T. B. Misenheimer,
J. A. Patrick,
J. B. Pridgen,
Z. B. Robinson,
C. S. Rollins,

G. C. Self,
T. P. Simmons,
P. J. Steele,
R. L. Tatum,
J. M. Walker,
B. C. Wells,
V. C. Wells,
J. F. Williams.

MEDALS AWARDED.**Medal of National Association of Cotton Manufacturers.**

W. I. Smith.

Oration Medal.

A. L. Teachey.

REGISTER OF ALUMNI.

<i>Names.</i>	<i>Degree.</i>	<i>Address.</i>
DURANT STEWART ABERNETHY, Assistant Engineer, Southern Railway.	B.E. 1906,	Charlottesville, Va.
LEROY FRANKLIN ABERNETHY, Abernethy Hardware Company.	B.Agr. 1905,	Hickory, N. C.
NELSON ADAMS, Farmer.	B.E. 1904,	McColl, S. C.
HAYWOOD LEWIS ALDERMAN, Division Superintendent in Operating Department, Southern Power Co.	B.E. 1904,	Greensboro, N. C.
HENRY MILTON ALEXANDER, Cadet U. S. Military Academy.	B.E. 1915,	West Point, N. Y.
KEMP ALEXANDER, Superintendent Acme Hosiery Mills.	B.E. 1900,	Ashboro, N. C.
NEILY ORMOND ALEXANDER, Farmer.	B.S. 1912,	Matthews, N. C., R. 17.
WILLIAM DAVIDSON ALEXANDER, JR., Civil and Drainage Engineer, and Engineer Drainage Commission.	B.S. 1899,	Charlotte, N. C.
DANIEL ALLEN, Farming and Real Estate.	B.S. 1896,	Raleigh, N. C.
GEORGE GILDEROY ALLEN, Overseer of Carding, Gibson Mfg. Co.	B.E. 1906,	Concord, N. C.
LESLIE LYLE ALLEN, Cotton Merchant.	B.E. 1900,	Spartanburg, S. C.
ROBERT WILSON ALLEN, Superintendent of Schools.	B.E. 1893,	Monroe, N. C.
LEWIS ALLEN AMMON, Farmer, Tucson Indian Training School.	B.S. 1913,	Escuela, Ariz.
CHARLES SIDNEY ANDREWS, Draftsman with Fore River Shipbuilding Corporation.	B.E. 1914,	Quincy, Mass.
GRAHAM HUDSON ANTHONY, With Gilbert Clock Co.	B.E. 1914,	Winsted, Conn.
JOHN CAMILLUS APP, Director Hygienic Laboratory, City Department of Health.	B.S. 1908,	Charleston, W. Va.
JOHN ALLEN AREY, M.S., 1910. Assistant in Dairying, U. S. Department of Agriculture.	B.S. 1909,	Elmwood, N. C.
GILBERT LUTHER ARTHUR, JR.,	B.S. 1913,	Morehead City, N. C.
DORSEY FROST ASBURY, Ordnance Engineer, U. S. Ordnance Co.	B.S. 1898,	Washington, D. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
GEORGE PAGE ASBURY, Engineer, Draftsman, Southern Railway.	B.E. 1906,	Washington, D. C.
SAMUEL ERSON ASBURY, M.S. 1896. Assistant State Chemist.	B.S. 1893,	College Station, Tex.
SYDNEY WOODWARD ASBURY, Heating Engineer and Architectural Draftsman, with Louis H. Asbury, Architect.	B.E. 1904,	Charlotte, N. C.
THOMAS MARTIN ASHE,†	B.E. 1895,	Raleigh, N. C.
LEWIS CARROLL ATKISSON, With Durham Cotton Mfg. Co.	B.E. 1915,	East Durham, N. C.
BASCUM OTTO AUSTIN, Engineer for Gilbert O. White, C.E.	B.E. 1914,	Charlotte and Durham, N. C.
ROBERT JAMES AVERY, Avery Brothers, Railroad Contractors.	B.Agr. 1905,	Morganton, N. C.
ROBERT KENNETH BABINGTON, Superintendent of Plant, Piedmont Telephone and Telegraph Co.	B.E. 1910,	Gastonia, N. C.
CHARLES ALBION BACHE, With C. W. Bache Eng. Co.	B.E. 1913,	Merritt, Fla.
OSCAR LUTHER BAGLEY, Assistant Ticket Agent.	B.S. 1905,	Goldsboro, N. C.
EUGENE CLEVELAND BAGWELL, President's Assistant, Seaboard Air Line Railway.	B.E. 1904,	Norfolk, Va.
CLARE RUSSELL BAILEY, With LaGrange Packing Co. of Titusville, Fla.	B.S. 1914,	Chadbourn, N. C.
EDWARD PAR BAILEY, President Wilmington Iron Works and President Marine Railway Co.	B.E. 1904,	Wilmington, N. C.
HUGH MARCELLUS BAILEY, Farmer.	B.S. 1914,	Woodleaf, N. C.
ROGER MOORE BAILEY, Bookkeeper for John L. Bailey.	B.S. 1913,	Elm City, N. C.
WILLIAM BAILEY, With Yadkin River Power Company.	B.E. 1911,	Cheraw, S. C.
FRANK OSCAR BALDWIN, Director of Settling Basins and Laboratory, Richmond City Waterworks.	B.S. 1908,	Richmond, Va.
WILLIAM HERBERT DOUGHTY BANCK, Civil Engineer.	B.E. 1909,	Wilmington, N. C.
IRA WILSON BARBER, Superintendent Electric Light and Power Plant and Waterworks.	B.S. 1899,	Mount Airy, N. C.
JAMES CLAUDIUS BARBER, Farmer.	B.E. 1904,	Barber, N. C.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
TOLLIE CHESTER BARBER, With Cliffside Mills.	B.E. 1911,	Cliffside, N. C.
WILLIAM WALTON BARBER, Farmer.	B.E. 1904,	Barber, N. C.
FLETCHER HESS BARNHARDT, Assistant Engineer, the Phoenix Bridge Co.	B.E. 1901,	Phoenixville, Pa.
WILLIAM ALEXANDER BARRETT, Electrical Engineer, Missoula Light and Water Co.	B.E. 1904,	Missoula, Montana.
GEORGE FRANCIS BASON, Student, Cornell University.	B.E. 1908,	Ithaca, N. Y.
HERBERT SCANDLIN BATTIE, With W. C. Spiker, Con. Eng.	B.E. 1907,	Atlanta, Ga.
THOMAS LEVINGSTON BAYNE, JR., Agriculturist and Principal Lillington Farm Life School.	B.S. 1914,	Lillington, N. C.
JOHN MANN BEAL, M.S. 1913, Miss. A. & M. Prof. of Botany and Forestry, Miss. Agricultural and Mechanical College. Plant Pathologist for Miss. Agr. Exp. Station.	B.S. 1911,	Agr. College, Miss.
JAMES CLAUDIUS BEAVERS, Associate in Soils and Crop Extension, Purdue Agricultural Exp. Station.	B.Agr. 1906,	Lafayette, Ind.
SIDNEY HAMILTON BECK,*	B.S. 1898,	Washington, D. C.
JOHN LELAND BECTON, C.E. 1913. Civil Engineer.	B.E. 1908,	Wilmington, N. C.
HARWOOD BEEBE, Pilot Valuation Dept., Southern Ry. Co.	B.E. 1908,	Aquadale, N. C.
CHARLES EDWARD BELL, Assistant Food Chemist, N. C. Department of Agriculture.	B.S. 1911,	Raleigh, N. C.
NEEDHAM ERIC BELL, Soil Surveyor, State of Alabama.	B.S. 1906,	Montgomery, Ala.
WILLIAM OSBORNE BENNETT, Manager Elba Manufacturing Co.	B.E. 1901,	Maxton, N. C.
ROBERT LINN BERNHARDT, Secretary-Manager Salisbury Hardware and Furniture Co.	B.S. 1900,	Salisbury, N. C.
LESLIE GRAHAM BERRY, Manager Southern Engineering Co.	B.E. 1900,	Charlotte, N. C.
HERMAN VON BIBERSTEIN, Draftsman, New Orleans, Mobile and Chicago Railroad.	B.E. 1914,	Laurel, Miss.
JOHN HENDERSON BIRDSONG, Chief Chemist and Metallurgist, the National Malleable Castings Co.	B.S. 1899,	Chicago, Ill.
JOE PITTMAN BIVENS,* Member of firm of Michael & Bivens, Electrical Construction.	B.E. 1907,	Charlotte, N. C.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES ADRIAN BIZZELL, M.S. 1900. Ph.D. 1903, Cornell Univ. Prof. Soil Technology, N. Y. State College of Agriculture.	B.S. 1895,	Ithaca, N. Y.
FRED McCULLOUGH BLACK, Erecting Department, Westinghouse Electric and Manufacturing Co.	B.E. 1910,	East Pittsburgh, Pa.
KENNETH LEON BLACK, Pres. and Treas. K. L. Black & Co., Inc., Engineers and General Contractors.	B.E. 1906,	Richmond, Va.
WILLIAM LAMAR BLACK, With Southern Power Co.	B.E. 1908,	Charlotte, N. C.
ENOS CLARKSON BLAIR, Assistant Agronomist in Soils, N. C. Agricultural Experiment Station.	B.S. 1914,	West Raleigh, N. C.
BEVERLEY MOSS BLOUNT, Newport News Shipbuilding and Dry Dock Co.	B.E. 1915,	Newport News, Va.
JOHN ISHAM BLOUNT, C.E. 1897. J. I. Blount & Co. and the Blount Specialty Co.	B.E. 1895,	Birmingham, Ala.
WILLIAM MORTON BOGART,* Contracting Engineer, General Fire Extinguisher Co. of Texas.	B.E. 1903,	Dallas, Tex.
ALLISON HODGES BOND, Draftsman, Ordnance Dept., Bethlehem Steel Co.	B.E. 1912,	Bethlehem, Pa.
THOMAS SAWYER BOND, With International and Great Northern Railway. Home Address, Windsor, N. C.	B.E. 1910,	Palestine, Tex.
LESLIE NORWOOD BONEY, Architect.	B.E. 1903,	Goldsboro, N. C.
FRED. WILHELM BONITZ, Lawyer, Engineering Department of Standard Oil Co.	B.E. 1901,	Wilmington, N. C.
HENRY EMIL BONITZ, Architect.	B.E. 1893,	Wilmington, N. C.
WILLIAM DAVID BOSEMAN, Farmer, with R. H. Ricks.	B.E. 1902,	Rocky Mount, N. C.
ZOLLY MOSBY BOWDEN, Electrician, Coranet Phosphate Co.	B.E. 1901,	Lakeland and Plant City, Fla.
EDWIN DENNIS BOWDITCH, Agent Farmers' Coöperative Demonstration Work.	B.S. 1913,	Hayesville, N. C.
ROY BOWDITCH, Assistant, Transformer Testing Department, General Electric Co.	B.E. 1910,	Pittsfield, Mass.
ALAN THURMAN BOWLER, Secretary Chamber of Commerce.	B.E. 1912,	Raleigh, N. C.
ASA GRAY BOYNTON, Civil Engineer, Biltmore Estate.	B.E. 1908,	Biltmore, N. C.
CARL RAY BRADLEY, Motor Engineering Department, Wagner Electric Manufacturing Co.	B.E. 1910,	St. Louis, Mo.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES WASHINGTON BRAWLEY, Vice-President and Treasurer Real Estate and Trust Co.	B.S. 1895,	Greensboro, N. C.
JOHN BENJAMIN BRAY, Highway and Municipal Engineer.	B.E. 1911,	Raleigh, N. C.
VICTOR WINFRED BREEZE, Assistant, Office of Wm. M. Piatt.	B.E. 1914,	Durham, N. C.
THOMAS JOHNSON BREVARD,*	B.S. 1910,	Fair View, N. C.
CHARLES MEEKINS BRICKHOUSE, Teacher of Agriculture at Wakelon Farm Life School.	B.S. 1914,	Zebulon, N. C.
HERMON BURKE BRIGGS, Instructor, N. C. College of Agriculture and Mechanic Arts.	B.E. 1913,	Raleigh, N. C.
BENJAMIN ALEXANDER BROOM, Consulting Mechanical and Electrical Engineer.	B.E. 1905,	Sioux City, Iowa.
CECIL DEWITT BROTHERS, With New Jersey Zinc Co.	B.E. 1909,	New York, N. Y.
BEDFORD JETHRO BROWN, Superintendent Meter Department, Southern Power Co.	B.E. 1901,	Charlotte, N. C.
CLAYTON EDWARD BROWN, Masonry Inspector, Southern Ry.	B.E. 1912,	Fair Forest, S. C.
FRANK HAMILTON BROWN, Teacher of Science and Agriculture, Cullowhee Normal and Industrial School.	B.Agr. 1908,	Cullowhee, N. C.
JOEL EDWARD BROWN, One Smith Co.	B.S. 1911,	Grimes, Cal.
JAMES HOWARD BROWN, M.S. 1912. D.V.M., Kansas City Veterinary College. County Secretary Y. M. C. A., Jackson County, Kansas.	B.S. 1911,	Holton, Kas.
WILLIAM BACHMAN BROWN, Interstate Commerce Commission, Railway Valuation.	B.E. 1911,	Glass, N. C.
JOSEPH BRANDON BRUNER, Agriculturist, American Beet Sugar Co.	B.S. 1915,	Oxnard, Cal.
STEPHEN COLE BRUNER, Assistant Pathologist, Estacion Agronomica de Cuba.	B.S. 1912,	Santiago de las Vegas, Cuba.
THOMAS KINCAID BRUNER, Chief Clerk to Master Mechanic, Southern Railway.	B.E. 1910,	Sheffield, Ala.
CARNEY JOHN BRYAN, C. J. Bryan & Co., Wholesale Fish Dealers.	B.E. 1907,	St. Andrews, Fla.
GUY KEDAR BRYAN,	B.E. 1911,	Tampa, Fla.
JOHN HARVEY BRYAN, M.E. 1913. Sales Dept., Westinghouse Electric and Mfg. Co.	B.E. 1908,	East Pittsburgh, Pa.
