

Department of Mathematics

CHARLES PURYEAR, PROFESSOR
ROBT. F. SMITH, ASSOCIATE PROFESSOR
J. W. MITCHELL, ASSISTANT PROFESSOR
J. N. MICHIE, ASSISTANT PROFESSOR
J. D. GARNER, ASSISTANT PROFESSOR
D. C. JONES, ASSISTANT PROFESSOR
I. C. NICHOLS, ASSISTANT PROFESSOR
J. D. BOND, INSTRUCTOR

Agricultural and Mechanical College

of
Texas

College Station, Texas

Jan. 1st, 1915.

CHARLES PURYEAR, PRESIDENT PRO TEM.

Doctor W. B. Bizzell,

Pres'd't A. & M. College,

College Station, Tex. Dear Sir; For some years it has been my privilege and pleasure to supply the College with bound volumes of a complete file of its catalogues.

In the destruction of the Main Building in the spring of 1911, a part of the volumes were so badly damaged as to require renewal.

It is now my pleasure to hand you bound volumes of a complete file except a part of the twelfth catalogue, which was partly destroyed, or lost, and which present

I have not been able to replace. In completing my file, I am greatly indebted to Dean Charles Puryear for a number of catalogues which I lacked, and also to Professor D. W. Spence for catalogue for 1903-'04.

Yours very truly,

Robt. F. Smith

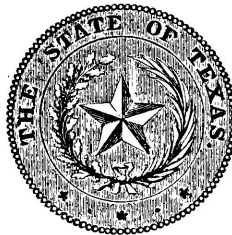
SPECIAL ATTENTION IS CALLED TO THE SPECIMEN ENTRANCE EXAMINATIONS (SEE APPENDIX). YOUNG MEN INTENDING TO APPLY FOR ADMISSION ARE URGED TO SATISFY THEMSELVES, BEFORE COMING TO THE COLLEGE, THAT THEY CAN ANSWER SUCH QUESTIONS.

BULLETIN OF THE
AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

VOL. I.

MAY, 1904.

No. 5.



TWENTY-EIGHTH
ANNUAL CATALOGUE
SESSION 1903-04.

Entered February 27, 1904, at
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as second class matter, under Act of Congress of July 16, 1894.

AUSTIN:
VON BOECKMANN-JONES COMPANY, STATE PRINTERS,
1904.

CALENDAR.

1904.							1905.							1906.													
JULY.							JANUARY.							JULY.							JANUARY.						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	5	6	7	8	7	8	9	10	11	12	13
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31	30	31
AUGUST.							FEBRUARY.							AUGUST.							FEBRUARY.						
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14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
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SEPTEMBER.							MARCH.							SEPTEMBER.							MARCH.						
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OCTOBER.							APRIL.							OCTOBER.							APRIL.						
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NOVEMBER.							MAY.							NOVEMBER.							MAY.						
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DECEMBER.							JUNE.							DECEMBER.							JUNE.						
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...	31	

COLLEGE CALENDAR.

1904.

Fall Term begins Wednesday, September 28.
Entrance Examinations, September 28, 29.
Anniversary Austin Society, November 15.
National Holiday, Thanksgiving Day,
Christmas Holidays begin December 23.

1905.

Winter Term begins Tuesday, January 3.
National Holiday, February 22.
State Holiday, March 2.
Spring Term begins Monday, March 27.
State Holiday, April 21.
Commencement Sermon, Sunday, June 11.
Exhibition of Departments and of Work of Students, June 12.
Commencement Day, June 13.

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Associate Professor of Mathematics.

T. P. JUNKIN, A. M.,
Associate Professor of Mathematics.

F. R. MARSHALL, B. S. A.,
Associate Professor of Animal Husbandry.

R. L. BENNETT, M. S.,
Lecturer on Cotton Culture.

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G. C. EMBRY, B. Lit.,
Instructor in English.

JOHN H. RIETZ, D. V. M.,
Instructor in Veterinary Science.

W. C. McNUTT,*
Instructor in Wood Work.

* Resigned January 31st.

W. W. BAVINGTON,*
Instructor in Iron Work.

W. H. WHITEHEAD,
Instructor in Wood Work.

V. H. FOY, B. S.,
Instructor in Iron Work.

L. H. SCHOLL,
Instructor in Apiculture.

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PROFESSOR BITTLE,
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E. DWIGHT SANDERSON, B. S. A.,
State Entomologist.

P. S. TILSON, M. S.,
Assistant State Chemist.

*Resigned February 5th,

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Agriculturist.

E. C. GREEN, B. S.,
Assistant Horticulturist.

G. S. FRAPS, Ph. D.,
Assistant Chemist.

R. L. BENNETT,
Cotton Specialist.

J. K. ROBERTSON,
Superintendent State Station, Beeville.

W. S. HOTCHKISS,
Superintendent State Station, Troupe.

HISTORICAL SKETCH.

ORIGIN.

The Agricultural and Mechanical College of Texas, like the land grant institutions in the other States of the Union, owes its origin to an act of Congress approved July 2, 1862. This act donated public lands to the several States and Territories which might provide Colleges for the benefit of Agriculture and the Mechanic Arts, and directed the Secretary of the Interior to issue land scrip to States in which there was not the requisite quantity of public land. The act further directed that the money derived from this source should constitute a perpetual fund, the principal of which should remain forever undiminished, and the interest of which should be inviolably appropriated by each State to the endowment, support and maintenance of at least one technological College, whose leading object should be, without excluding other scientific and classical studies, and including military tactics, to teach branches of learning pertaining to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life. It was further provided that the provisions of the act should be formally accepted by the State Legislature. By joint resolution approved November 1, 1871, the Legislature of Texas accepted the provisions of the Congressional legislation, and accordingly there was issued to Texas scrip for 180,000 acres of public land, which was sold for \$174,000. This amount was invested in Texas 7 per cent gold frontier bonds. At the time of the opening of the College there was an addition to the fund of accrued interest amounting to \$35,000, which was invested in 6 per cent State bonds.

In an act approved April 17, 1871, the Legislature provided for the establishment of the Agricultural and Mechanical College. By the terms of this and later acts, appropriations aggregating \$187,000 were made for buildings and equipment. A commission to locate the College was created by the Legislature. After a careful investigation, the commission accepted the propositions of the citizens of Brazos County and located the institution on a tract of 2416 acres of land in that county. Finally, the constitutional convention of 1876 constituted the College a branch of the University of Texas, and, in accordance with the terms of the federal legislation, designated it as an institution for instruction in agriculture and the mechanic arts and the natural sciences connected therewith. The convention further provided that the Legislature should

have the right to levy taxes for the maintenance and support of the Agricultural and Mechanical College.

The College was formally opened for the reception of students October 4, 1876.

GROWTH OF THE COLLEGE.

Since 1876, by means of financial aid voted by Congress and of appropriations made by the State Legislature, there has been developed a considerable foundation at the College for instruction, for investigation, and for experiment. In 1887 Congress voted the sum of \$15,000 to each State for the purpose of establishing Experiment Stations to conduct original research on the physiology of plants and animals, the diseases of plants and animals, the chemical composition of useful plants, the advantages of rotation of crops, climatology, analyses of soils and waters, the composition of manures, the value of grasses and forage, the composition and digestibility of the different kinds of food for domestic animals, the scientific and economic questions involved in the production of butter and cheese, and such other researches and experiments in agriculture as might be deemed advisable.

In 1890 Congress further appropriated the sum of \$15,000 with an annual increase of one thousand dollars for ten years, and provided that the amount appropriated should be equitably divided between the Agricultural and Mechanical College and an institution intended for the technical education of colored students.

In 1895 the Legislature made provision for an experiment station at Beeville, and in 1900 for a second experiment station at Troupe.

At the College proper there are five dormitories, a main building for offices and section rooms, an Agricultural and Horticultural Building, a Chemical-Veterinary Building, a Mechanical Engineering Building, a Textile Engineering Building, a hospital, a natatorium, a water, ice and light plant; a laundry, a sewerage system, barns and out houses, and residences for instructors and officers, with a total valuation of approximately \$500,000.

GOVERNMENT.

The government of the College is vested in a Board of eight directors, appointed by the Governor for a term of two years. One of the directors is the Commissioner of Agriculture, Insurance, Statistics and History, who serves on the Board by virtue of the office which he holds.

The immediate regulation and direction of the affairs of the College are delegated by the Board of Directors to the President and Faculty.

DEPARTMENTS.

By action of the Board of Directors, the College now has the following departments in operation: Department of Animal Husbandry and

Dairy Husbandry, embracing instruction in agriculture, the experiment stations, and the farm; Department of Botany and Mycology, Department of Chemistry and Mineralogy, Department of Civil Engineering, Department of Drawing, Department of English, Department of Entomology, Department of Farm Husbandry, Department of History, Department of Languages, Department of Mathematics, Department of Mechanical Engineering, Department of Military Science, Department of Physics and Electrical Engineering, Department of Plant Husbandry, Department of Textile Engineering, and Department of Veterinary Science. The College also offers the foundation of courses in railway mechanical engineering and in architecture, and provides short courses in agriculture for farmers, and in manual training for teachers.

OBJECTS.

The objects of the College are indicated in the provisions of the laws of Congress and of the State Constitution and Statutes. Briefly stated, the College was established for the purpose of furnishing an opportunity to the young men of Texas to qualify themselves to do expert work in all industrial pursuits and professions; to furnish information of a scientific and practical character to the people of the State actually engaged in farming, in horticulture, in dairying, and in stock raising, and in every possible way to advance all industrial interests of the State. To meet the urgent demand for men of industrial skill, the work of the College has been so planned as to train men in the scientific principles of agriculture, horticulture, cattle raising and related pursuits, and in civil and mechanical engineering, drawing and architecture. As rapidly as the funds of the College will allow, provision will be made for expert industrial work in all other directions.

The work of the College in behalf of those actually engaged in industrial pursuits is carried on through the experiment stations, including the main station established at the College, and the two sub-stations at Beeville and Troupe, through the Departments of Animal Husbandry and Dairy Husbandry, Chemistry and Mineralogy, Entomology, Plant Husbandry, and Veterinary Science. The Professor of Chemistry is State Chemist, and as such does a large amount of fertilizer, water and mineral analyzing for individuals throughout the State. Through the experiment stations information is furnished to farmers and others in the form of bulletins and through press notices and correspondence. At present there are 15,000 farmers whose names appear on the regular mailing list of the Agricultural Department. The Department desires to increase this list as rapidly as possible, and will probably within the next year or eighteen months add twenty or thirty thousand other names. Furthermore, as opportunity permits the members of the stations and

agricultural staffs visit different sections of the State for the purpose of giving institute lectures to various associations and gatherings of agriculturists. It will be seen that it is by no means the exclusive mission of the College to furnish instruction to the three or four hundred students who matriculate in the institution. Its constituency embraces, in addition to the student body, fifteen or twenty thousand men actively engaged in industry; and a much wider constituency than this is reached through the press, the correspondence and the lectures.

The law requires the President to see that every student takes an industrial course; care is taken, however, not to omit the more general forms of knowledge which are essential to a liberal education. Only by laying a strong foundation in the field of general science and literature can men be turned out with adequate preparation to take their proper places as directors in industrial advancement.

The military feature, made necessary by the acceptance of the federal grants, is an important adjunct to the other work of the College. It is conducive to health and to bodily grace and strength and cultivates habits of strict attention, and of obedience, punctuality, neatness and regularity.

DISCIPLINE.

By reason of its isolated location the College is able to exercise effective oversight over the student body. The authorities do not undertake to restrain the liberty of the student more than is necessary for the securing of good results in scholarship and conduct. Each student is expected at all times to conduct himself as a gentleman, and to attend promptly and faithfully to all his duties.

Students are not allowed to leave the College grounds either to visit neighboring towns for brief periods, or to visit home for longer periods, without first securing permits from the Commandant of Cadets or from the President. Whenever any student has reasonable grounds for his application such permits are granted.

The College is not a reformatory. It encourages the attendance of young men who have a serious purpose and who really wish to secure a thorough technological training. The Faculty will do everything in its power to assist every cadet, both in securing a sound education and in forming correct habits, but will not tolerate the presence of young men who evince a determination not to study and not to comply with reasonable regulations.

Students who fail to apply themselves or to conduct themselves properly will first be warned and may be put upon probation. In each case their parents will be notified of their shortcomings. If, after full warning to the cadet and to his parents, improvement does not take place,

the Faculty may suspend the cadet for a longer or shorter time, or may dismiss him at their discretion.

In order to keep parents systematically informed concerning the progress of their sons, reports, showing class standing and records of conduct, are sent out monthly from the President's office.

METHOD AND SCOPE OF INSTRUCTION.

The several courses of instruction are designed in accordance with the above outline of objects and policy. In all of them the fundamental idea is education in practical science, particularly in agriculture, and in engineering. With this idea in view, instruction is given in English, history, economics, mathematics, foreign languages, physics, chemistry, and in other studies which lie at the foundation of a sound education and furnish the best preparation for the more technical studies of the several courses. Instruction is given by the use of text books, by lectures and recitations; also by practice in the shop, field, laboratory and drawing room. These practical exercises have a high educational value, and serve a useful purpose in fixing and rendering clear the ideas presented in the class room; and they have also a practical value, for they are, in great measure, examples of just such problems as the scientific agriculturist, or engineer, will encounter in the pursuit of his calling. For convenience of instruction, the classes are subdivided into sections of suitable size. Unannounced written exercises and examinations will be given at the discretion of instructors. Regular written examinations are held at the end of each term.

LOCATION.

The College is situated at College Station, in the county of Brazos, and is 350 feet above sea level. The Houston and Texas Central and the International and Great Northern railroads run through the grounds, daily trains stopping at the stations, about 650 yards from the main building. Students and visitors are advised to take trains arriving in the daytime.

POSTOFFICE.

College Station is a money order postoffice. Letters intended for persons at the College should not be directed to Bryan. At College Station there are telegraph and express offices.

HEALTH.

The buildings of the College are situated on an eminence with a sufficient slope in every direction to insure the drainage of the cam-

pus. As to the hygienic aspect of the location, there is not anything connected with the site which might be regarded as prejudicial to health or act as a causative element in the production of disease.

In order that the students may have the purest and best possible supply of water for drinking purposes, the College furnishes carefully collected cistern water filtered through charcoal before entering the cisterns.

The barracks are inspected daily, and are kept neat and clean throughout. The rooms are well lighted and comfortable.

Drill, shop and field practice, work, and out-door athletic sports furnish sufficient and varied exercise. Furthermore, they contribute very much to the maintenance of health and proper physical development.

The health of the student body is a very important factor in the amount and efficiency of the work done. There is no endemic disease at the College. Most of the sickness is the result of indiscretion on the part of the student, or is due to the introduction of some mild epidemic disease such as measles or mumps. The medical fee paid by each student upon entrance secures the prompt attendance of the College physician in all cases of sickness.

The infirmary is a two-story frame structure. There are four large wards with bath, toilet rooms, etc., capable of accommodating about thirty-five patients. A competent trained nurse is employed, thus securing the best of care for the sick. The diet of sick students is a matter of no little concern, and great care is taken to supply such nourishment as is best adapted to the condition of each patient.

INFORMATION CONCERNING ADMISSION.

BEGINNING OF THE SESSION.

The twenty-ninth annual session will open Wednesday, September 28, 1904, and will close Tuesday, June 13, 1905.

Students should not arrive at the College earlier than Tuesday, September 27. Parents are requested to communicate with the President before sending their sons.

REQUIREMENTS FOR ADMISSION.

To enter the College, an applicant must be at least sixteen years old and physically able to perform the duties of a cadet. He must be free from contagious or infectious disease and may be required to furnish evidence that he has not been dismissed from another institution of learning, and that his moral character is good.

Candidates may be admitted to the Freshman class in one of three ways: (a) by examination, (b) on diploma from an affiliated school, (c) on special approval.

A. ADMISSION BY EXAMINATION.

Candidates will be examined in the subjects mentioned below. The treatment given in the text books indicated will suffice for the purpose of these examinations.