KIT BRYAN, Surveyor, Bureau of Lands.	B.E. 1911,	Manila, P. I.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JAMES RAMSEY BUCHANAN, Westinghouse Electric and Mfg. Co.	B.E. 1914,	Pittsburgh, Pa.
ELTON EREY BUCK, City Engineer's Office.	B.E. 1910,	Bridgeport, Conn.
JOSEPH SAMUEL BUFFALOE, Physician.	B.S. 1897,	Garner, N. C.
HARLEY WILSON BULLARD, Cotton Grading Work, N. C. Agricultural Experiment Station.	B.S. 1914,	West Raleigh, N. C.
JOEL W. BULLOCK, Farmer.	B.Agr. 1905,	Dabney, N. C., R. 1.
WALTER AUSTIN BULLOCK, Farmer.	B.S. 1895,	Red Springs, N. C.
JAMES HARRY BUNN, Superintendent Henderson Cotton Mills and Crostan Spinning Mills.	B.E. 1900,	Henderson, N. C.
WILLIAM BRYANT BURGESS, Electrical Draftsman, Government Navy Yard, Norfolk.	B.E. 1908,	Portsmouth, Va.
WILLIAM ANDERS BUYS, Civil Engineer, the Interstate Cooperage Co.	B.E. 1906,	Belhaven, N. C.
VON PORTER BYRUM, Chief Engineer, Fort Lauderdale Ice and Electric Co.	B.E. 1911,	Fort Lauderdale, Fla.
BRICE LEGRIER CALDWELL, With Atlas Powder Co.	B.S. 1913,	Senter, Mich.
ROBERT OLIN CALDWELL, Farmer.	B.S. 1914,	Concord, R. 1, N. C.
WALTER GRAHAM CALDWELL, Dairyman for Walnut Hill Dairy.	B.S. 1914,	Raine, Tenn.
LINDSAY FERGUSON CARLETON, Sales Engineer H. W. Johns-Manville Co.	B.E. 1907,	Pittsburgh, Pa.
JOHN CLINE CARPENTER, Civil Engineer, S. A. L. Ry.	B.E. 1915,	Portsmouth, Va.
JOHN SAMUEL P. CARPENTER, Quarantine Inspector, Federal Horticultural Board. Home Address, Cherryville, N. C.	B.E. 1903,	Boston, Mass.
JOHN WILLIAM CARROLL, Physician.	B.S. 1897,	Wallace, N. C.
JOHN MANN CARTER, Electrician, DuPont Powder Co.	B.E. 1915,	Petersburg, Va.
ROBERT HILL CARTER, Chief Electrician, Cerro De Pasco Mining Co.	B.E. 1907,	La Fundicion, Peru, S. A.
HENRY BROZIER CARTWRIGHT, Assistant Engineer, Seaboard Air Line Ry.	B.E. 1905,	Jacksonville, Fla.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HENRY ROY CATES, U. S. Department of Agriculture, Bureau of Plant Industry. Office of Forage Crop Investigations.	B.S. 1911,	Washington, D. C.
JUNIUS SIDNEY CATES, M.Agr. 1904. Agriculturist, Office of Farm Management, United States Department of Agriculture.	B.S. 1902,	Washington, D. C.
WILLIAM MILLER CHAMBERS, Pay Roll Man, W. M. Ritter Lumber Co.	B.E. 1905,	Maben, W. Va.
MARK HOPKINS CHESBRO, Horticulturist, Bankhead Orchard Co., Ltd.	B.Agr. 1906,	Kelowna, B. C.
CONNOR CALHOUN CLARDY, Los Angeles Office, General Electric Co.	B.E. 1906,	Los Angeles, Cal.
CHARLES EDWARD CLARK, Assistant Director Edgcombe Test Farm.	B.S. 1897,	Rocky Mount, N. C.
DAVID CLARK, M.E. 1896; C. E. 1897. Owner and Editor <i>Southern Textile Bulletin</i> .	B.E. 1895,	Charlotte, N. C.
JAMES DUNCAN CLARK, President Peninsular Paper Co. Manager Ingleside Orange Groves.	B.S. 1906,	Tampa, Fla.
JOHN WASHINGTON CLARK, B.E. (Tex.) 1907. Superintendent Erwin Bleaching and Finishing Plant.	B.E. 1906,	West Durham, N. C.
THORNE MCKENZIE CLARK, Secretary and Treasurer, Commercial Bldg. Co.	B.E. 1909,	Raleigh, N. C.
WALTER CLARK, JR., LL.B. 1905, University of North Carolina. LL.M. 1906, George Washington University. Lawyer.	B.E. 1903,	Raleigh, N. C.
WILLIAM ALEXANDER GRAHAM CLARK, M.E. 1899. Commercial Agent U. S. Department of Commerce.	B.S. 1897,	Boston, Mass.
SAMUEL HERBERT CLARKE,	B.E. 1906,	Richmond, Va.
HENRY CALEB CLAY, Ranchman.	B.E. 1911,	Eagle Butte, Mont.
WILEY THEODORE CLAY, With C. V. York, Builder.	B.E. 1906,	Raleigh, N. C.
AMOS BAXTER CLEMENT, Testing Department, Westinghouse Electric and Manufacturing Co.	B.E. 1913,	Pittsburgh, Pa.
WILLIAM RANDOLPH CLEMENTS, Engineering Salesman, Westinghouse Electric and Mfg. Co.	B.E. 1913,	Cincinnati, Ohio.
EDWARD LAMAR CLOYD, Instructor in Physics and Mathematics, Lenoir High School.	B.E. 1915,	Lenoir, N. C.
EDWIN LACY COBLE, Member Firm J. L. O'Quinn Co., Florists.	B.S. 1914,	Raleigh, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT BAXTER COCHRAN, Chief Inspector, Bullock	B.E. 1902,	Norwood, Ohio. Electric Manufacturing Co.
ANSON ELIKEM COHOON, Forest Supervisor, Forest Service, U. S. Department of Agriculture.	B.S. 1898,	Portland, Oregon.
JOHN ELIOT COIT, Professor of Citriculture and Semitropical Pomology, University of California.	B.Agr. 1903,	Berkeley, Cal.
THOMAS ALEXANDER COLE, Farm Demonstrator, Moore County.	B.S. 1913,	Carthage, N. C.
PAUL COLLINS, Analytical and Consulting Chemist.	B.S. 1901,	New Haven, Conn.
GUY WINSTON COMMANDER, Real Estate.	B.S. 1915,	Elizabeth City, N. C.
HENRY BACON CONSTABLE, Chemist Refuge Cotton Oil Co.	B.S. 1915,	Vicksburg, Miss.
JOHN DOWNIE COOPER, JR., Superintendent Harriet Cotton Mills No. 3, Henderson, N. C.	B.E. 1913,	Henderson, N. C.
GEORGE WASHINGTON CORBETT, JR., Saw, Planing and Grist Mills.	B.E. 1895,	Currie, N. C., R. 2.
SUMMEY CROUSE CORNWELL, Cornwell-Hedleston Co., Consulting Engineers.	B.E. 1903,	Hickory, N. C.
CHARLES EDWARD CORPENING, Farmer and Lumber Dealer.	B.E. 1894,	Lenoir, N. C., R. 3.
EDWARD LIVINGSTON COTTON, Supervisor Nitric Acid Area, DuPont Powder Co.	B.E. 1915,	City Point, Va.
LLEWELLYN HILL COUCH, Superintendent Electrical Construction, E. I. duPont de Nemours & Co.	B.E. 1908,	Parlin, N. J.
WALTER MILLER COWLES, Automobile Service Department, Westinghouse Electric and Mfg. Co.	B.E. 1909,	Pittsburgh, Pa.
DAVID COX, Civil Engineer and Timber Dealer and Estimator.	B.E. 1894,	Hertford, N. C.
DAVID DAVIES COX, Assistant to Testing Engineer, Tenn. Coal, Iron and R. R. Co.	B.E. 1914,	Ensley, Ala.
DUNCAN ARCHIBALD COX, Manager Hub Hardware Co.	B.S. 1906,	Rowland, N. C.
JOHN WILLIAM COX, Aid, Bureau of Standards, U. S. Government.	B.E. 1915,	Pittsburgh, Pa.
SAINT JOHN COX, Assistant Testing Engineer, Tenn. Coal, Iron and R. R. Co.	B.E. 1914,	Ensley, Ala.
LELAND MIOT CRAIG, Draftsman, Phoenix Bridge Co.	B.E. 1914,	Phoenixville, Pa.
WILLIAM PESCUD CRAIG,	B.S. 1901,	Marion, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOHN BENNETT CRAVEN, Chemist, Peoples Gas, Light and Coko Co.	B.S. 1913,	Chicago, Ill.
WILLIAM LOIS CRAVEN, Engineer and Contractor.	B.E. 1901,	Concord, N. C.
CHARLES LESTER CREECH, Sales Manager, J. C. Spach Wagon Works.	B.S. 1903,	Winston-Salem, N. C.
WOODFIN GRADY CREDLE, Farmer.	B.S. 1914,	Swan Quarter, N. C.
ALEXANDER DOANE CROMARTIE, Farmer.	B.Agr. 1906,	Garland, N. C.
WILLIAM HENRY CROW, Electrician with Aluminum Co. of America.	B.E. 1910,	Whitney, N. C.
RAYMOND CROWDER, Graduate Student, Westinghouse Elec. and Mfg. Co.	B.E. 1915,	Wilkinsburg, Pa.
CHARLES LEE CRUSE, Veterinarian.	B.S. 1912,	Statesville, N. C.
FELIX GRAY CRUTCHFIELD,* Salesman, Atlantic Refining Co., Cleveland, Ohio.	B.E. 1901,	Winston-Salem, N. C.
EUGENE ENGLISH CULBRETH, With Commercial National Bank.	B.E. 1903,	Raleigh, N. C.
HUGH MCCOLLUM CURRAN, Department of Agriculture.	B.S. 1898,	Washington, D. C.
LISTON LLOYD DAIL, Chemist, Tennessee Coal, Iron and Railroad Co.	B.S. 1913,	Ensley, Ala.
DALLAS THORNTON DAILY, Civil Engineer, Seaboard Air Line Ry.	B.E. 1915,	Portsmouth, Va.
EDWIN SPEIGHT DARDEN, Farmer; Bookkeeper for Stantonburg Supply Co.	B.S. 1895,	Stantonburg, N. C.
WALTER LEE DARDEN, Engineer of Buildings, Seaboard Air Line Railway.	B.E. 1903,	Portsmouth, Va.
JOSEPH FRANK DAVIDSON, Assistant Director in Charge State Test Farm.	B.E. 1909,	Pedro Miguel, C.Z., Pan.
SAMUEL FREDERICK DAVIDSON, Assistant Director in Charge State Test Farm.	B.S. 1914,	Swannanoa, N. C.
GEORGE MASLIN DAVIS, Draftsman, Mechanical Engineer's Office, N. & W. Ry.	B.E. 1901,	Roanoke, Va.
PAUL DEXTER DAVIS, District Traffic Chief, Southern Bell Telephone and Telegraph Co.	B.E. 1913,	Raleigh, N. C.
WILLIAM EARLE DAVIS, Clerk Connelly Mineral Springs Hotel.	B.E. 1910,	Connelly Sprgs., N. C.
WILLIAM HURD DAVIS, With E. I. duPont de Nemours Powder Co.	B.E. 1911,	City Point, Va.
WILLIAM KEARNEY DAVIS, Superintendent Marion Manufacturing Co.	B.E. 1895,	Marion, S. C.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
CLAUD COUNCIL DAWSON, With S. W. Cramer.	B.E. 1908,	Charlotte, N. C.
THOMAS THEODORE DAWSON, With New Bern Veneer and Panel Co.	B.E. 1910,	New Bern, N. C.
RALPH CAMPBELL DEAL, Virginia-Western Power Co.	B.E. 1912,	Clifton Forge, Va.
WILLIAM SAMUEL DEAN, Assistant in Cotton Testing Office of Markets and Rural Organization, U. S. Department of Agriculture.	B.E. 1909,	Washington, D. C.
LEONIDAS POLE DENMARK, Draftsman for R. I. Poole, C.E.	B.E. 1915,	Raleigh, N. C.
ERNEST COFIELD DERBY, City Engineer.	B.E. 1912,	Burlington, N. C.
LOUIS REINHOLD DETJEN, N. C. Agricultural Experiment Station.	M.S. 1911,	West Raleigh, N. C.
EDWIN SEXTON DEWAR, Assistant Chemist, North Carolina Department of Agriculture.	B.S. 1911,	Raleigh, N. C.
JOSEPH CHARLES DEY,*	B.S. 1895,	Norfolk, Va.
JUNIUS FRANKLIN DIGGS, Planter and Merchant.	B.S. 1903,	Rockingham, N. C.
ARCHIE JAY DOOLITTLE, Westinghouse, Church, Kerr & Co., Engineers, of New York City.	B.E. 1914,	Passaic, N. J.
CARLTON O'NEAL DOUGHERTY, Farmer.	B.E. 1909,	North, S. C.
MCNEELY DU BOSE, Civil and Electrical Engineer, Catawba Valley Light and Power Co.	B.E. 1912,	Morganton, N. C.
FRED. ATHA DUKE, Assistant Engineer, Seaboard Air Line Railway.	B.E. 1909,	Portsmouth, Va.
JAMES LEONIDAS DUNN, County Agent, U. S. Department of Agriculture.	B.S. 1910,	Brunswick, Ga.
ALVIN DEANS DUPREE, Grant Clerk, Office of Secretary of State.	B.E. 1908,	Raleigh, N. C.
RAYMOND ROWE EAGLE, Civil Engineer.	B.E. 1908,	New Bern, N. C.
MINNIC LUTHER EARGLE, Principal, Clemmons Farm Life and High School.	B.Agr. 1908,	Clemmons, N. C.
JOHN IVEY EASON, Farmer.	B.S. 1911,	Stantonsburg, N. C.
JACOB TATUM EATON, †	B.Agr. 1907,	Farmington, N. C.
WILLIAM HUNT EATON, Dairy Experimentalist, N. C. Experiment Station.	B.S. 1909,	West Raleigh, N. C.