1. Arithmetic, complete. *Sutton and Kimbrough's Higher Arithmetic.*
2. Algebra to quadratics, including the fundamental operations, factoring, highest common factor, lowest common multiple, fractions, equations of the first degree with one or more unknown quantities, involution, evolution, theory of exponents, radicals, equations containing radicals. Complete Secondary Algebra. (*Fisher and Schwatt.*)
3. Advanced English Grammar and Composition. (*Maxwell.*)
4. History of Texas. (*Mrs. Pennybacker.*)
5. History of the United States. (*Mrs. Lee.*)
6. Ancient History, as treated in *Meyers's General History.*

Specimen entrance examination questions may be found in the appendix.

B. ADMISSION ON DIPLOMA.

Graduates of affiliated schools are admitted to the Freshman class at the beginning of the session without examination. For list of affiliated schools see page 91.

C. ON SPECIAL APPROVAL.

Young men eighteen years old, or over, who have studied the required subjects may, with the consent of the President and professors concerned, be admitted without examination.

ADVANCED STANDING,

Applicants for advanced standing and those who come after the time set for the entrance examinations will be examined also upon the work already gone over by the class they propose to enter.

MATRICULATION.

Upon arrival at the College, young men intending to enter will report as soon as possible to the President of the College. From him they will go to the several professors for examination and enrollment in classes, and to the Commandant for assignment to company and quarters.

EXPENSES FOR THE SESSION.

Trust fund, payable on entrance.....	\$ 5 00
Incidental fee, payable on entrance.....	5 00
Medical fee, payable on entrance.....	8 00
Maintenance, Fall Term, payable on entrance.....	44 00
Maintenance, Winter Term, payable January 3.....	44 00
Maintenance, Spring Term, payable March 27.....	44 00
	<hr/>
Total	\$150 00

The trust fund is to pay for property damaged or destroyed, and will be returned to the parent if there is no charge of this kind against the student.

Incidental and medical fees will in no case be refunded.

Maintenance includes board, fuel, washing, lights, room rent, single bedsteads, mattresses, pillows, tables, washstands, chairs, buckets, basins, and slop cans.

Each student is required to keep on hand a supply of bed clothing, towels, underwear, etc. For winter he should provide himself with an overcoat or mackintosh.

Students are required to take their meals at the Mess Hall.

Payment for each term must be made in advance, but a student entering during a term will be charged maintenance for the remainder of that term only.

A student once entering for a term, and having paid for that term, or the balance of it, forfeits all claim to said payment in case of volun-

tary withdrawal from the College before the expiration of said term, except in case of sickness disqualifying him for the discharge of his duties for the rest of the term.

Expenses of a graduate student will be \$15 for material used in laboratories and practical work, and \$8 for medical fee, with charge for maintenance as above. Day students pay \$18, as trust fund, incidental fee, and medical fee, as above.

UNIFORM.

Each cadet will be required to provide himself with a regular cadet gray uniform consisting of a blouse, trousers and cap. In addition each cadet will be required to provide, for use during hot weather, a blue flannel shirt of approved pattern with belt, to be worn instead of blouse, and a campaign hat. Furthermore, each student must also have, for shop and field practice, a working suit of drilling, which costs from \$1.50 to \$2.50. Straight white standing collars that lap in front, black ties, white cuffs and black shoes are also parts of the required equipment.

With the exception of collars, cuffs, ties and shoes, these uniforms are made by contract, and students are required to purchase from the contractors, in order that uniformity may be secured in the cut and quality of the clothing, and that parents may be protected from imposition by irresponsible persons, and may secure the best material for the lowest price. All parts of the equipment are carefully inspected by the Commandant of cadets, in order that good fits and satisfactory materials may be secured.

By means of the contract system not only is there a saving effected, but there is also furnished a guarantee that the materials shall be of the requisite pattern and quality. For the efficient enforcement of the arrangements entered into, the College authorities require that each student shall make his purchases through the machinery provided at the College, and that a deposit sufficient to cover the purchase price of the equipment shall be placed in the hands of the Treasurer when the cadet matriculates. It is necessary that the students have the various uniforms at the earliest possible moment; and, therefore, it is absolutely essential that there be no delay in making the deposits. No suit will be ordered until such deposit has been made.

The regular uniform suit, including cap, trousers and blouse, will cost not less than \$15 and not more than \$18. The blue flannel shirt, which is the best army shirt, guaranteed to be all wool and fast color, will probably cost between \$1.85 and \$2. The campaign hat will cost from \$1.25 to \$1.50.

It should be distinctly realized that this clothing is not an additional expense, but that it is the cheapest clothing that cadets can wear. It is very neat in appearance and is serviceable and durable.

BOOKS.

The College runs a book store for the purpose of supplying books to students at the lowest cost. The books are bought direct from the leading houses and are sold to students at a price just sufficient to cover the bare cost. The approximate cost of text books for the Freshman class is \$9.50, for the Sophomore class \$11, for the Junior class \$15, for the Senior class \$18.

STUDENT LABOR.

The Legislature has provided a fund by which a limited number of industrious young men may defray a part of their expenses by working for the College at such times as their regular duties will permit.

The rate of pay is made to depend upon the character of the work, and the manner in which it is performed.

EXPULSIONS.

At a joint session of the Board of Regents of the University of Texas and the Board of Directors of the Agricultural and Mechanical College, held at College Station, Texas, from June 30 to July 1, 1896, the following order was made.

"It is ordered, that hereafter, when any student shall be dismissed or expelled, from either of the branches of the University of Texas on account of any immoral or other conduct which shall render him an unfit character to be matriculated in any of such branches, it shall thereupon be the duty of the branch so expelling or dismissing such student to immediately notify the other branches of their action, whereupon such other branches shall refuse to receive such students for matriculation, or even for examination, should he apply therefor, until the branch which has so expelled or dismissed him, has rescinded or reconsidered its former action, and recommended such student for admission into such other branch at which he may apply.

COURSES OF STUDY.

1. The regular courses. There are five regular courses: in Agriculture, in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Textile Engineering. These courses extend through four years and lead to the degree of Bachelor of Science, the particular course pursued being specified in the diploma. Pages 22 to 67.

2. A graduate course in Agriculture, leading to the degree of Master of Science in Agriculture. Page 39.

3. Courses leading to the degrees of Civil Engineer, Electrical Engineer, Mechanical Engineer, Textile Engineer. Continuations of the regular Engineering courses. Page 68.

4. A short course in Agriculture. Page 40.

5. Elective Courses. Page 81.

6. A two-years' course. Page 82.

NOTE:—In addition to the work shown in the curricula of the several courses all undergraduates, except students in the short course in agriculture, have military drill. See Course 3, Military Science, page 79.

COURSE IN AGRICULTURE.

It is the object of this course to give young men a thoroughly practical and scientific training in those branches of science which relate to agriculture and horticulture. It is also intended that the student's general training shall not be neglected, and to this end he is given instruction in the English language, history and mathematics, in addition to the special instruction in the sciences of chemistry, physics, botany and animal anatomy and physiology.

The twenty-four hundred acres in the farm, one hundred and twenty milch cows (Jerseys, Holsteins and grades), hogs, work stock, tools and machinery, silos, etc., furnish illustrations of practical value to the student. The dairy is fitted with milk separators, pasteurizers, churns, butter-workers and milk testing machines. The greater part of the labor of the dairy is done by the students in the courses in agriculture; for this and other work they are paid at a maximum rate of twelve and one-half cents per hour.

The permanent location of the Texas Agricultural Experiment Station at the College makes it possible to give students the benefit of experiments conducted at the College, and the Experiment Station library forms a valuable adjunct to the regular College library by furnishing the results of valuable tests made along agricultural lines in other States. The library also receives the leading agricultural periodicals, which are available to students.

The studies in the course in Agriculture are divided into three groups; group A giving prominence to Farm Husbandry, and group B to Plant Husbandry, and group C to Animal Husbandry and Dairy Husbandry.

The choice of the three groups must be made at the beginning of the Junior year.