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LATTA VANDERION EDWARDS, O. E. 1911, Cornell Univ. Washington State College.	B.E. 1906,	Pullman, Wash. Prof. of Railroad and Highway Engineering, Washington State College.
CHARLES PATTERSON ELDRIDGE, Draftsman, Newport News Shipbuilding and Dry Dock Co.	B.E. 1915,	Newport News, Va.
SEBA ELDRIDGE, Organizer, Committee on the Federal Constitution. Problem Series for D. Appleton & Co.	B.E. 1907,	New York, N. Y. Editor Community
TIMOTHY ELDRIDGE, Superintendent Electric Light Plant and Waterworks.	B.E. 1904,	Mount Olive, N. C.
WILLIAM KING ELDRIDGE, Draftsman, Newport News Shipbuilding and Dry Dock Co.	B.E. 1915,	Newport News, Va.
THEOPHILUS THOMAS ELLIS, Farmer.	B.E. 1903,	Henderson, N. C.
WELDON THOMPSON ELLIS, M.E. 1908. Associate Professor of Machine Design and Applied Mechanics, N. C. College of Agriculture and Mechanic Arts.	B.E. 1906,	West Raleigh, N. C.
LEE BORDEN ENNETT, Superintendent of County Public Schools, and Farmer.	B.S. 1895,	Cedar Point, N. C.
ALBERT EDWARD ESCOTT, Secretary and Treasurer, The Mill News.	B.E. 1906,	Charlotte, N. C.
WILLIAM CARLYLE ETHERIDGE, M.S. 1908; Ph.D. (Cornell) 1915. Professor of Agronomy in University of Florida.	B. Agr. 1906,	Gainesville, Fla.
EARL MONTIER EVANS, American Aluminum Co.	B.E. 1913,	Badin, N. C.
BENJAMIN BRYAN EVERETT, M.S. 1912, University of Wisconsin.	B. Agr. 1907,	Palmyra, N. C. Farmer.
JAMES BECKETT EWART, Inspector, Western Electric Co.	B.E. 1906,	Harthorne Station, Chicago, Ill.
RALPH RINGGOLD FAISON, Arms Inspector, Remington Arms Co.	B.S. 1909,	Bridgeport, Conn.
WILLIAM ALEXANDER FAISON, Superintendent Atlantic Steel Castings Co.	B.E. 1909,	Chester, Pa.
ARCHIE ARRINGTON FARMER, Electrical Engineer.	B.E. 1914,	Wilson, N. C.
ISAAC HERBERT FARMER, Right of Way Engineer, Seaboard Air Line Railway.	B.E. 1908,	Portsmouth, Va.
JAMES WILLIAM FARRIOR, Physician.	B.E. 1904,	Kenansville, N. C.
WILLIAM DOLLISON FAUCETTE, C. E. 1910. Chief Engineer, Seaboard Air Line Railway.	B.E. 1901,	Norfolk, Va.
ISAAC HENRY FAUST, County Demonstrator, Randolph County.	B.E. 1895,	Rainseur, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOHN BARTLETT FEARING, JR., Chemist, E. I. duPont de Nemours Co.	B.S. 1914,	Hopewell, Va.
ALEXANDER LITTLEJOHN FEILD, Junior Physical Chemist, U. S. Bureau of Mines.	M.S. 1914,	Pittsburgh, Pa.
RUTLEDGE HUGHES FEILD, Manager, Brushy Mountain Orchard Co.	B.S. 1915,	Taylorsville, N. C.
BENJAMIN CAREY FENNELL, M.E. 1909. Engineer and Contractor. Southern Representative Nordberg Manufacturing Co., Milwaukee, Wis.	B.S. 1898,	Atlanta, Ga.
JAMES LUMSDEN FEREBEE, First Assistant to T. Chalkley Hatton, Consulting Engineer.	B.E. 1902,	Milwaukee, Wis.
PERCY BELL FEREBEE, Transitman, U. S. Forest Service.	B.E. 1913,	Andrews, N. C.
BENJAMIN TROY FERGUSON, Farmer and Manager, Dr. S. H. Crocker.	B.Agr. 1908,	Stantonsburg, N. C.
JOHN DANIEL FERGUSON,†	B.E. 1903,	Bladenboro, N. C.
JOHN LINDSAY FERGUSON, Mechanical and Electrical Draftsman, Panama Canal.	B.E. 1907,	Paraiso, Canal Zone.
KARL McATEE FETZER, General Railway Signal Co.	B.E. 1914,	Rochester, N. Y.
NEVIN GOULD FETZER,†	B.S. 1912,	Concord, N. C.
WALTER GOSS FINCH, Junior Engineer, U. S. Engineer Department.	B.E. 1905,	New Bern, N. C.
WILLIAM WALTER FINLEY, Proprietor Win Wilkes Farm.	B.Agr. 1904,	Charlottesville, Va.
DANIEL BURNIE FLOYD, Inspector, Bethlehem Steel Co.	B.E. 1913,	Buffalo, N. Y.
FRANK FULLER FLOYD, Vice-President and Sales Manager, Jellico Coal Mining Co.	B.E. 1893,	Knoxville, Tenn.
AARON CONARD FLUCK, Apprentice, General Railway Signal Co. Home Address, Lexington, N. C.	B.E. 1915,	Brooklyn, N. Y.
FRANK LINDSAY FOARD, Farmer.	B.S. 1909,	Salisbury, N. C., R. 7.
JAMES FONTAINE, Electrical Machinist, U. S. Navy Yard, Washington, D. C.	B.E. 1914,	Bladensburg, Md.
RUFUS EUGENE FORBIS, M.E. 1913. Draftsman, Peter S. Gilchrist, Consulting Engineer.	B.E. 1910,	Charlotte, N. C.
HUGH PIERCE FOSTER,†	B.E. 1903,	Person County.
SHIRLEY WATSON FOSTER, Entomologist and Manager Insecticide Department, General Chemical Co.	B.Agr. 1906,	San Francisco, Cal.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WILLIAM BENJAMIN FOSTER, With Harward & Mees Co., Builders.	B.E. 1915,	Portsmouth, Va.
GEORGE WASHINGTON FOUSHEE, Secretary and Treasurer, Dicks Laundry Co.	B.E. 1904,	Greensboro, N. C.
ELIAS VAN BUREN FOWLER, Farmer.	B.E. 1907,	Horse Shoe, N. C., R. 1.
ROSCOE LOOMIS FOX, Broker.	B.E. 1909,	Kansas City, Mo.
FRANCIS MARION FOY,†	B.S. 1899,	Scott's Hill, N. C.
JAMES ROSCOE FRANCK, Farmer.	B.S. 1914,	Richlands, N. C.
CHARLES DUFFY FRANCKS, Superintendent Holt-Morgan Graded Schools.	B.E. 1893,	Fayetteville, N. C.
GEORGE STRONACH FRAPS, Ph.D. Johns Hopkins Univ. State Chemist of Texas. Chemist Texas Experiment Station. Chemist Texas Feed Control.	B.S. 1896,	College Station, Tex.
ELMO VERNON FREEMAN, E.E. 1913. Power Engineer, Westinghouse Electric Manufacturing Co.	B.E. 1911,	Philadelphia, Pa.
PERCY LEIGH GAINNEY, M.S. 1910. Soil Bacteriologist, Kansas Agricultural Experiment Station.	B.Agr. 1908,	Manhattan, Kas.
EDGAR WILLIAM GAITHER,*	B.S. 1904,	Philadelphia, Pa.
JAMES JERVEY GANTT, Masonry Inspector, Southern Railway Co.	B.E. 1910,	Concord, N. C.
JUNIUS TALMAGE GARDNER, Railway Mail Service.	B.E. 1908,	Shelby, N. C.
OLIVER MAX GARDNER, Lawyer.	B.S. 1903,	Shelby, N. C.
CLEMENT LEINSTER GARNER, United States Coast and Geodetic Survey.	B.E. 1907,	Washington, D. C.
LEWIS PRICE GATTIS, City Passenger and Ticket Agent, A. C. L. Railway.	B.E. 1909,	Charleston, S. C.
JOHN GEORGE HARVEY GEITNER, JR., With Marlboro Cotton Mills.	B.E. 1914,	McColl, S. C.
EDWARD MOORE GIBBON, City Engineer for South Jacksonville, and Division Engineer for J. B. McCreary Co., Engineers, Atlanta, Ga.	B.E. 1893,	Jacksonville, Fla.
NICHOLAS LOUIS GIBBON, General Hardware, Building Material and Auto Specialties.	B.S. 1897,	Southern Pines, N. C.
SETH MANN GIBBS, Resident Engineer, Seaboard Air Line Railway.	B.E. 1908,	Savannah, Ga.
THOMAS FENNER GIBSON, C.E. 1915. Chief Draftsman, Standard Oil Co.	B.E. 1912,	Shanghai, China.

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LAMAR CARSON GIDNEY,* Superintendent Lighting Department, City of High Point.	B.E. 1903,	High Point, N. C.
RICHARD F. GIERSCH, JR., Engineer, Comstock Elec. Co.	B.E. 1912,	High Point, N. C.
LOVIC RODGERS GILBERT, T.E. 1915. Superintendent Caraleigh Mills Co.	B.E. 1907,	Raleigh, N. C.
PETER MELVIN GILCHRIST, Farmer.	B.S. 1915,	Laurinburg, N. C.
RALPH ALLISON GILL, Engineering Department, Southern Power Co.	B.E. 1914,	Charlotte, N. C.
RANSOM EATON GILL,†	B.E. 1910,	Raleigh, N. C.
ROY JOSEPH GILL, With U. S. Land Office, Field Division.	B.E. 1907,	Washington, D. C.
GEORGE WILLIAM GILLETTE, Claim Agent, Tidewater Power Co.	B.E. 1911,	Wilmington, N. C.
MAURICE MORDECAI GLASSER, Proprietor Standard Electric Co. and M. M. Glasser Electric and Mfg. Co.	B.E. 1908,	Charleston, S. C.
JOHN HOWARD GLENN,†	B.E. 1903,	Crowder's Creek, N. C.
CHARLES WILLIS GOLD, Treasurer Jefferson Standard Life Insurance Co.	B.S. 1895,	Greensboro, N. C.
MOSES HENRY GOLD, Division Engineer, Seaboard Air Line Railway.	B.E. 1908,	Savannah, Ga.
ROY DURANT GOODMAN, Farm Demonstrator, Cabarrus County.	B.S. 1913,	Concord, N. C., R. 2.
CICERO FRED GORE, Assistant to Superintendent and Engineer Highways, Halifax County.	B.E. 1913,	Weldon, N. C.
ALBERT SIDNEY GOSS,* With Brett Engineering and Contracting Co.	B.E. 1909,	Wilson, N. C.
JOHN DAVID GRADY, Farmer.	B.Agr. 1908,	Seven Springs, N. C., R. 1.
ROBERT WALTER GRAEBER, County Agent Farmers' Coöperative Demonstration Work.	B.S. 1911,	Charlotte, N. C.
WILLIAM HAYWOOD GRAHAM, JR., District Traffic Chief, Southern Bell Telephone and Telegraph Co.	B.E. 1912,	Macon, Ga.
ROBERT STRICKLER GRAVES, District Meter Specialist, General Electric Co.	B.E. 1907,	Cincinnati, Ohio.
CHARLIE POOL GRAY,*	B.E. 1909,	Avon, N. C.
FRANK TEMPLE GRAY, Draftsman for Southern Bell Telephone Co.	B.E. 1915,	Charlotte, N. C.

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
GEORGE PENDER GRAY,*	B.S. 1893,	Tarboro, N. C.
JAMES MILLER GRAY,	B.S. 1910,	Cullasaja, N. C.
	Farmer.	
STERLING GRAYDON,	B.E. 1905,	Charlotte, N. C.
	President and Superintendent	Atherton Mills.
ANDREW HARTSFIELD GREEN, JR.,	B.S. 1909,	Raleigh, N. C.
	With Commercial National Bank.	
MARION JACKSON GREEN,	B.S. 1896,	Charlotte, N. C.
	Pattern-maker, the Cole Manufacturing Co.	
ARTHUR WYNNS GREGORY,	B.S. 1906,	Shanghai, China.
	Sales Manager, Wuhu Office, British-American Tobacco Co.	
PAUL STREWALT GRIERSON,	B.E. 1904,	New York, N. Y.
	Chief Draftsman, Charles Cory & Son.	
WILLIAM HENRY GRIFFIN, JR.,	B.E. 1914,	Goldsboro, N. C.
	Junior Member, W. H. Griffin & Son, Coal and Wood Dealers.	
JOSEPH PERRIN GULLEY, JR.,	B.E. 1904,	Norfolk, Va.
	Traveling Salesman, Woodhouse Electric Co.	
EMIL GUNTER,†	B.E. 1903,	Tallahassee, Fla.
WINSTON PAYNE GWATHMEY,	B.E. 1913,	Richmond, Va.
	City Draftsman.	
JAMES HOLMES HADDOCK,	B.E. 1915,	Stonewall, Miss.
	Accountant's Assistant, Stonewall Cotton Mills.	
DORSEY YATES HAGAN,	B.E. 1908,	Greensboro, N. C.
	Surveyor.	
FELIX STANTON HALES,	B.E. 1913,	Ithaca, N. Y.
	Student Cornell University. Home Address, Wilson, N. C.	
CHARLES GANZER HALL,	B.E. 1913,	Taunton, Mass.
	With Whittenton Manufacturing Co.	
JOHN HUBBARD HALL, JR.,	B.S. 1915,	Mount Olive, N. C.
	Farming for J. A. Westbrook.	
HORACE LESTER HAMILTON,	B.E. 1906,	New York, N. Y.
	Advertising Manager, The Fairbanks Co.	
WILLIAM ROY HAMPTON,	B.S. 1909,	Plymouth, N. C.
	Owner firm of W. H. Hampton & Son, Inc., Merchants and Bankers.	
LEROY CORBETT HAND,	B.E. 1913,	Chadbourn, N. C.
	Vice-President Chadbourn Hardware Co.	
JOHN ISAAC HANDLEY,	B.S. 1914,	Charlotte, N. C.
	Veterinarian.	
SAMUEL MERRILL HANFF,	B.S. 1900,	Wadesboro, N. C.
	Episcopal Clergyman.	

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOHN FREDERICK HANSELMAN, Proprietor the Central Garage.	B.E. 1906,	Waverly, Va.
GEORGE ROM. HARDESTY, Chief Engineer, State Hospital.	B.E. 1907,	Goldsboro, N. C.
PHILIP WILLIAM HARDIE, Engineer.	B.E. 1907,	Greensboro, N. C.
JARVIS BENJAMIN HARDING, C.E. 1909. Civil Engineer.	B.E. 1904,	Greenville, N. C.
ROBERT MCKENZIE HARDISON, Southern Power Co.	B.E. 1912,	Charlotte, N. C.
NATHAN DAVID HARGROVE, Manager A. W. Hargrove, Paints and Wall Papers.	B.S. 1912,	Richmond, Va.
RICHARD HUGH HARPER, With Gwyn-Harper Manufacturing Co.	B.S. 1905,	Patterson, N. C.
GEORGE ROLAND HARRELL, With Grasselli Chemical Co.	B.S. 1900,	Grasselli, N. J.
JOHN WILLIAM HARRELSON, M.E. 1915. Assistant Professor of Mathematics, N. C. College of Agriculture and Mechanic Arts.	B.E. 1909,	West Raleigh, N. C.
CEBURN DODD HARRIS, Ferguson, Scott & Harris, Fire Insurance.	B.S. 1897,	Anchorage, Ky.
GORDON HARRIS, E.E. 1914. Lighting Engineering Department, General Electric Co.	B.E. 1909,	Schenectady, N. Y.
RUSSELL PEYTON HARRIS, Farming.	B.S. 1915,	Louisburg, N. C.
THOMAS DEVIN HARRIS, Engineer and Surveyor.	B.E. 1911,	Oxford, N. C., R. 3.
WILLIAM HENRY HARRISS, M.E. 1896. Textile Broker.	B.E. 1895,	New York, N. Y.
HENRY MERCER HARSHAW, Electrician, DuPont Co.	B.E. 1915,	City Point, Va.
THOMAS ROY HART, Traveling Erector of Machinery for Draper Co. Home Address, Monroe, N. C.	B.E. 1913,	Hopedale, Mass.
HARRY HARTSELL, Undertaker.	B.E. 1912,	Charleston, S. C.
JOHN HARVEY, JR., Student, University of North Carolina.	B.E. 1914,	Chapel Hill, N. C.
FRANK HAWKS, Draftsman, Atlantic Coast Line R. R.	B.E. 1910,	Wilmington, N. C.
EDMUND BURKE HAYWOOD, Assistant to Commissioner of Public Works and City Engineer.	B.E. 1910,	Raleigh, N. C.
THOMAS FREDERICK HAYWOOD,†	B.E. 1909,	Trenton, N. C.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
JOKTAN LAFAYETTE HEMPHILL, Engineer, General Electric Co.	B.E. 1907,	Schenectady, N. Y.
HARRY BENJAMIN HENDERLITE, Salesman, The Mosler Safe Co. of Hamilton, Ohio. Home Address, Raleigh, N. C.	B.E. 1915,	Atlanta, Ga.
LEONARD HENDERSON,	B.E. 1909,	Salisbury, N. C.
MAURICE HENDRICK, Overseer Spinning, Cliffside Mills.	B.E. 1908,	Cliffside, N. C.
VERNON RAY HERMAN, With N. C. Agricultural Experiment Station.	B.S. 1915,	West Raleigh, N. C.
LAWRENCE JAMES HERRING, Veterinarian. D.V.S., Kansas City Veterinary College.	B.Agr. 1907,	Wilson, N. C.
JERE. ISAAC HERRITAGE, Civil Engineer, John L. Roper Lumber Co.	B.E. 1905,	Jacksonville, N. C.
THOMAS JASPER HEWITT, Junior Engineer, U. S. Engineering Department.	B.E. 1913,	New Bern, N. C.
CLARENCE WILSON HEWLETT, M.A., Ph.D., Johns Hopkins. James Buchanan Johnston Scholar, Johns Hopkins University.	B.E. 1906,	Baltimore, Md.
RUFUS WILLIAMS HICKS, JR., M.E. 1915. Mechanical Engineer, Workmen's Compensation Service Bureau.	B.E. 1910,	New York, N. Y.
BASCOMBE BRITT HIGGINS, M.S. 1910; Ph.D. 1913, Cornell University. Botanist, Georgia Agricultural Experiment Station.	B.S. 1909,	Experiment, Ga.
LYDA ALEXANDER HIGGINS, Agent in Dairying, Dairy Division, U. S. Department of Agriculture.	B.S. 1910,	Starkville, Miss.
RILEY WEAVER HIGGINS, Farmer.	B.S. 1913,	Riceville, Tenn., R. 6.
JAMES ALLAN HIGGS, JR., C.E. 1910. Member Firm, Higgs & Peckinpaugh, Engineers-Contractors.	B.E. 1906,	Knoxville, Tenn.
JERE. EUSTIS HIGHSMITH, Farmer.	B.S. 1897,	Parkersburg, N. C.
DANIEL HARVEY HILL, JR., Associate Editor, Southern Textile Bulletin.	B.S. 1909,	Charlotte, N. C.
DAVID RAYMOND HINKLE, Overseer Carding, Milstead Mills.	B.E. 1911,	Milstead, Ga.
GUY FRANCIS HINSHAW, C.E. 1915. Hinshaw & Zigler, Civil Engineers.	B.E. 1907,	Winston-Salem, N. C.
GEORGE HERBERT HODGES, Superintendent Kyle Mine, H. C. Frick Coke Co.	B.E. 1904,	Fairchance, Pa.
EDGAR ALLAN HODSON, B.S. (A. P. I.) 1911. Instructor in N. C. College of Agriculture and Mechanic Arts.	M.S. 1914,	West Raleigh, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LABAN MILES HOFFMAN, JR., Cashier Bank of Dallas.	B.E. 1905,	Dallas, N. C.
WILLIS ASKEW HOLDING, College of Agriculture and Experiment Station, University of Tennessee.	B.S. 1912,	Knoxville, Tenn.
CHARLES BOLLING HOLLADAY,	B.E. 1893,	Wilmington, Del.
PETER ARMSTRONG HOLT, Office Clerk, L. Banks Holt Manufacturing Co.	B.S. 1913,	Graham, N. C.
WILLIAM NORMAN HOLT, Traveling Salesman, The Texas Co.	B.E. 1907,	Norfolk, Va.
BENJAMIN OLIVER HOOD, Structural Engineer, F. A. Burdett & Co., Consulting Engineers.	B.E. 1901,	New York, N. Y.
LOUIE LEE HOOD, With Greensboro Music Co.	B.E. 1910,	Greensboro, N. C.
DAVID LEE HOOPER, Draftsman, C. E. Dept., Newport News Shipbuilding and Dry Dock Co.	B.E. 1915,	Newport News, Va.
HERNDON HOPKINS, Farming.	B.S. 1915,	Greensboro, N. C.
WALTER CLEARY HOPKINS, Bridge Draftsman, Western Maryland Railway Co.	B.E. 1913,	Baltimore, Md.
WAYNE ARINGTON HORNADAY, M.S. 1910; D.V.M., Kansas City Veterinary College. Veterinarian. City Milk and Meat Inspector.	B.S. 1909,	Greensboro, N. C.
JOHN HOWARD, Attorney at Law.	B.S. 1896,	Middlesboro, Ky.
JESSE McRAE HOWARD, Overseer Dyeing, Gibson Manufacturing Co.	B.E. 1904,	Concord, N. C.
JOHN STEWART HOWARD, Teacher of Agriculture, Cary Farm Life School.	B.S. 1915,	Cary, N. C.
ROBERT IRVING HOWARD, Civil Engineer.	B.E. 1902 (Tex.),	Conetoe, N. C.
SAMUEL BENJAMIN HOWARD, Civil and Highway Engineer.	B.E. 1913,	Morganton, N. C.
RALPH WILKINSON HOWELL, Development of Newly Reclaimed Swamp Lands.	B.S. 1912,	Terra Ceia, N. C.
JESSE FRANCIS HUETTE, Machinist, Newport News Shipbuilding and Dry Dock Co.	B.E. 1914,	Newport News, Va.
BRANTON FAISON HUGGINS, Member Firm, Beck-Huggins Co., Contractors and Engineers.	B.E. 1904,	Griffin, Ga.
HENRY ALLEN HUGGINS, Bookkeeper, George W. Huggins, Jeweler.	B.S. 1900,	Wilmington, N. C.
CHRISTOPHER MILLER HUGHES, B.S. 1899. Wholesale Lumber Dealer.	B.E. 1895,	Richmond, Va.
LLOYD RAINY HUNT, Superintendent Lexington Light and Water Department.	B.E. 1905,	Lexington, N. C.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HILL McIVER HUNTER, Purchasing Agent White Oak Mills,	B.E. 1904,	Greensboro, N. C. Proximity Print Works, Proximity Mills.
MALCOLM BEALL HUNTER, President Acme Plumbing and Heating Co.	B.E. 1895,	Charlotte, N. C.
WILLIAM TISDALE HURTT, Power Engineer, Duquesne Light Co.	B.E. 1914,	Wilksburg, Pa.
JOHN WILLIAM IVEY, Farmer.	B.E. 1909,	Seven Springs, N. C.
WILLIAM COLBERT JACKSON, Farmer.	B.S. 1896,	Wake Forest, N. C.
GEORGE LINWOOD JEFFERS, Graduate Student Apprentice, Westinghouse Elec. and Mfg. Co.	B.E. 1915,	Wilksburg, Pa.
ERNEST JUDSON JEFFRESS, With Yadkin River Power Co.	B.E. 1913,	Hamlet, N. C.
DOUGLAS CREELMAN JEFFREY, Draftsman, Imperial Oil Co., Ltd.	B.E. 1913,	Sarnia, Ont., Canada.
WILLIAM LEON JEWELL, With Joe W. Stout & Co., Inc., General Contractors.	B.E. 1914,	Sanford, N. C.
LACY JOHN, Farmer.	B.S. 1914,	Lumber Bridge, N. C.
EUGENE COLISTUS JOHNSON, Lumberman and Farmer.	B.E. 1903,	Ingold, N. C.
JAMES WRIGHT JOHNSON, Electrical Engineer, Seymour Mfg. Co.	B.E. 1913,	Seymour, Conn.
W. F. R. JOHNSON, Johnson & Johnson, Civil Engineers.	B.E. 1909,	Dillon, S. C.
WILLIS NEAL JOHNSTON, Salesman, De Laval Separator Co.	B.E. 1914,	Montgomery, Ala. Home Address, Mooresville, N. C.
ALBERT CARL JONES, D.V.S., Kansas City Veterinary College.	B.Agr. 1907,	High Point, N. C. Veterinarian, Meat and Milk Inspector.
FREDERICK JOHN JONES, Junior Civil Engineer, Interstate Commerce Commission. Home Address, New Bern, N. C.	B.E. 1909,	Washington, D. C.
GARLAND JONES, JR.,	B.S. 1900,	Jacksonville, Fla.
ROBERT FRANK JONES, Resident Engineer, Atlantic Coast Line R. R.	B.E. 1910,	Florence, S. C.
WILLIAM MANLEY JONES, Clerk to Clerk of Wake County Superior Court.	B.E. 1914,	Raleigh, N. C.
WILLIAM WHITMORE JONES, Manager Franklin Telephone and Electric Co.	B.E. 1907,	Franklin, N. C.
CLYDE RAYMOND JORDAN, Owner and Operator of Lumber Plant.	B.E. 1910,	Currie, N. C.