NOTE:—The curriculum shown on the following pages is designed for students entering the agricultural course as freshmen in 1904. For students who have already entered the course, the curriculum will differ in some respects from that shown.

COURSE IN AGRICULTURE.

NOTE:—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of the department. *Practice* is indicated by italics.

FRESHMAN YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Animal Husbandry (1)	3	Animal Husbandry (2)	3	Plant Husbandry (1)	3
Judging.		Judging.		Horticulture.	
English (1)	6	English (1)	6	English (1)	6
Rhetoric and Comp.		Rhetoric and Comp.		Rhetoric and Comp.	
History (2)	3	History (2)	3	History (2)	3
Mediæval and Modern.		Mediæval and Modern.		Mediæval and Modern.	
Mathematics (1) (2)	6	Mathematics (1) (2)	6	Mathematics (2)	6
Algebra, Geometry.		Algebra, Geometry.		Geometry.	
<i>Animal Husbandry</i> (1)	2½	<i>Animal Husbandry</i> (2)	2½	<i>Plant Husbandry</i> (1)	2½
<i>Drawing</i> (1) (2)	4	<i>Drawing</i> (1) (2)	4	<i>Drawing</i> (1) (2)	4

SOPHOMORE YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Animal Husbandry (3)	3	Plant Husbandry (2)	2	Animal Husbandry (4)	3
Judging.		Nursery Methods.		Judging.	
Farm Husbandry (1)	4	Farm Husbandry (2)	2	Plant Husbandry (3)	4
Farm Crops.		Farm Equipment.		Truck Gardening.	
Mathematics (3)	3	Mathematics (3)	3	Botany (1)	3
Trigonometry.		Trigonometry.		Morphology, Syst. Bot.	
		Chemistry (1)	3	Chemistry (1)	3
		Inorganic.		Inorganic.	
English (2)	3	English (2)	3	English (2)	3
Literature.		Literature;		Literature.	
Entomology (1)	3	Veterinary Science	3		
Invertebrate Zoology.		Vertebrate Zoology.			
<i>Animal Husbandry</i> (3)	2½	<i>Veterinary Science</i>	2½	<i>Animal Husbandry</i> (4)	2½
<i>Farm Husbandry</i> (1)	2½	<i>Plant Husbandry</i> (2)	2½	<i>Plant Husbandry</i> (3)	2½
<i>Entomology</i> (1)	2½	<i>Chemistry</i> (1)	2½	<i>Chemistry</i> (1)	2½
<i>Mech. Engineering</i>	2½	<i>Mech. Engineering</i>	2½	<i>Botany</i>	2½
Blacksmithing.		Carpentry.			

Group A.—Farm Husbandry.

JUNIOR YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Farm Husbandry (3) Farm Equipment.	3	Farm Husbandry (4) Soils.	3	Farm Husbandry (5) Farm Crops.	3
Farm Husbandry (6) Irrigat'n and Drainage.	3	Farm Husbandry (7) Farm Machinery.	3	Farm Husbandry (8) Irrigat'n and Drainage.	3
Plant Husbandry (4) Orchards.	3	Entomology (2) Economic Entomology.	3	Plant Husbandry (6) Plant Breeding.	4
Botany (2) Physiology.	3	Military Science (1) Drill Regulations.	3		
Chemistry (2) Organic.	3	Chemistry (2) Organic.	3	Chemistry (3) Agricultural.	3
Physics (4) General Physics.	3	Physics (4) General Physics.	3	Physics (4) General Physics.	3
<i>Farm Husbandry</i> (3)(6) 5		<i>Farm Husbandry</i> (4)(7) 5		<i>Farm Husbandry</i> (5)(8) 5	
<i>Plant Husbandry</i> (4)	2½	<i>Entomology</i> (2)	2½	<i>Plant Husbandry</i> (6)	2½
<i>Botany</i>	2½				
<i>Chemistry</i> (2)	2½	<i>Chemistry</i> (2)	2½	<i>Chemistry</i> (3)	2½
<i>Physics</i> (4)	2½	<i>Physics</i> (4)	2½	<i>Physics</i> (4)	2½

SENIOR YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Farm Husbandry (9) Farm Equipment.	3	Farm Husbandry (10) Soils.	3	Farm Husbandry (11) Farm Crops.	3
Farm Husbandry (12) Farm Machinery.	3	Farm Husbandry (13) History of Agriculture.	3		
Military Science (2)	1	Civil Engineering (1) Survey'g and Level'g.	3	Animal Husbandry (11)3	
Botany (3) Physiology and Nutrit'n.	3	Botany (3) Physiology and Nutrit'n.	3	Botany (3) Physiology and Nutrit'n.	3
Chemistry (3) Agricultural.	3	Chemistry (4) Geology.	3	Chemistry (4) Geology.	3
History (3) Industrial History.	3	History (4) Industrial History.	3	History (5) Political Economy.	3
<i>Farm Husbandry</i> (9)(12)5		<i>Farm Husbandry</i> (1)	2½	<i>Farm Husbandry</i> (11)	2½
<i>Chemistry</i> (3)	5	<i>Civil Engineering</i> (1)	2½		
<i>Thesis</i>	2	<i>Thesis</i>	2	<i>Thesis</i>	2

Group B.—Plant Husbandry.

JUNIOR YEAR.

FALL.		WINTER.		SPRING.	
Plant Husbandry (4)	3	Plant Husbandry (5)	2	Plant Husbandry (6)	4
Orchards.		Small Fruits.		Plant Breeding.	
		Plant Husbandry (7)	1	Plant Husbandry (8)	1
		Viticulture.		Spraying.	
Farm Husbandry (3)	3	Entomology (2)	3	Farm Husbandry (5)	3
Farm Equipment.		Economic Entomology.			
Botany (2)	3	Military Science (1)	3		
Physiology.		Drill Regulations.			
Chemistry (2)	3	Chemistry (2)	3	Chemistry (3)	3
Organic.		Organic.		Agricultural.	
Languages (1) or (3)	3	Languages (1) or (3)	3	Languages (1) or (3)	3
French or German.		French or German.		French or German.	
Physics (4)	3	Physics (4)	3	Physics (4)	3
General Physics.		General Physics.		General Physics.	
Plant Husbandry (4)	2½	Plant Husbandry (7)	2½	Plant Husbandry (6) (8)	5
Farm Husbandry (4)	2½			Farm Husbandry (5)	2½
Botany	2½	Entomology (2)	2½		
Chemistry (2)	2½	Chemistry (2)	3	Chemistry (3)	3
Physics (4)	2½	Physics (4)	½ 2	Physics (4)	2½

SENIOR YEAR.

FALL.		WINTER.		SPRING.	
Plant Husbandry (9)	3	Plant Husbandry (10)	3	Plant Husbandry (11)	3
Pomology.		Greenhouses.		Experim'l Horticulture.	
Botany (3)	3	Botany (3)	3	Botany (3)	3
Physiology and Nutrit'n.		Physiology and Nutrit'n.			
English	1	English	1	Botany (4)	2
				Mycology.	
Chemistry (3)	3	Chemistry (4)	3	Chemistry (4)	3
Agricultural.		Geology.		Geology.	
Entomology (3)	2	Civil Engineering (1)	3		
Economic Entomology.		Survey'g and Leveling.			
History (3)	3	History (4)	3	History (5)	3
Industrial History.		Industrial History.		Political Economy.	
Military Science (2)	1			Plant Husbandry	3
				Elective from (12), (13), (14).	
Chemistry (3)	5	Plant Husbandry (10)	2½	Plant Husbandry (11)	2½
Botany (3)	2½	Botany (3)	2½	Botany (3), (4)	5
Entomology (3)	2½	Civil Engineering (1)	2½		
Thesis	2½	Thesis	2½	Thesis	2½

Group C.—Animal Husbandry and Dairy Husbandry.

JUNIOR YEAR.

FALL.	WINTER.	SPRING.
Animal Husbandry (5) 3 Dairying.	Animal Husbandry (6) 3 Breeding.	Animal Husbandry (7) 3 Breeding.
Farm Husbandry (3) 3 Farm Equipment.	Entomology (2) 3 Economic Entomology.	Farm Husbandry (5) 3 Farm Crops.
Chemistry (2) 3 Organic.	Chemistry (2) 3 Organic.	Chemistry (3) 3 Agricultural.
Physics (4) 3 General Physics.	Physics (4) 3 General Physics.	Physics (4) 3 General Physics.
Veterinary Science (1) 3 Physiology.	Veterinary Science 3	Veterinary Science 4
Veterinary Science (3) 1 Anatomy.	Military Science (1) 3 Drill Regulations.	
<i>Animal Husbandry</i> (5) 5	<i>Entomology</i> (2) 2½	<i>Animal Husbandry</i> (7) 2½
<i>Farm Husbandry</i> (3) 2½		<i>Farm Husbandry</i> (5) 2½
<i>Chemistry</i> (2) 2½	<i>Chemistry</i> (2) 2½	<i>Chemistry</i> (3) 2½
<i>Physics</i> (4) 2½	<i>Physics</i> (4) 2½	<i>Physics</i> (4) 2½
	<i>Veterinary Science</i> 5	<i>Veterinary Science</i> 2½

SENIOR YEAR.

FALL.	WINTER.	SPRING.
Animal Husbandry (8) 3 Feeding.	Animal Husbandry (9) 3 Feeding.	An. Husbandry (12) 3 Thesis.
An. Husbandry (10) 3 Adv. An. Husb'ry.	An. Husbandry (10) 3 Adv. An. Husb'ry.	An. Husbandry (11) 3 Rural Citizenship.
Chemistry (3) 3 Agricultural.	Chemistry (4) 3 Geology.	Chemistry (4) 3 Geology.
Military Science (2) 1	Civil Engineering (1) 3 Surveying and Levelg.	
History (3) 3 Industrial History.	History (4) 3 Industrial History.	History (5) 3 Political Economy.
Animal Husbandry (Elective) 3 Dairying or Irrigation.	Animal Husbandry (Elective) 3 Dairying or Irrigation.	Animal Husbandry (Elective) 3 Dairying or Irrigation.
<i>An. Husbandry</i> (8) (10) 5	<i>An. Husbandry</i> (9) (11) 5	<i>Animal Husbandry</i> (12) 5
<i>Chemistry</i> 3	<i>Civil Engineering</i> (1) 2½	

DEPARTMENT OF ANIMAL HUSBANDRY AND DAIRY
HUSBANDRY.

PROFESSOR CRAIG.

ASSOCIATE PROFESSOR MARSHALL.

The courses of study in the Department of Animal Husbandry and Dairy Husbandry may be grouped under the three main lines:

- (1) The Judging of Live Stock.
- (2) The Breeding of Live Stock.
- (3) The Feeding of Live Stock.

These are arranged to follow each other in proper order so that they may be best understood by the student, and most clearly taught by the instructor. Every effort is made to make every course in Animal Husbandry contribute to the better understanding of the others, and all unite in embracing the subject completely. Special efforts are made in every course to present the useful side, and also to devote as much time as possible to the practices. Students intending to specialize in Animal Husbandry are required to take the studies arranged under Group C.

The courses are as follows:

1. **Judging Market Classes of Cattle and Sheep. Freshman. Fall, 3 hours a week; Practice.**

The lectures are explanatory of the various classes of cattle and sheep which are recognized in the leading stock markets. The points of these and their value to the stockman, butcher, and consumer, are fully discussed. The practice embraces a thorough training in the scoring of fat cattle and fat sheep; supplemented by the study of dressed carcasses as far as possible.

Practice, 2½ hours a week.

2. **Judging Market Classes of Horses and Swine. Freshman. Winter, 3 hours a week; Practice.**

The classes of horses which are recognized in the leading markets are discussed fully, and followed by a similar treatment of swine. The distinction of these classes, and importance, is made clear by the further use of the score card during the practice periods.

Practice, 2½ hours a week.

3. Judging Breed Types of Cattle and Sheep. Sophomore. Fall, 3 hours a week; Practice.

As far as the equipment in live stock will permit, the student is shown, by means of representative animals, the best types of the breeds of cattle and sheep. The score cards of the different breed associations are used in determining the merits of the animals, and these are further explained in the lectures.

Practice, 2½ hours a week.

4. Judging Breed Types of Horses and Swine. Sophomore. Spring, 3 hours a week; Practice.

The distinctive features of the types of these breeds will be made clear by direct comparison, as far as possible. To aid in this, the score cards of the breed associations will be used extensively; followed by some advanced judging similar to that of the show ring.

Practice, 2½ hours a week.

5. Dairying. Junior. Fall, 3 hours a week; Practice.

Special attention is given to the details of dairying from the viewpoint of the farmer. The care of milk, the separation of the cream, and the after disposal of these products are discussed. The manufacture of butter is treated in a thorough manner, including the practical details of making it, together with the proper methods of preparing it for market and selling it. The construction of creameries, cheese factories, and dairies, is also discussed in detail.

Practice, 5 hours a week.

6. The Breeding of Live Stock. Junior. Winter, 3 hours a week.

The lectures of this course embrace a presentation of the principles of breeding, the methods of breeding, and the history and characteristics of the breeds of live stock. Heredity and variation and allied topics, are included in the lectures on the principles, while the subjects of in-breeding, line-breeding, and balanced-breeding are among those relating to the methods of breeding.

7. The Breeding of Live Stock. Junior. Spring, 3 hours a week; Practice.

The practices of breeding live stock are treated fully, including the business of producing pure-bred stock, as well as those for the common market. The breeding of horses, cattle, sheep, and swine as a business, is discussed in full detail; covering all features of management in production and marketing.

Practice, 2½ hours a week.

8. The Feeding of Live Stock. Senior. Fall, 3 hours a week; Practice.

The subjects of animal nutrition, the calculating of rations for farm

animals, and the composition of all available feed stuffs, are treated very fully in this course. The making of rations for different classes of stock from limited selections of foods is a part of the practice.

Practice, 2½ hours a week.

9. The Feeding of Live Stock. Senior. Winter, 3 hours a week; Practice.

This is a continuation of the work in feeding of the previous term. It embraces a study of the feeding of all classes of farm animals, horses, cattle, sheep, and swine. The student will be required to make abstracts of Experiment Station bulletins, and keep fully informed as to the latest publications relating to feeding from these sources.

Practice, 2½ hours a week.

10. Advanced Animal Husbandry. Senior. Fall, Winter, 3 hours a week; Practice.

In this course the work of competitive judging is given prominence. Classes of the different kinds of live stock are selected as similar as possible to those which come together in the show rings of exhibitions.

Practice, 2½ hours a week.

11. Rural Citizenship. Senior. Spring, 3 hours a week; Practice.

The farmer has important relations other than those intimately connected with his business. Among these, the farm-press and agricultural societies are of leading influence. Such should have his careful attention and assistance; consequently, the best ways of rendering these are worthy of comprehensive study. The investigation of assigned topics of timely interest, and the preparation of such in the proper way, is discussed fully. This has in view particularly the preparation of matter for the agricultural press, with the object of introducing the student to agricultural journalism. The organization of societies and the subject of parliamentary practice, and kindred topics, with such information as may be necessary for the formation of Farmers' Institutes and allied societies, will be presented in detail.

Practice, 2½ hours a week.

12. Thesis and Investigation. Senior. Spring, 3 hours a week; Practice.

The student is given opportunity to complete to the fullest extent, by original investigation and research, the lines of study in which he has taken his major work.

DEPARTMENT OF BOTANY AND MYCOLOGY.

PROFESSOR BALL.

The aim of this department is to utilize the time allotted to it in work which is most needful in the study of agricultural and horticultural sub-

jects and to give such knowledge of plant life as every well-educated man should possess.

Instruction is given by lecture and text, and especial emphasis is laid upon work done in the laboratory, where every effort is made to induce habits of independent observation and thought.

The courses are as follows:

1. **Morphology and Systematic Botany. Sophomore. Spring, 3 hours a week; Practice.**

Since it is better to learn a few things thoroughly than many superficially, the work of this term will be such an outline of internal and external morphology of the plant as will give a concise knowledge of its nature and lay the foundation for the study of systematic botany. As many of the plants of the neighborhood as time permits will be studied and identified. Text-Book and Practical Botany, *Strasburger*; Flora of the Southern States, *Chapman*. Reference books from the department library.