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HARVEY LANGILL JOSLYN, Instructor in Soils, N. C. College of Agriculture and Mechanic Arts.	B.S. 1913,	West Raleigh, N. C.
SIR KEITH KELLER, Division Engineer, S. A. & A. P. Ry.	B.E. 1914,	Yoakum, Texas.
JOHN GORDON KELLOGG, With the Connecticut General Life Insurance Co.	B.S. 1912,	Hartford, Conn.
MARTIN KELLOGG, Farmer.	B.Agr. 1901,	Sunbury, N. C.
CLYDE BENNETT KENDALL, Topographic Engineer, U. S. Geological Survey.	B.S. 1897,	Washington, D. C.
ALPHEUS ROUNTREE KENNEDY, Ship Draftsman, Fore River Shipbuilding Co.	B.S. 1898,	Quincy, Mass.
JAMES MATTHEW KENNEDY, Architect.	B.E. 1903,	Raleigh, N. C.
SYDNEY G. KENNEDY, Shop Foreman, Atlantic Coast Line R. R.	B.S. 1897,	Sanford, Fla.
ARTHUR TEMPLETON KENYON, Co. D, 11th Infantry, U. S. Army.	B.E. 1905,	Douglas, Ariz.
WILLIAM KERR, M.S. 1912, V. P. I. Farmer.	B.S. 1904,	Hayden, N. M.
GEORGE EDISON KIDD, General Electric Co. Home Address, Paw Creek, N. C.	B.E. 1913,	Schenectady, N. Y.
WAVERLY FLETCHER KILPATRICK, Assistant Cashier, Southern Express Co.	B.S. 1915,	Asheville, N. C.
PAUL KING, Student, Cornell University. Home Address, Emporia, Va.	B.E. 1914,	Ithaca, N. Y.
LUTHER HILL KIRBY, Civil Engineer, Bureau of Lands.	B.E. 1910,	Manila, P. I.
SAM JONES KIRBY, Supervisor of Agricultural Instruction of Gaston County.	B.S. 1912,	Dallas, N. C.
WILLIAM FRANKLIN KIRKPATRICK, B.Agr., 1905. Professor of Poultry Husbandry, Conn. Agricultural College.	B.E. 1904,	Storrs, Conn.
JOSEPH LAWRENCE KNIGHT, Pac Manufacturing Co., Naval Stores.	B.S. 1897,	Pittville, Fla.
LOUIS BRASWELL KNIGHT, Farmer.	B.S. 1913,	Tarboro, N. C.
ROBERT VERNON KNIGHT, Laboratory Assistant, N. C. Department of Agriculture.	B.S. 1915,	Raleigh, N. C.
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JAMES HERITAGE KOONCE,†	B.E. 1905,	Richlands, N. C.
LAFAYETTE FRANCK KOONCE, D.V.M. 1909, Kansas City Veterinary College.	B.Agr. 1907,	Raleigh, N. C. Veterinary Surgeon.
FRANK KIPP KRAMER, With Kramer Bros. & Co., Lumber Manufacturers and Dealers.	B.E. 1915,	Elizabeth City, N. C.
HERBERT WILLIAM KUEFFNER, City Engineer.	B.E. 1908,	Durham, N. C.
FREDERICK CREECY LAMB, Chemist, City Health Office.	B.S. 1898,	El Paso, Tex.
CLAUDE MILTON LAMBE, Civil Engineer, Carolina Power and Light Co.	B.E. 1908,	Raleigh, N. C.
CARL JOSHUA LAMBETH, Lieutenant, Philippine Constabulary.	B.E. 1912,	Manila, P. I.
BENNETT LAND, JR., Division Engineer, Seaboard Air Line Railway.	B.E. 1903,	Tampa, Fla.
JOHN THOMAS LAND, Engineer, Port Commissioners.	B.E. 1903,	Jacksonville, Fla.
MARK CLINTON LASITTER, County Surveyor.	B.E. 1910,	Snow Hill, N. C.
JAMES EDWARD LATHAM, Farming.	B.S. 1909,	Washington, N. C., R. 3.
CHARLES EDWARD LATTA,	B.E. 1908,	Raleigh, N. C.
DOUGLAS ALLEN LEARD, Assistant Right of Way Engineer, Seaboard Air Line Railway.	B.E. 1914,	Portsmouth, Va.
CURTIS WILLIAMS LEE, Superintendent Water and Light Plant.	B.E. 1912,	Monroe, N. C.
EUGENE TALMAGE LEE, Postmaster.	B.E. 1910,	Dunn, N. C.
JOSEPH RAOUL LEGUENEC, Engineer for W. B. Knox, Civil Engineer.	B.E. 1915,	Abbeville, La.
IRVIN TRACY LEWIS, Student, Kansas City Veterinary College.	B.S. 1915,	Kansas City, Mo.
WILLIAM DIXON LEWIS, Manager Diggs Farm.	B.S. 1914,	Rockingham, N. C., R. 1.
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DAVID LINDSAY, Assistant Superintendent German-American Co.	B.E. 1908,	Draper, N. C.
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THOMAS PINKNEY LOVELACE, Foreman, Department of Maintenance, Southern Power Co.	B.E. 1912,	Charlotte, N. C.
JOE POINDEXTER LOVILL,†	B.E. 1906,	Mount Airy, N. C.
GEORGE LAFAYETTE LYERLY, Manager and Partner, Shuford Hardware Co.	B.E. 1908,	Hickory, N. C.
LIPSCOMB GOODWIN LYKES, Vice-President Lykes Brothers, Inc.	B.E. 1905,	Habana, Cuba.
THOMPSON MAYO LYKES, Secretary and Treasurer The Lykes Co. Secretary Tampa Packing Co.	B.E. 1906,	Tampa, Fla.
GEORGE GREEN LYNCH, JR., Draftsman, Atlantic Coast Line R. R.	B.E. 1905,	Wilmington, N. C.
ALBERT SYDNEY LYON, Superintendent Rocky Mount Public Works.	B.S. 1899,	Rocky Mount, N. C.
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FRANK WHITESIDE McCOMB, Dairyman.	B.E. 1913,	Hickory, N. C.
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EUGENE RICHARD McCRACKEN, Cotton Classifier.	B.E. 1911,	Graham, N. C.
THOMAS ROBERT McDEARMAN,	B.E. 1914,	Rocky Mount, N. C.
FRANK NEELY McDOWELL, Soil Survey, Agronomy Division, N. C. State Department of Agriculture.	B.S. 1910,	West Raleigh, N. C.
JAMES EDWARD McGEE, With Patterson Mills Co.	B.E. 1912,	Rosemary, N. C.
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WALTER HOGE MACINTIRE, Soil Chemist, Agricultural Experiment Station, University of Tennessee.	B.S. 1905,	Knoxville, Tenn.
JOHN FAIRLY McINTYRE, Farmer.	B.E. 1904,	Laurinburg, N. C.
SAMUEL CHRISTOPHER McKEOWN, Chief Engineer, Sumter Electrical Works of the Splitdorf Electrical Co. of Newark, N. J.	B.E. 1895,	Sumter, S. C.
CHARLES McKIMMON, JR., Chemist, Tennessee Coal and Iron Co.	B.S. 1911,	Ensley, Ala.
JAMES McKIMMON, With McKimmon & McKee, Real Estate and Insurance.	B.E. 1904,	Raleigh, N. C.
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LENNOX POLK McLENDON, Member of the Firm of McLendon & Hedrick, Lawyers.	B.S. 1910,	Durham, N. C.
WALTER JONES McLENDON, JR., President Capitola Manufacturing Co. of Marshall, N. C., and President Prendergast Cotton Mills of Prendergast, Tenn.	B.S. 1897,	Knoxville, Tenn.
OSCAR FRANKLIN McNAIRY, Assistant Engineer, Seaboard Air Line Ry. Home Address, Greensboro, N. C.	B.E. 1907,	Portsmouth, Va.

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HARVEY CAMPBELL MCPHAIL, Dairyman and Farmer.	B.S. 1914,	Mount Olive, N. C.
CHARLES HARDEN MCQUEEN, Inspector Bitulithic Pavements, Warren Brothers Co.	B.E. 1901,	Boston, Mass.
NEILL MCQUEEN, Superintendent of Machinery, Exposition Cotton Mills.	B.E. 1912,	Atlanta, Ga.
SAMUEL MACON MALLISON, Hardware Dealer.	B.E. 1909,	Washington, N. C.
CARROLL LAMB MANN, C.E. 1906. Civil Engineer and Professor of Railroad Engineering, N. C. College of Agriculture and Mechanic Arts.	B.S. 1899,	West Raleigh, N. C.
LOUIS HENRY MANN, Dentist.	B.E. 1900,	Washington, N. C.
WALTER RAY MANN, Lieutenant, Philippine Constabulary.	B.S. 1912,	Manila, P. I.
WILLIAM LEAKE MANNING, With Rosemary Manufacturing Co.	B.E. 1910,	Rosemary, N. C.
CLARENCE TALMAGE MARSH, First Lieutenant, Coast Artillery Corps, U. S. A.	B.E. 1908,	Fort Screven, Ga.
WILLIAM ROYDAN MARSHALL, Salesman, Westinghouse Electric and Mfg. Co.	B.E. 1909,	New York, N. Y.
JACOB LEE MARTIN, Civil Engineer.	B.E. 1911,	Graham, N. C.
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RALPH CECIL MASON, Farmer.	B.S. 1909,	Harrellsville, N. C.
ARTHUR BALLARD MASSEY, Assistant Professor of Botany, Alabama Polytechnic Institute.	B.S. 1909,	Auburn, Ala.
WALTER JEROME MATTHEWS, Contractor and Builder.	B.E. 1893,	Goldsboro and Kin- ston, N. C.
ROBERT SYLVANUS MAUNEY, With Electrical Testing Department, General Electric Co.	B.E. 1913,	Schenectady, N. Y.
RAYMOND MAXWELL, Owner and Proprietor Seven Springs Hotel and Wholesale Grocery at New Bern, N. C.	B.E. 1906,	Seven Springs, N. C.
MELVIN SOLOMON MAYES, With Stem Mercantile Co.	B.E. 1910,	Stem, N. C.

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FRANK THEOPHILUS MEACHAM, M.S. 1894. Superintendent Experiment Station, of Agriculture.	B.S. 1893,	Statesville, N. C. U. S. Department
EUGENE FRANKLIN MEADOR, With Gardner & Jones.	B.E. 1907,	Danville, Va.
ROBERT TOLAR MELVIN, County Agent.	B.S. 1913,	Supply, N. C.
HENRY BASCOM MERCER, Valuation Department, S. A. I., Railroad.	B.E. 1912,	Portsmouth, Va.
LEWIS LARKINS MERRITT, Junior Engineer, U. S. Engineering Department.	B.E. 1913,	Wilmington, N. C.
REPTON HALL MERRITT, Secretary-Treasurer Powell & Powell, Inc., Coal, Ice, and Wood.	B.S. 1897,	Raleigh, N. C.
ROBERT GRAHAM MEWBORNE, Chemist, Kentucky Tobacco Product Co.	B.S. 1896,	Louisville, Ky.
BENNETT TAYLOR MIAL, Manager of Erection, Belmont Iron Works.	B.E. 1907,	Philadelphia, Pa.
THOMAS KENNETH MIAL, Farmer.	B.E. 1913,	Clayton, N. C.
FRANK CURTIS MICHAEL, E.E. 1915. Electrical Engineer and Constructor.	B.E. 1907,	Gastonia, N. C.
JOSEPH EDGAR MICHAEL, Assistant Chemist, Union Powder Corporation.	B.S. 1914,	Parlin, N. J.
DAVID JOHN MIDDLETON, Demonstration Agent, Greene County.	B.Agr. 1908,	Snow Hill, N. C.
JOSEPH ALFRED MILLER, JR., Manager Miller Supply Co.	B.E. 1904,	Brevard, N. C.
WALKER MOREHEAD MILLNER, Supervisor, DuPont Powder Co.	B.E. 1909,	City Point, Va.
JOHN MAPLE MILLS,	B.E. 1907,	Raleigh, N. C.
SIMON TURNER MITCHNER, Foss Gas Engine Co.	B.E. 1912,	Springfield, Ohio.
THOMAS GUY MONROE, Dairyman for R. J. Reynolds.	B.S. 1914,	Winston-Salem, N. C.
BENJAMIN FRANKLIN MONTAGUE, Draftsman, Carolina, Clinchfield and Ohio Railway.	B.E. 1909,	Johnson City, Tenn.
HENRY STARBUCK MONTAGUE, Assistant Chemist, Mississippi State Laboratory.	B.S. 1907,	Agr'l College, Miss.
LEON DAVIS MOODY, Farming.	B.E. 1910,	East Laport, N. C.
WARREN LAFAYETTE MOODY, Chemist, with Nitrogen Products Co.	B.S. 1914,	Saltville, Va.

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EUGENE BOISE MOORE, Manager Toledo Sales Office, Allis Chalmers Manufacturing Co.	B.E. 1910,	Toledo, Ohio.
LACY MOORE, Assistant Engineer, Southern Railway.	B.E. 1906,	Charlotte, N. C.
JAMES OSCAR MORGAN, M.S.A. 1907, Ph. D. 1909, Cornell University. Professor of Agronomy, Texas A. and M. College.	B.Agr. 1905,	College Station, Tex.
ROBERT LEE MORGAN,†	B.E. 1910,	Silver City, N. M.
JESSE JOHN MORRIS, Farmer and County Surveyor.	B.E. 1903,	Weeksville, N. C.
WILLIAM FLAUD MORRIS, General Superintendent of Clayton Oil Mill Co. and Chatham Oil and Fertilizer Co.	B.E. 1909,	Clayton, N. C.
JOSEPH GRAHAM MORRISON, Farmer.	B.Agr. 1906,	Stanley, N. C.
ROBERT HALL MORRISON, President Machinery Supply Co.	B.E. 1900,	Salisbury, N. C.
ROBERT LEE MORRISON, Paving Engineer for City of Concord.	B.E. 1911,	Concord, N. C.
JOHN LIGHTFOOT MORSON, Assistant Engineer, Valuation Department, Seaboard Air Line Railway.	B.E. 1907,	Norfolk, Va.
WILLIAM FIELD MORSON, Engineer, Southern Railway.	B.E. 1904,	Raleigh, N. C.
FRANK BULLOCK MORTON, Draftsman with Newport News Shipbuilding and Dry Dock Co.	B.E. 1914,	Newport News, Va.
LAURIE MOSELEY, Thompson & Moseley, Inc., Contractors.	B.E. 1902,	Greensboro, N. C.
VASSAR YOUNG MOSS, Draftsman, Fort Pitt Bridge Works.	B.E. 1902,	Canonsburg, Pa.
HARRY YOEMANS MOTT, Farmer.	B.S. 1910,	Mooresville, N. C.
JAMES RICHARD MULLEN, Instructor in Chemistry and Graduate Student, N. C. College of Agriculture and Mechanic Arts.	B.S. 1912,	West Raleigh, N. C.
LINDSLEY ALEXANDER MURR, Assistant Engineer, Seaboard Air Line Railway.	B.E. 1905,	Portsmouth, Va.
GARLAND PERRY MYATT, Managing Chemist, Chas. Pfizer & Co., Inc.	B.S. 1905,	Brooklyn, N. Y.
O'KELLY W. MYERS, Assistant Engineer, Board of Water Supply, City of New York.	B.S. 1899,	Brooklyn, N. Y.
JESSE CLARENCE MYRICK, General Foreman, Fortification Division, Panama Canal.	B.E. 1906,	Balboa, C. Z.

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HENRY KOLLOCK NASH, JR., Agriculturist, South Georgia Farms Co.	B.S. 1914,	West Green, Ga.
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WILLIAM McCORMICK NEALE, Chief Draftsman, American Machine and Manufacturing Co.	B.E. 1910,	Greenville, S. C.
CHARLES MCKEE NEWCOMB, Civil Engineer, Southern Railway.	B.E. 1912,	Greer, S. C.
ROBERT TIMBERLAKE NEWCOMB, Timekeeper, Southern Railway.	B.S. 1915,	Greer, S. C.
THOMAS WINSTON NICHOLLS, Engineering Department, American Telephone and Telegraph Co.	B.E. 1914,	Philadelphia, Pa.
CHARLES ARTHUR NICHOLS, Manager Third Street Grocery Co.	B.E. 1902,	Muskogee, Okla.
EDGAR BYRON NICHOLS, Instructor in N. C. College of Agriculture and Mechanic Arts.	B.E. 1914,	West Raleigh, N. C.
CHARLES FRANKLIN NIVEN, Assistant Professor of Horticulture, Clemson College.	B.Agr. 1906,	Clemson College, S. C.
LOLA ALEXANDER NIVEN, Editor, Southern Farming.	B.Agr. 1906,	Atlanta, Ga.
WILLIAM TIMOTHY NIXON, Farmer.	B.S. 1913,	Sunbury, N. C.
LEWIS MILTON ODEN, Office of E. I. DuPont Powder Co.	B.Agr. 1906,	Wilmington, Del.
THOMAS JEFFERSON OGBURN, JR., With Everett Waddey Co.	B.E. 1906,	Richmond, Va.
ALBERT HICKS OLIVER, Farmer.	B.S. 1897,	Mount Olive, N. C.
SAMUEL LOFTIN OLIVER, Superintendent Sampson Power Co.	B.E. 1909,	Clinton, N. C.
KARL OSBORNE, Civil Engineer, Atlantic and Western Railway.	B.E. 1915,	Lillington, N. C.
JAMES ELWOOD OVERTON, Traveling Grader, Inspector and Peanut Buyer for American Peanut Corporation.	B.Agr. 1907,	Ahoskie, N. C.
DAVID STARR OWEN, General Superintendent Atlantic Turpentine and Pine Tar Co.	B.E. 1903,	Savannah, Ga.
EDWIN BENTLEY OWEN, Registrar, N. C. College of Agriculture and Mechanic Arts.	B.S. 1898,	West Raleigh, N. C.
CHARLES WASHINGTON OWENS, Draftsman, Valuation Department, Atlantic Coast Line Railroad.	B.E. 1912,	Wilmington, N. C.
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CLYDE ESTER PARKER, Member of firm of Parker Bros. & Co., Cotton Brokers and Merchants.	B.S. 1906,	Raleigh, N. C.
EUGENE LEROY PARKER, Chemist and Manager, E. L. Parker & Co.	B.S. 1899,	Mt. Pleasant, Tenn.
JOHN HARVEY PARKER, With Burrus & Parker, Inc.	B.E. 1903,	New Bern, N. C.
JAMES LAFAYETTE PARKER, Assistant Engineer, Herbert C. Keith, Consulting Engineer.	B.E. 1902,	New York, N. Y.
JULIUS MONROE PARKER, Civil Engineer, Louisville and Nashville Railway Co.	B.E. 1909,	Harlan, Ky.
THOMAS FRANKLIN PARKER, M.S. 1908. Farmer and Field Agent, Crop Estimates for N. C., U. S. Department of Agriculture.	B.Agr. 1907,	Raleigh, N. C.
WALTER HERBERT PARKER, Technical Apprentice, Westinghouse Machine Co.	B.E. 1913,	East Pittsburgh, Pa.
FRED MAYNARD PARKS, Electrician, Westinghouse Electric and Manufacturing Co.	B.E. 1907,	Wilkinsburg, Pa.
THADDEUS ROWLAND PARRISH, Science and Arts Assistant, The Franklin Institute.	B.E. 1913,	Philadelphia, Pa.
JOHN GILBERT PASCHAL, Lumber Manufacturer.	B.E. 1909,	Maxton, N. C.
ARTHUR LEE PASCHALL, Farm Adviser for Cochise and Santa Cruz Counties.	B.Agr. 1907,	San Simon, Ariz.
WILLIAM FRANKLIN PATE, M.S. 1913. Soil Fertility, Division of Agronomy, N. C. Department of Agriculture.	B.S. 1901,	Raleigh, N. C.
MANN CABE PATTERSON, Machinist, Durham Motor Car Co.	B.E. 1895,	Durham, N. C.
ROBERT DONNELL PATTERSON, M.S., 1898. President the First State Bank.	B.S. 1894,	Chase City, Va.
FITZGERALD ELIZUR PATTON, Farm Demonstrator for Yancey County, U. S. Dept. of Agriculture.	B.S. 1914,	Burnsville, N. C.
WILLIAM JOEL PATTON, Electrician, Sanger Bros.	B.E. 1904,	Dallas, Texas.
WILLIAM ROBERT PATTON, With Southern Railway Co.	B.E. 1914,	Spartanburg, S. C.
WILLIAM VICTOR PEARSALL, Fertilizer Department, Pearsall & Co.	B.S. 1915,	Wilmington, N. C.
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JOHN TAYLOR PEDEN, Sales Department, Westinghouse Electric and Manufacturing Co.	B.E. 1911,	Pittsburgh, Pa.
JAMES HICKS PEIRCE, With J. H. Peirce Manufacturing Co., Sash, Doors, and Blinds.	B.S. 1905,	Warsaw, N. C.
WILLIAM CASPER PENNINGTON, Owner and Manager, Thomasville Hosiery Mills.	B.E. 1910,	Thomasville, N. C.
SAMUEL OSCAR PERKINS, Soil Scientist, N. C. Department of Agriculture.	B.S. 1906,	Raleigh, N. C.
MILTON VANCE PERRY, With L. B. Perry & Co.	B.E. 1914,	Durants Neck, N. C.
EUGENE GRAY PERSON, Train Dispatcher, Central of Georgia Railway.	B.S. 1899,	Macon, Ga.
WILLIAM MONTGOMERY PERSON, With Semet-Solvay By-product Coke Plant, of Ensley, Ala.	B.E. 1900,	Fairfield, Birm'h'm, Alabama.
ASA GRAY PHELPS, Order Department, Newport News Shipbuilding and Dry Dock Co.	B.E. 1915,	Newport News, Va.
FREDERICK COLWELL PHELPS, Second Lieutenant, 12th U. S. Infantry.	B.E. 1904,	Yuma, Ariz.
HENRY MARRIOTT PHILLIPS, Farmer.	B.S. 1914,	Battleboro, N. C.
ARTHUR JEFFERSON PHILLIPS, JR., Sales Department, Westinghouse Elec. and Mfg. Co.	B.E. 1914,	Wilkinsburg, Pa.
WILLIAM RANSOME PHILLIPS, E.E. 1913. Salesman, Western Electric Co.	B.E. 1910,	Raleigh, N. C.
ALEXANDER HOLLADAY PICKELL, Engineer, Mosler Safe Co.	B.E. 1912,	Raleigh, N. C.
PETER PENICK PIERCE, Field Engineer, Valuation Department, Florida East Coast Railway.	B.E. 1909,	St. Augustine, Fla.
GUY PINNER, C.E. 1912. Bridge Engineer, S. A. L. Ry.	B.E. 1907,	Norfolk, Va.
JOHN GAY PINNER, Farmer.	B.S. 1915,	Columbia, N. C., R. I.
WINSLOW GERALD PITMAN,* Superintendent City Water and Light Department.	B.E. 1907,	Lumberton, N. C.
PAUL NATHANIEL PITTENGER, Hartford Theological Seminary.	B.E. 1911,	Hartford, Conn.
BENJAMIN FRANKLIN PITTMAN, Philadelphia Electric Co.	B.E. 1908,	Philadelphia, Pa.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LAWRENCE LYON PITTMAN, Civil Engineer and Farmer.	B.E. 1908,	Whitakers, N. C.
PAUL MILLER PITTS, Machinist, Jackson Lumber Co.	B.E. 1909,	Lockhart, Ala.
ANGELO BETLENA PIVER, Structural Draftsman, Phoenix Bridge Co.	B.E. 1906,	Phoenixville, Pa.
WILLIAM CRAWFORD PIVER, With Riches, Piver & Co., Chemical and Color Manufacturers, Hoboken, N. J.	B.S. 1906,	New York, N. Y.
JAMES KEMP PLUMMER, M.S. 1909. Ph.D. 1915, Cornell University. Soil Chemist, State Department of Agriculture.	B.S. 1907,	Raleigh, N. C.
ROBERT AVERY PLYLER, With United Cigarette Machine Co.	B.E. 1914,	Durmid, Va.
PLEASANT H. POINDEXTER, JR., Manager, C. E. Sharp Lumber Co.	B.Agr. 1905,	Sharon, Okla.
FREDERICK DAVIS POISSON, Liggett & Myers Tobacco Co.	B.S. 1914,	Danville, Va.
RUBLE ISAAC POOLE, Assistant Professor in Civil Engineering, N. C. College of Agriculture and Mechanic Arts.	B.E. 1908,	West Raleigh, N. C.
EDWARD GRIFFITH PORTER, Junior Engineer, Dredging Division, Panama Canal.	B.E. 1905,	Paraiso, C. Z.
JUNIUS EDWARD PORTER, General Manager and Treasurer, J. E. Porter & Co., Railroad Contractors.	B.E. 1900,	Aurora, N. C.
TRACY WINCHESTER PORTER, Superintendent Corley Farm.	B.S. 1914,	Farrell, Miss.
BRYANT MONROE POTTER, Civil Engineer.	B.E. 1912,	New Bern, N. C.
WILLIAM OWEN POTTER, B.E. (Civil). Assistant Engineer, State Hospital.	B.E. 1914,	Raleigh, N. C.
HARRY ALEXANDER POWELL, Naval Stores Operator.	B.E. 1908,	Fernandina, Fla.
JAMES ALEXANDER POWELL, M.E. 1913. Assistant Engineer, Condenser Department, Westinghouse Machine Co.	B.E. 1908,	East Pittsburgh, Pa.
JOEL POWERS, Draftsman, Dewey Brothers.	B.E. 1903,	Goldsboro, N. C.
THOMAS MILTON POYNER, Jefferson Construction Co.	B.E. 1908,	Charleston, S. C.
JAMES BRUCE PRICE, Electrical Engineer, Bethlehem Steel Co.	B.E. 1910,	Bethlehem, Pa.
JOHN MOIR PRICE, Sales Agent, Chicago Office, Bethlehem Steel Co.	B.E. 1909,	Chicago, Ill.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HUGH WILLIAMS PRIMROSE,†	B.S. 1897, M.S. 1900.	Raleigh, N. C.
ABRAM HINMAN PRINCE, Agent U. S. Department of Agriculture.	B.S. 1895,	Orange, Tex.
CHARLES MARCELLUS PRITCHETT, C.E. 1896. Superintendent of Construction, Supervising Architect's Office, U. S. Treasury Department.	M.E. 1895,	Washington, D. C.
VICTOR VASHTI PRIVOTT, Merchant.	B.E. 1895,	Suffolk, Va.
FRANK WILSON PROCTER, Graduate Student, N. C. College of Agriculture and Mechanic Arts.	B.E. 1915,	Raleigh, N. C.
CARL CLAWSON PROFFITT, Department of Rural Science, Catawba County Farm Life School.	B.S. 1915,	Newton, N. C.
CHARLES LANDON PROFFITT, County Farm Demonstration Agent.	B.S. 1915,	Lenoir, N. C.
THOMAS HECTOR PURCELL, Bookkeeper, Hope Mills Manufacturing Co.	B.E. 1913,	Hope Mills, N. C.
HENRY AUBREY QUICKEL, With Western Union Telegraph Co.	B.S. 1913,	Charlotte, N. C.
JOSEPHUS PLUMMER QUINERLY, Agent in Dairying, U. S. Department of Agriculture.	B.S. 1911,	Auburn, Ala.
MILLARD REED QUINERLY, Farmer.	B.S. 1914,	Grifton, N. C.
JOHN OLAN RANKIN, JR., Assistant Superintendent, Edgecombe Test Farm.	B.S. 1913,	Rocky Mount, N. C., R. 5.
WILLIAM WALTER RANKIN, Instructor in Mathematics, University of North Carolina.	B.E. 1904,	Chapel Hill, N. C.
JOHN DUNCAN RAY, Student, Kansas City Veterinary College. Home Address, Raeford, N. C.	B.S. 1915,	Kansas City, Mo.
RIESEN PATTERSON REECE, Mechanical Engineer.	B.E. 1904,	Winston-Salem, N. C.
JOHN BARTOW REES, Engineer's Student, Southern Bell Telephone and Telegraph Co.	B.E. 1914,	Charlotte, N. C.
ROBERT RICHARD REINHARDT, D.V.M., Kansas City Veterinary College. Veterinarian.	B.S. 1909,	Lincolnton, N. C.
WILLIAM BENEDICT REINHARDT, Electrician, Dawson Electric Light and Power Co.	B.E. 1902,	Dawson, Y. T., Canada.
ROGER FRANCIS RICHARDSON, Engineer, Semet-Solvay Co.	B.E. 1900,	Ensley, Ala.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
WILLIAM RICHARDSON, JR., Assistant to Consulting Engineer, Coal Mining Department, Tennessee Coal, Iron and Railroad Co.	B.E. 1904,	Birmingham, Ala.
EDWARD HAYS RICKS, Cashier First National Bank.	B.E. 1903,	Roanoke Rapids, N. C.
LOUIS NAPOLEON RIGGAN, Assistant, Engineer's Office, Seaboard Air Line Railway.	B.E. 1912,	Jacksonville, Fla.
ALFRED PRATTE RIGGS, With Florida East Coast Railway.	B.E. 1909,	Key West, Fla.
THURMAN LESTER ROBERSON, Order Department, Newport News Shipbuilding and Dry Dock Co.	B.E. 1914,	Newport News, Va.
DANIEL ERNEST ROBERTS, Principal Robeson County Farm Life School.	B.S. 1914,	Red Springs, N. C.
JOHN MORGAN ROBERTS, Farming.	B.S. 1914,	Louisville, Ga.
ARCHIE KNIGHT ROBERTSON, Assistant in Boys' Corn Club Work in North Carolina, U. S. and N. C. Departments of Agriculture.	B.S. 1912,	West Raleigh, N. C.
DURANT WAITE ROBERTSON, Teller, District National Bank.	B.E. 1906,	Washington, D. C.
JOSEPH HENRY ROBERTSON, With North Carolina Public Service Co.	B.E. 1909,	Salisbury, N. C.
JAY FREDERICK ROBINSON, Draftsman, Newport News Shipbuilding and Dry Dock Co.	B.E. 1910,	Newport News, Va.
GASTON WILDER ROGERS, B.E. (Civil) 1905. Physician and Surgeon.	B.E. (Elec.) 1903,	Birmingham, Ala.
ZEBBIE GEORGE ROGERS,†	B.E. 1894,	Roxboro, N. C.
JOHN WESLEY ROLLINSON, Supt. of Electrical Dept., Elizabeth City Light and Power Co.	B.E. 1911,	Elizabeth City, N. C.
WILLIAM EDWIN ROSE, Mechanical Engineer. Member Washington Society Engineers and The American Society of Marine Draftsmen.	B.E. 1900,	Washington, D. C.
CHARLES BURDETTE ROSS, Secretary and Treasurer Model Steam Laundry Co.	B.E. 1903,	Charlotte, N. C.
FLOYD DE ROSS, Owner Lawton Coca-Cola Bottling Co.	B.E. 1900,	Lawton, Okla.
GRAEME ROSS, Manager Joplin Office, Westinghouse Electric and Manufacturing Co.	B.E. 1911,	Joplin, Mo.
GEORGE ROMULUS ROSS, Farm Manager for Roger A. Derby.	B.S. 1911,	Jackson Springs, N. C.
JOE WILLIAM ROSS, Farmer.	B.S. 1914,	Fort Mill, S. C.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
LONDON COATS ROSSER, Lumber Manufacturer.	B.E. 1915,	Jonesboro, N. C.
EMORY PELL ROUSE, Bookkeeper, Rouse Banking Co.	B.E. 1914,	Lagrange, N. C.
GARLAND THOMAS ROWLAND, With General Electric Co.	B.E. 1913,	Schenectady, N. Y.
CARL COLLINS SADLER, Civil Engineer, Aluminum Co. of America.	B.E. 1910,	Badin-Whitney, N. C.
JAMES OLIN SADLER, Resident Engineer, Seaboard Air Line Railway.	B.E. 1909,	Norfolk, Va.
WILLIS HUNTER SANDERS, Superintendent of Power, Roanoke River Development Co.	B.S. 1897,	Weldon, N. C.
JOHN HYER SAUNDERS, Locomotive Engineer, Atlantic Coast Line Railroad.	B.E. 1894,	Kinston, N. C.
IRA OBED SCHAUB, Superintendent Demonstration Work, Frisco Railway.	B.S. 1900,	Springfield, Mo.
JOHN FRANKLIN SCHENCK, JR., With Cleveland Mill and Power Co.	B.E. 1914,	Lawndale, N. C.
LEON JACOB SCHWAB, Junior Engineer, U. S. Engineering Department.	B.E. 1907,	Savannah, Ga.
ROBERT WALTER SCOTT, JR., Agricultural Expert, North Carolina Co.	B.Agr. 1905,	Bolton, N. C.
EARLE ALOYSIUS SEIDENSPINNER,* Lieutenant, Philippine Constabulary.	B.S. 1910,	Manila, P. I.
DAVID WALTER SEIFERT, Manager Weldon Coca-Cola Co.	B.E. 1913,	Weldon, N. C.
CARL DEWITT SELLARS, Sales Department, Cone Export and Commission Co.	B.E. 1893,	Greensboro, N. C.
JOHN WILLIAM SEXTON, Resident Engineer, Seaboard Air Line Railway.	B.E. 1910,	Portsmouth, Va.
CHARLES EDGAR SEYMORE,†	B.S. 1893,	Raleigh, N. C.
WILLIAM THOMAS SHAW, JR., With The Shaw Cotton Mill.	B.E. 1914,	Weldon, N. C.
JAMES MORGAN SHERMAN, M.S. 1912 and Ph.D. 1915, Univ. of Wis. Asst. Prof. of Bacteriology, Pennsylvania State College; Bacteriologist, Agricultural Experiment Station. Home Address, McLean, Va.	B.S. 1911,	State College, Pa.
FLEMING BATES SHERWOOD, M.S. 1915. Graduate Student and Assistant in Chemistry, Cornell University.	B.S. 1912,	Ithaca, N. Y.
FRANCIS WEBBER SHERWOOD, M.S. 1911. Graduate Student and Assistant in Chemistry, Cornell University.	B.S. 1909,	Ithaca, N. Y.