Practice, 2½ hours a week.

2. **Physiology. Junior. Fall, 3 hours a week; Practice.**

The functions of the various tissue systems are studied, as well as the reaction of the plant as a whole toward the more common outward stimuli, such as light, heat, gravitation, etc.

Practice, 2½ hours a week.

In Courses 1 and 2, the aim is to give a good foundation for the work of the Senior year which falls under the following heads:

3. **Physiology and Nutrition. Senior. Fall, Winter, Spring, 3 hours a week; Practice.**

A more extended study of plant physiology is here offered than is given in Course 2. The fall term is devoted to pure physiology, the winter term to the study of assimilation and selected topics in the chemistry and metabolism, such as the formation of proteids, of starch, sugars, and of the action of ferments. In the spring term the plant will be studied in its climatic distribution and in its local relation to soils. Physiology of Plants, *Darwin and Acton*; Flower Ecology, *Pammel*; Text-Book and Practical Botany, *Strasburger*.

Practice, 2½ hours a week.

4. **Mycology. Senior. Spring, 2 hours a week; Practice.**

A course in plant pathology is offered in which studies are made of representative diseases, with special reference to fruit and vegetable diseases.

Practice, 2½ hours a week.

GRADUATE WORK.

Botany.—Besides courses of reading, a thesis is required in one of the following subjects, or in an equivalent subject: Monographic study in Compositæ, Gramineæ, Leguminosæ, or any other family well represented in this vicinity; catalogue of the plants of this vicinity with ecological observations; morphological study of the development of the floral organs of any suitable family.

Mycology.—Systematic study of economic species of fungi; microscopical laboratory methods; spraying for plant diseases; original biological work, and thesis on some special work.

 DEPARTMENT OF ENTOMOLOGY.

PROFESSOR SANDERSON.

MR. CONRADI.

MR. SCHOLL.

It is the purpose of this department so to train the students that they may be able to investigate insect depredations as they occur, and determine what is the best remedy to apply or the best protective measure to provide. The department is well equipped with charts, models, lantern slides, a representative collection and library.

The courses are as follows:

1. Invertebrate Zoology. Sophomore. Fall, 3 hours a week; Practice.

During the first part of the term the habits and structure of typical forms of the lower invertebrate animals are discussed in the class-room and studied in the laboratory. During the last part of the term the various orders of insects are discussed as regards their classification, structure, and habits, and their anatomy studied in the laboratory. The course is designed to give the student a general knowledge of insects and their relationships to lower animals.

Practice, 2½ hours a week.

2. Economic Entomology. Junior. Winter, 3 hours a week; Practice.

Lectures upon injurious and beneficial insects, their life-histories, habits, and means of combating them. Special attention is given to the control of pests of staple crops by general methods of farm practice and to the general principles of insect control. In the laboratory and field the students examine specimens of the common injurious and beneficial insects so that they may recognize them, are introduced to the literature upon economic entomology and make observations upon the life-histories and habits of insect pests.

Practice, 2½ hours a week.

3. Economic Entomology. Senior. Fall, 2 hours a week; Practice.

A continuation of Course 2. Lectures upon the insects of fruit and garden crops and the use of insecticides and apparatus against them. Practice work in collection and identification of orchard and garden insects. Required of students in Group B.

Practice, 2½ hours a week.

4. Advanced Entomology. Senior. Elective.

Advanced work in the structure and classification of insects, and special investigation of insect pests in the field and laboratory. The work of this course will be outlined for each individual student and is designed for those electing thesis work in Entomology or those intending to pursue graduate work in this department.

5. Apiculture. Elective.

Although apiculture is not included in the regular course of study, those students desiring to study beekeeping will be given a complete course by arranging with the instructors. A model apiary with leading races of bees and all modern apparatus is available for practical work.

GRADUATE WORK.

Advanced work upon the comparative anatomy of insects; the formation and classification of a collection; laboratory and insectary technique; thesis work in original investigation. This work is designed to fit the student for professional entomological work.

DEPARTMENT OF FARM HUSBANDRY.

PROFESSOR JOHNSTON.

The course of study in the Department of Farm Husbandry presupposes that the young man entering it has had that training in farm matters that must necessarily come to a young man who has spent at least a portion of his early life upon the farm. The course is intended to add to this training, but not to displace it. The business of farming requires that a man should be able to do and to think. For this reason training in the use of reason is largely dwelt upon since experience has taught that the young men from the farms are usually much better prepared to do than to think.

A technical knowledge of those principles upon which depend the maintenance of fertility; the growth and management of farm crops; the effect of irrigation and drainage upon the soil and upon the crops; the planning of farms and erection of farm buildings; the use of power

upon the farm; and the use of farm implements and machinery, is required.

Students intending to follow the lines of work laid down in the courses in Farm Husbandry are required to take the studies arranged under Group A.

The courses are as follows:

1. Farm Cröps. Sopohomore. Fall, 4 hours a week; Practice.

Lectures and recitations upon the elementary principles of soil formation; upon the foods necessary to the growth of plants; and how the plant gets its food from the soil. Practice will be given in judging and scoring typical specimens of corn and the small grains.

Practice, 2½ hours a week.

2. Farm Equipment. Sophomore. Winter, 2 hours a week.

Lectures and recitations upon the selection and planning of farms; planning of farm buildings and fences; and laying out systems of farm roads.

3. Farm Equipment. Junior. Fall, 3 hours a week; Practice.

Lectures and recitations upon equipping of farms; erecting farm buildings; construction of roads; drawing plans of farms and farm buildings.

Practice, 2½ hours a week.

4. Soils. Junior. Winter, 3 hours a week; Practice.

Lectures and recitations upon the origin, formation, kinds, and physical properties of soils and their improvement by cultivation, fertilization, irrigation, and drainage. Laboratory practice will be given in testing physical properties of several soils; determining the relation of heat, moisture, and air and fertilizers to soils, and in making mechanical analyses of different soils.

Practice, 2½ hours a week.

5. Farm Crops. Junior. Spring, 3 hours a week; Practice.

Lectures and recitations upon history, production, cultivation, harvesting, and marketing of farm crops. Practice will be given with growing and dried specimens of crops, including grasses, clovers, and other forage crops.

Practice, 2½ hours a week.

6. Irrigation and Drainage. Junior. Fall, 3 hours a week; Practice.

Lectures and recitations are given upon the several methods of irrigation in use; the amount of water necessary for the various crops; and the available water supply of the State. The flow of water through soils

and the proper methods of protecting lands from washing are discussed. Practice is given in the laying out of efficient systems of open and tile drains.

Practice, 2½ hours a week.

7. Farm Machinery. Junior. Winter, 3 hours a week; Practice.

Lectures and recitations upon the construction and use of farm machinery, including the application of mechanical principles in its structure and operation. Practice will be given in making comparisons and tests of various makes and kinds of farm machinery.

Practice, 2½ hours a week.

8. Irrigation and Drainage. Junior. Spring, 3 hours a week; Practice.

Continuation of Course 6.

Practice, 2½ hours a week.

9. Farm Equipment. Senior. Fall, 3 hours a week; Practice.

Continuation of Course 3.

Practice, 2½ hours a week.

10. Soils. Senior. Winter, 3 hours a week; Practice.

Continuation of Course 4.

Practice, 2½ hours a week.

11. Farm Crops. Senior. Spring, 3 hours a week; Practice.

Lectures and recitations upon the effect of climate, soil, and markets upon the distribution and adaptation of the farm crops of the United States; the best methods of crop production, including a careful study of the details of field experimentation as set forth in experiment station bulletins and reports and the publications of the U. S. Department of Agriculture; and the consumption of farm crops.

Practice, 2½ hours a week.

12. Farm Machinery. Senior. Fall, 3 hours a week; Practice.

Practice, 2½ hours a week.

13. History of Agriculture. Senior. Winter, 3 hours a week.

Lectures and recitations upon the history of agriculture; present agricultural methods in various countries; cost and relative profits of various farm operations and systems.

DEPARTMENT OF PLANT HUSBANDRY.

MR. KYLE.

MR. GREEN.

It is the object of this course to prepare young men for both practical and scientific work in horticulture. To accomplish this end, every effort is made to give the student a thoroughly practical course, and at the same time to inspire in him a spirit of investigation and research.

There are upon the horticultural grounds two peach orchards, a pear, an apple, a persimmon, a fig orchard, and a vineyard, in which students receive practice in pruning, grafting and orchard management in general. Plantings of strawberries, blackberries and dewberries are being made, so that students may become thoroughly acquainted with these fruits that are becoming of so much importance to Texas. A nursery is being started for the purpose of giving instruction in budding, grafting and the minor details of nursery management.

On account of the rapid development in the State of truck farming, a great deal of attention is given to vegetable growing. Extensive variety tests are carried on, embracing nearly every species of vegetable grown in the South. The forcing-house, hot-beds, and cold-frames are used for the forcing of early truck crops.

During the Junior year, courses in forestry may be elected by students in group B. The courses are designed to give the fundamental principles of forestry. A stereopticon is used in exhibiting lantern-slides in landscape gardening, methods of fruit and truck growing, etc. The department library contains a number of select horticultural books and periodicals and an almost complete file of the bulletins published by the different experiment stations in the United States.

Students intending to follow the lines of work laid down in Plant Husbandry are required to take the studies arranged under Group B.

The courses are as follows:

1. **Elements of Horticulture. Freshman. Spring, 3 hours a week; Practice.**

This course is designed as an introduction to the general subjects of fruit and truck growing, gardening, and forestry. Plant Culture, *Goff. Practice*, 2½ hours a week.

2. **Nursery Methods. Sophomore. Winter, 2 hours a week; Practice.**

The principles involved in the different methods of propagation of plants are fully discussed in the class-room, this work being supplemented by practical operations in field and forcing-house, and at the

grafting bench. The protection of plants and nursery stock from insects and disease is considered. Lectures and reference books.

Practice, 2½ hours a week.

3. Truck Gardening. Sophomore. Spring, 4 hours a week; Practice.

Detailed instruction in planning, equipping, and operating vegetable plantations for home or commercial purposes is given in the class-room, and practical demonstrations and experience in the field are offered. Principles of Vegetable Growing, *Bailey*. Lectures, text and references.

Practice, 2½ hours a week.

4. Orchards. Junior. Fall, 3 hours a week; Practice.

This course contemplates a comprehensive study of the various kinds of fruit orchards, embracing the problems of location and soils, protection from insects and diseases, pruning, cultivation, harvesting, and marketing. Principles of Fruit Growing, *Bailey*. Lectures and references.

Practice, 2½ hours a week.

5. Small Fruits. Junior. Winter, 2 hours a week.

This course consists of a study of small and bush fruits similar to that of the tree fruits outlined in Course 9. Bush Fruits, *Card*. Lectures and references.

6. Plant Breeding. Junior. Spring, 4 hours a week; Practice.

This course is planned to give the student a better understanding of the benefits to be derived from the intelligent breeding of plants. The relation of horticultural varieties and hybrids to each other and to their parent species is discussed, together with the principles of pollination, crossing, and hybridization. Lectures and references.

Practice, 2½ hours a week.

7. Viticulture. Junior. Winter, 1 hour a week; Practice.

This course includes a study of the vine, its care, management, and products. The manufacture of jellies and the preservation of grape-must are considered. Lectures.

Practice, 2½ hours a week.

8. Spraying. Junior. Spring, 1 hour a week; Practice.

Discussion of compounds and apparatus used in combating insects and diseases. Practice in making the various mixtures and applying them to plants. Spraying of Plants, *Lodeman*. Lectures.

Practice, 2½ hours a week.

9. Pomology. Senior. Fall, 3 hours a week.

A comprehensive study of pomaceous, drupaceous, citrous and other

fruits. In regard to history, botany and relation of species and their varieties to soil and climatic conditions, the following are discussed: Apple, pear, quince, orange, lemon, persimmon, pomegranate, pomelo, guava, peach, plum, cherry, nectarine, apricot, olive, fig, pineapple, and banana. Practice in systematic pomology is given with such fruits as can be obtained during the autumn. Lectures and references. Open to students who have had Course 4.

10. Greenhouses. Senior. Winter, 3 hours a week; Practice.

Special attention is given to growing early vegetable plants, cut flowers, and palms. The course is especially designed to meet the needs of commercial truck growers and florists. Laboratory work in designing glasshouses and practice in the forcing-house are given. Greenhouse Construction, *Taft*.

Practice, 2½ hours a week.

11. Experimental Horticulture. Senior. Spring, 3 hours a week; Practice.

This course is intended to familiarize the student with the practical methods of planning and carrying out experiments. The student will be required to plan his experiment, prepare the land, mix and apply the fertilizer, sow the seed, care for and harvest the crop, and make a report on the results obtained.

Practice, 2½ hours a week.

12. Landscape Gardening. Elective. Junior. Spring, 1 hour a week.

Lectures are given on the history and development of gardening. The engineering and planting of parks, cemeteries, and home grounds are discussed. Lectures. Occasional practice.

13. Floriculture. Elective. Junior. Spring, 2 hours a week; Practice.

A full discussion is given of methods in growing, bedding plants, cut flowers, orchards, palms, and cacti. This course is designed for florists. Lectures and references.

Practice, 2½ hours a week.

14. Elementary Forestry. Elective. Junior. Spring, 2 hours a week.

A brief study of the history of forestry, means of propagation and development, and of the effects of forests on climate, etc. Lectures, references, and recitations.

DEPARTMENT OF VETERINARY SCIENCE.

PROFESSOR FRANCIS.

DR. RIETZ.

The instruction of students in Veterinary Science has been greatly facilitated by the use of rooms specially designed for this work. The lecture rooms are provided with terraced seats which permit every one to see the demonstrations. The dissecting room is convenient, well lighted, and floored with asphalt. The department is equipped with Azoux's model of the horse; some skeletons, charts, skulls, diseased bones, parasites, tumors, monstrosities, surgical instruments, etc.

The courses are as follows:

1. Physiology of the Domestic Animals. Junior. Fall, 3 hours a week.

A lecture course required of all agricultural students. Special attention is given to the functions of digestion, absorption, circulation, respiration and excretion that the student may be prepared to understand the problems in the economic production of beef, pork and dairy products. Students are advised to supplement the lectures by consulting text-books on the subject by *Smith, Mills* and others.

2. Comparative Anatomy of the Vertebrates. Elective.

An elective laboratory course, with weekly quiz, on the structure of fishes, batrachia, reptiles, birds and mammals. Open only to those who have had Course 1 or to those who have become familiar with laboratory methods, and are able to work without an instructor constantly at their elbows. The course may be offered or withdrawn at any time without notice or explanation.

3. Anatomy of the Horse. Junior. Fall, 1 hour a week.

A lecture course required of all agricultural students. It embraces a critical study of the bones, joints, muscles, organs of nutrition and the nervous system. Students are required to make one entire practical dissection of the horse.

Comparative Anatomy of the Domestic Animals, *Chauveau*; Anatomy of the Horse, *McFadyean*; Anatomie des Pferdes, *Leisering*.

4. Vertebrate Histology. Elective.

A laboratory course open only to those who have had Courses 1 and 3. It will embrace practical laboratory work in "blood-work" and the preparation of tissues from the animal through all stages of fixing, hardening, sectioning, staining and mounting. The student must do all of the work. The department will supply all material and requires that note books be submitted once a month. A laboratory guide by *Gage* and *Kingsbury* will be used.

5. Contagious and Infectious Diseases of Animals. Fall, 1 hour a week.

A lecture course required of all agricultural students. It will embrace a discussion of the causes of disease, the methods of infection, the symptoms, cause, duration, mortality, treatment, etc. During the lectures points on immunity, tolerance, phagocytosis, toxins, antitoxins, and diagnosis by injections of the products of organisms will be presented. The lectures cannot be understood by those having no training in chemistry, physics or biology.