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ROBERT ARNOLD SHOPE,	B.E. 1909,	Atlanta, Ga.
JOHN WADE SHORE,	B.S. 1900,	Boonville, N. C.
	Cashier Commercial and Savings Bank.	
IRA SHORT,	B.E. 1911,	Wilkinsburg, Pa.
	Engineer, Westinghouse Machine Co., of East Pittsburgh, Pa.	
JOHN HOUSTON SHUFORD,	B.S. 1903,	Charlotte, N. C.
	Technical Representative and Salesman, Berlin Aniline Works.	
JOHN OSCAR SHUFORD,	B.E. 1907,	Lincolnton, N. C.
	Superintendent Electric Plant, Town of Lincolnton.	
WILLIAM TALMAGE SHULL,	B.E. 1912,	Wenona, N. C.
	Chief Engineer for Streduck & Hooper.	
ORIN MORROW SIGMON,	B.E. 1911,	Hickory, N. C.
	Treasurer Piedmont Wagon and Manufacturing Co.	
GEORGE GRAY SIMPSON,	B.E. 1909,	Rockingham, N. C.
	Assistant to Secretary and Treasurer, Great Falls Manufacturing Co.	
WILLIAM DUDLEY SIMPSON,	B.E. 1913,	Petersburg, Va.
	Civil Engineer.	
FREDERICK ERASTUS SLOAN,	B.S. 1899,	Charlotte, N. C.
ROBERT LEE SLOAN,	B.S. 1913,	Mt. Lebanon, La.
	Agriculturist, Bienville Parish Agricultural School.	
WILLIAM NEVILLE SLOAN,	B.E. 1909,	Abingdon, Va.
	Examiner of Surveys, U. S. Government Forest Service.	
ANDREW THOMAS SMITH,	B.S. 1899,	Newport News, Va.
	Inspector, Newport News Shipbuilding and Dry Dock Co.	
EDGAR ENGLISH SMITH,	B.E. 1908,	Seattle, Wash.
	With U. S. Coast and Geodetic Survey.	
EDWIN HARRISON SMITH,	B.E. 1910,	Weldon, N. C.
	With Bank of Weldon.	
EDWARD OSCAR SMITH,	B.E. 1901,	Newport News, Va.
	Chief of Order Department and Secretary of Employment Board, Newport News Shipbuilding and Dry Dock Co.	
FRANCIS CLARK SMITH,	B.E. 1913,	Winter Haven, Fla.
FRANK STEED SMITH,	B.E. 1913,	Savannah, Ga.
	Division Traffic Supervisor, Southern Bell Telephone and Telegraph Co.	
JAMES LAWRENCE SMITH, JR.,	B.E. 1908,	Portsmouth, Va.
	Assistant Engineer, Seaboard Air Line Railway.	
JAMES MCCREE SMITH,	B.S. 1912,	State Road, N. C.
	Fruit Grower.	
JONATHAN RHODES SMITH,	B.E. 1905,	Rankin, Pa.
	Assistant Structural Engineer, McClintic Marshall Const. Co.	

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
ORUS WILDER SMITH, Assistant to Chief Engineer, Foos Gas Engine Co.	B.E. 1912,	Springfield, Ohio.
WALTER HERBERT SMITH, Railway Engineering Dept., Westinghouse Electric and Mfg. Co.	B.E. 1914,	Wilksburg, Pa.
WHITEFOORD INGERSOLL SMITH, Apprentice, Asheville Cotton Mills.	B.E. 1915,	Asheville, N. C.
WALTER JOHNSTON SMITH, JR., United States Tire Co.	B.S. 1915,	Charlotte, N. C.
WILLIAM TURNER SMITH, Civil Engineer, Farmer.	B.E. 1900,	Duke, N. C., R. 1.
THOMAS JERU SMITHWICK, Consulting and Erecting Engineer.	B.S. 1897,	Mount Airy, N. C.
RUSSELL ELSTNER SNOWDEN, Senior Member, Snowden & Snowden, Civil and Consulting Highway Engineers.	B.E. 1902,	Snowden, N. C.
JOSEPH MCKAY SPEARS, Asst. on Eng. Corps, Valuation Dept., Chicago and Eastern Illinois R. R.	B.E. 1915,	Chicago, Ill.
CHARLIE AUGUSTINE SPEAS, With New Orleans, Mobile and Chicago Railroad.	B.E. 1911,	Laurel, Miss.
EDWARD PINKNEY SPEER, Assistant Manager Meter Department, Texas Power and Light Co.	B.E. 1912,	Waco, Tex.
JOHN FRANCIS SPEIGHT,†	B.E. 1910,	Whitakers, N. C.
COLIN GEORGE SPENCER, Superintendent of May farm.	B.S. 1913,	Mayworth, N. C.
HERBERT SPENCER, Instructor, Department Zoology and Entomology, N. C. College of Agriculture and Mechanic Arts.	B.S. 1915,	West Raleigh, N. C.
JOHN DAVIDSON SPINKS, C.E. 1913. Civil Engineer.	B.E. 1905,	Albemarle, N. C.
JESSE PAGE SPOON, M.S. 1909. D.V.S. 1911, Kansas City Veterinary College. Veterinarian.	B.Agr. 1908,	Burlington, N. C.
ST. JULIEN LACHICOTTE SPRINGS, Farmer, and Vice-President and Sales Manager Alco Ldme Company of Wilmington, N. C.	B.S. 1910,	Lake Waccamaw, N.C.
ERVIN BLACKENEY STACK, Member of firm, J. E. Stack & Co.	B.E. 1905,	Monroe, N. C.
TALMAGE HOLT STAFFORD, Instructor in Agriculture, Iredell County Farm Life School.	B.S. 1912,	Harmony, N. C.
CHARLES BURT STAINBACK, With Sales Department, Westinghouse Electric and Manufacturing Co.	B.E. 1910,	East Pittsburgh, Pa.
EDWARD ROE STAMPS, Superintendent, F. S. Royster Guano Co.	B.E. 1903,	Macon, Ga.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
HARRIS INGRAM STANBACK, In Charge of Quality, General Electric Lamp Works.	B.E. 1910,	Newark, N. J.
NUMA REID STANSEL, E.E. 1901. Local Manager Southwest General Electric Co.	B.S. 1898,	El Paso, Tex.
THOMAS BARNES STANSEL, With American Zinc Company.	B.S. 1910,	Mascot, Tenn.
CLARENCE ALEXANDER STEDMAN, Chemist, DuPont Powder Co.	B.S. 1912,	City Point, Va.
ALEXIS PRESTON STEELE, Mechanical Engineer, Firm of J. C. Steele & Sons.	B.S. 1899,	Statesville, N. C.
HUGH STUART STEELE, Drainage Engineer, Chicago, Milwaukee and St. Paul Railway.	B.E. 1909,	Miles City, Mont.
JOHN BROWN STEELE, Farm Demonstrator for Davidson County.	B.S. 1913,	Lexington, N. C.
LUCIUS ESEK STEERE, JR., Electrical Draftsman, Detroit Edison Co.	B.E. 1911,	Detroit, Mich.
SAMUEL FATIO STEPHENS, County Agent, U. S. Dept. of Agriculture.	B.E. 1909,	Norfolk, Va.
NEEDHAM BRYAN STEVENS, Sales Dept., Westinghouse Electric and Manufacturing Co.	B.S. 1912,	Plymouth, N. C.
WILLIAM BEEVER STOVER, Farmer.	B.E. 1913,	Wilkesburg, Pa.
CHARLIE BERRYHILL STOWE, Farmer.	B.S. 1913,	Charlotte, N. C., R. 4.
GEORGE YATES STRADLEY, With Virginia Bridge and Iron Co.	B.E. 1903,	Roanoke, Va.
JOHN SNIPES STROUD, Superintendent Stonewall Cotton Mills.	B.E. 1908,	Stonewall, Miss.
WALTER STEPHEN STURGILL, First Lieutenant of Field Artillery, U. S. Army.	B.E. 1901,	Fort Sill, Okla.
WILLIAM CLARK STYRON, Draftsman, Newport News Shipbuilding and Dry Dock Co. Home Address, Washington, N. C.	B.E. 1910,	Newport News, Va.
TEISAKU SHUGISHITA,*	B.S. 1898,	Japan.
BEVERLY NATHANIEL SULLIVAN, With M. O. Summerlin, Vehicles, Machinery and Implements.	B.S. 1901,	Winston-Salem, N. C.
THOMAS BRYAN SUMMERLIN, Lieutenant Coast Artillery Corps, U. S. Army.	B.E. 1910,	Mount Olive, N. C.
HENRY NEWBOLD SUMNER, Farmer.	B.E. 1909,	Fort Terry, N. Y.
LLOYD HURST SWINDELL, Farmer.	B.E. 1911,	Raleigh, N. C.
STANTON BANKS SYKES, Apprentice, Tosting Dept. General Electric Co.	B.E. 1913,	Schenectady, N. Y.

* Not heard from this year.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
VANCE SYKES, Assistant Engineer, Seaboard Air Line Railway.	B.E. 1907,	Portsmouth, Va.
GEORGE FREDERICK SYME, C.E. 1907. Civil Engineer, State Highway Commission.	B.S. 1898,	Raleigh, N. C.
WILLIAM ANDERSON SYME,† M.S. 1903. Ph.D., Johns Hopkins University.	B.S. 1899,	Raleigh, N. C.
FREDDIE JACKSON TALTON, Farmer.	B.Agr. 1906,	Pikeville, N. C., R. 2.
CLAUDE STRATON TATE, Manager for T. J. Miles, Receiver Tate Machinery and Supply Co.	B.E. 1909,	Littleton, N. C.
DANIEL MCGILVARY TATE, Foreman in Lumber Yard, Lans Lumber Co. Home Address, Norlina, N. C.	B.S. 1915,	City Point, Va.
ARTHUR WILLIS TAYLOR, Engineer with Piedmont Railway and Electric Co.	B.E. 1912,	Burlington, N. C.
CULVER MURAT TAYLOR, With Niagara, Lockport and Ontario Power Co.	B.E. 1912,	Syracuse, N. Y.
HERBERT LEE TAYLOR, Industrial Engineer, Chase Metal Works.	B.E. 1912,	Waterbury, Conn.
WALTER CLYBURN TAYLOR, With Remington Arms Company.	B.E. 1913,	Bridgeport, Conn.
ZEBULON WHITEHURST TAYLOR,†	B.E. 1914,	Tarboro, N. C.
ARTHUR LEE TEACHEY, Agriculturist, Pleasant Garden Farm Life School.	B.S. 1915,	Pleasant Garden, N.C.
JAMES CLARENCE TEMPLE, M.S. 1908. Bacteriologist, Georgia Experiment Station.	B.S. 1904,	Experiment, Ga.
MALVERN HILL TERRELL, Electrical Engineer, U. S. Government.	B.E. 1909,	Atlanta, Ga.
FRANK MARTIN THOMPSON, With Lorillard Tobacco Co.	B.E. 1910,	New York, N. Y.
GEORGE LOGAN THOMPSON,	B.E. 1912,	Goldsboro, N. C.
JOHN SAM THOMPSON, Farmer.	B.S. 1912,	Woodville, N. C.
THOMAS HAMPTON THOMPSON, With Southern Railway.	B.E. 1910,	Greensboro, N. C.
BUXTON WILLIAMS THORNE,†	B.E. 1893,	Holly Springs, Miss.
THOMAS WHITMELL THORNE, Salesman, National Tube Co.	B.E. 1911,	Atlanta, Ga.
DANIEL WOOD THORP, JR., Civil Engineer, with Jefferson Construction Co.	B.E. 1914,	Charleston, S. C.
LUTHER RUSSELL TILLET,* Civil Engineer.	B.E. 1907,	Zamboanga, P. I.

* Not heard from this year.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
RICHARD HENRY TILLMAN, Industrial Engineer, Consolidated Gas, Electric Light and Power Co.	B.E. 1906,	Baltimore, Md.
WILLIAM SIDNEY TOMLINSON, Civil Engineer, Shand Engineering Co.	B.E. 1906,	Columbia, S. C.
JAMES EDWIN TOOMER, Chief Chemist, American Zinc Company of Tennessee.	B.S. 1909,	Mascot, Tenn.
JAMES RICHARD TOWNSEND, Assistant Engineer to E. W. Myers, Consulting Engineer.	B.E. 1914,	Greensboro, N. C.
JESSE ERNEST TREVATHAN, With N. C. Agricultural Experiment Station.	B.S. 1915,	West Raleigh, N. C.
CHARLES EDWARD TROTTER,† M.D., Johns Hopkins University.	B.S. 1903,	Franklin, N. C.
GEORGE REID TROTTER, Electrician DuPont Powder Co.	B.E. 1912,	City Point, Va.
WILLIAM BROOKS TRUITT, Superintendent Steel Department, Wysong-Miles Co.	B.E. 1907,	Greensboro, N. C.
FRED GOODE TUCKER, Engineer and Dealer in Real Estate.	B.E. 1911,	Petersburg, Va.
ISAAC NORRIS TULL, Electrical Engineer, Corrigan-McKinney Co.	B.E. 1910,	Cleveland, Ohio.
REID TULL, City Engineer.	B.E. 1906,	Spartanburg, S. C.
JOHN EDWIN TURLINGTON, M.S. and Ph.D., Cornell University. Superintendent Craven County Farm-life School.	B.Agr. 1907,	Vanceboro, N. C.
JOSEPH PLATT TURNER, Owner Twin City Supply Co.	B.E. 1902,	Leaksville, N. C.
WILLIAM HARRISON TURNER, Manufacturer of Feedstuffs.	B.E. 1893,	Winston-Salem, N. C.
JACKSON CORPENING TUTTLE, Industrial Power Department, Consolidated Gas, Electric Light and Power Co.	B.E. 1906,	Baltimore, Md.
ROBERT PEELE UZZELL, Real Estate and Farming.	B.Agr. 1906,	Goldsboro, N. C.
PETER VALAER, JR., M.S. 1913, George Washington University. Bureau Internal Revenue.	B.S. 1906,	Washington, D. C.
CLYDE LOREINE VANN,†	B.E. 1914,	Fayetteville, N. C.
LILLIAN LEE VAUGHAN, M.E. 1909. M.E. 1911, Columbia University. Assistant Professor of Experimental Engineering, N. C. College of Agriculture and Mechanic Arts.	B.E. 1906,	West Raleigh, N. C.

† Deceased.

<i>Name.</i>	<i>Degree.</i>	<i>Address.</i>
SOLOMON ALEXANDER VEST,	B.S. 1900 (Chem.),	Mount Pleasant, Tenn.
B. Agr. 1901. Secretary and Treasurer, the Smith Laboratory, and Chemist for J. J. Gray, Jr., Rockdale, Tenn.		
SILVESTER MURRAY VIELE,	B.E. 1905,	Altoona, Pa.
With Pennsylvania Railroad Co.		
JOHN LAWRENCE VON GLAHN,	B.E. 1908,	Baltimore, Md.
With M. M. Elkan, General Contractor.		
EDWIN THOMAS WADSWORTH,	B.E. 1911,	Charlotte, N. C.
Automobile Dealer.		
ROSCOE MARVIN WAGSTAFF,	B.E. 1900,	Norfolk, Va.
Marine Engine and Boiler Draftsman, Machinery Division, U. S. Navy Yard.		
JOSEPH KENDALL WAITT,	B.E. 1904,	Norfolk, Va.
Record Examiner, Valuation Department, Seaboard Air Line Railway.		
WALTER JENNINGS WALKER,	B.E. 1905,	Schenectady, N. Y.
General Electric Co. Home Address, Winston-Salem, N. C.		
STEVEN DOCKERY WALL,†	B.E. 1905,	Rockingham, N. C.
BENJAMIN FRANKLIN WALTON,	B.S. 1894,	Raleigh, N. C., R. 1.
Farmer.		
CHARLES EMMETTE WALTON,	B.E. 1910,	Havana, Cuba.
With Crocker-Wheeler Co.		
EDMUND FARRIS WARD,	B. Agr. 1907,	Smithfield, N. C.
Member of the firm of Abell & Ward, Lawyers.		
JAMES HUGH WARD,	B.E. 1915,	City Point, Va.
Civil Engineer, with DuPont Powder Co.		
HUGH WARE,	B.S. 1899,	Kings Mountain, N. C.
Farmer.		
CHARLES AUGUSTUS WATSON,†	B.S. 1901,	Raleigh, N. C.
JAMES HUNTER WATSON,	B.S. 1911,	Raleigh, N. C.
JORDAN LEA WATSON,†	B.S. 1897,	Atlanta, Ga.
M.E. 1899.		
WILL MILLER WATSON,	B.E. 1915,	City Point, Va.
Electrician, DuPont Powder Co.		
WALTER WELLINGTON WATT, JR.,	B.E. 1905,	Charlotte, N. C.
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CHARLES WRIGHT WEAVER,	B.E. 1915,	City Point, Va.
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EDWIN SEYMORE WHITING,†	B.E. 1903,	Hamlet, N. C.
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ARCHIE CARRAWAY WILKINSON, Civil Engineer, Southern R. R.	B.E. 1905,	Greer, S. C.
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ARTHUR JOHN WILSON, M.S. 1908. Ph.D. 1911, Cornell University.	B.S. 1907,	Chattanooga, Tenn.
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