Veterinary Medicine, Vol. IV, *Law*; Pathology and Therapeutics of the Domestic Animals, *Friedberger* and *Frohner*.

6. Non-Contagious Diseases of Animals. Junior. Winter, 2 hours a week.

This usually follows Course 5. It must be preceded or accompanied by Course 3. It will embrace diseases of the digestive, respiratory, circulatory, excretory organs and the nervous system. Required of all agricultural students.

7. Surgical Diseases and Operations. Junior. Spring, 1 hour a week.

A lecture course followed by a course in operative surgery. Open only to those who have taken Courses 1 and 3 or their equivalents.

Operative Veterinary Surgery, *Moller*.

8. Parasites and Parasite Diseases. Junior. Spring, 1 hour a week.

This will embrace the description and the life history of those parasites which have an economic importance to the live stock interests of Texas.

Fleming's Translations of *Neuman*.

9. Pharmacology. Junior. Spring, 1 hour a week.

A lecture course embracing a description of those substances used as medicines for animals, and their curative properties. Special demonstrations of narcosis and anesthesia will be given.

GRADUATE COURSE.

Graduate studies in the Agricultural Course lead to the Degree of Master of Science (in Agriculture).

It is required for admission to this course that the candidate be a graduate of this College, or of some other institution approved by the Faculty. He must select a major subject, two minor subjects, and one foreign language. The course of study will occupy two years, at least one of which must be spent in residence at the College. The student

must give continued satisfaction in his studies, must pass satisfactory examinations upon the subjects of the course, and must submit an approved thesis.

SHORT COURSE IN AGRICULTURE.

This includes a ten weeks course in Animal Husbandry, Horticulture, Farm Husbandry, Veterinary Science, Dairying, Entomology, and Agricultural Chemistry.

In Animal Husbandry there are sixty lectures on judging live stock, breeds and breeding, and feeds and feeding. Six hours of each week are given to the scoring and judging of all classes of stock.

PROFESSOR CRAIG and ASSOCIATE PROFESSOR MARSHALL.

In the Department of Plant Industry thirty lectures are given during the course, embracing fruit growing, vegetable gardening, and economic entomology. Four hours of each week are given to practical work in budding, grafting, and other features of practical horticulture.

MR. KYLE, PROFESSOR SANDERSON, and MR. GREEN.

The Department of Farm Husbandry provides for twenty lectures, embracing farm equipment, soils, farm crops, and judging seed. Four hours of each week are given to laboratory work or practice.

PROFESSOR JOHNSTON, MESSRS. BENNETT and CARSON.

The Department of Veterinary Science offers twenty lectures on anatomy and physiology of domestic animals, with practice work in dissection and demonstrations.

PROFESSOR FRANCIS.

In the Department of Animal Husbandry provision is also made for twenty lectures on dairy equipment, dairy chemistry, farm dairying, use of separators and butter making. Four hours a week are given to the practical work in the creamery.

ASSOCIATE PROFESSOR MARSHALL and DR. FRAPS.

SCHEDULE OF THE SHORT COURSE IN AGRICULTURE.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.
8:30-9:30	Feeds.	Vet. Science.	Feeds.	Entomology.	Feeds.
9:30-10:30	Agriculture.	Horticulture.	Agriculture.	Horticulture.	Vet. Science.
10:30-12:30	Agriculture— Practice.	Horticulture— Practice.	Agriculture— Practice.	Horticulture— Practice.	Veterinary Practice.
2:30-3:30	Live Stock.	Dairying.	Live Stock.	Dairying.	Live Stock.
3:30-5:30	Stock Judg- ing.	Dairy Practice.	Stock Judging.	Dairy Practice.	Stock Judging.

THE AGRICULTURAL EXPERIMENT STATION.

The Agricultural Experiment Stations seek to find the correct answers to the many problems connected with agriculture through the results they obtain by direct investigation and experimentation. At present there are three Stations; the main one, located at College Station, supported by the Hatch fund of the general government, and two sub-stations, one at Troupe, Smith county, and the other at Beeville, Bee county. The results of the experiments at these stations are published in bulletins, of which six were issued during the past year. In addition, much matter relating to more general farm questions was sent out in the form of press bulletins. Supplementing this, the staff of the Stations devote a large portion of their time to answering inquiries which reach them by correspondence and personal interviews.

The Department of Farm Husbandry gives considerable attention to soils. A collection of Texas soils is being added to rapidly to assist in a close study of these. In the field work, testing the different varieties of cereals, grasses, and forage plants is the main line of investigation. About forty acres are used by this department for this purpose. Special attention is given to the study of the cotton crop in all its phases. Alfalfa also receives special study.

The Department of Animal Husbandry concerns itself mostly with problems arising from the feeding of Texas steers, sheep, and swine on Texas food products. The aim is to make this feature of the work directly useful to the stockman by studying the various relations of the ranch to the feed lot, and the best means of making the most of Texas conditions in the development of our stock interests. Experiments are now under way in feeding steers on Texas grown fodders, alfalfa, sorghum, and Spanish peanuts as against the common practice of using cottonseed hulls for roughage. Experiments have been extensively conducted in feeding cottonseed meal, hulls, rice by-products, and molasses. The development of the work will embrace extensive experiments in feeding sheep and swine.

The Department of Plant Husbandry centers its energies chiefly on fruit and vegetable growing. At the main Station, the products of the garden have been specially studied, particularly those having a ready market. Extensive experiments have been made in this direction with Irish potatoes, tomatoes, and other crops that meet with ready demand. At the sub-stations the use of fertilizers for the purposes of truck gardening, and the growing of all kinds of vegetables and fruit have been the subject of experiments. The eastern portion of the State, and

the central sections, have many problems in this work which have to be considered by this department.

The Department of Veterinary Science has rendered the live stock interests valuable service in its researches regarding Southern fever, and the value of inoculation and dipping. The investigations in this direction have been very extensive, and the carefulness with which they have been planned and conducted, has added much to the prestige of the department among the stockmen. Much work is also done in investigating the common troubles among live stock in Texas.

The Department of Chemistry has established intimate relations with important interests of the State; mainly those connected with the sugar, rice, and cotton plantations. The manufacture of sugar cane into syrup, the value of by-products from the rice industry, and the worth of molasses for feeding purposes, have been recently studied from the chemical side.

This resume will indicate how the Experiment Stations come in contact in a vital way with the vast agricultural interests of this immense State. The stockman, whether on ranch or stock and feeding farm, reaches out to the Veterinary or Animal Husbandry department for help when troubles or problems confront him; the horticulturist and the truck grower of the southern or central portion of the State make demands on the Department of Plant Husbandry; the immense industries of the coast and cotton country find assistance in the Chemical Department, while from all over the State come matters to be solved by the Department of Farm Husbandry.

The State Agricultural Experiment Stations, under control of the Board of Directors of the College, are established and maintained by legislative appropriations.

The Beeville Station, established at Beeville, Bee county, in 1895, has given much attention to fruit and vegetable growing and irrigation.

The Troupe Station, established at Troupe, Smith county, in 1902, is located in the heart of the fruit section of East Texas.

There were 15,000 names on the mailing list the first of January of the present year. The department is glad to add as many new names as possible, provided they are those of interested persons. In requesting bulletins it is advisable to state which are desired; those relating to (1) Farm Crops, (2) Horticulture, or (3) Live Stock.

FARMERS INSTITUTES.

DIRECTOR, J. W. CARSON.

The Farmers Institutes offer the most effective means of assisting the College and Experiment Stations in bringing the best of their work directly to the attention of the farmers, and they also offer a medium by which the most successful farmers may be helpful to their fellows. The Institutes are in the immediate charge of the director, who arranges for the organization and conducting of them through the agricultural division of the College. While the agricultural faculty assist as much as possible in conducting meetings, yet outside assistance is freely drawn upon when an important feature of farm work has received special study and achieved special success by some expert.

During the present season up to February 1, 1904, fifty Institutes have been held under the College auspices.

They have been held in the communities desiring them most and where they were likely to do the most good. Applications for the holding of Institutes and for assistance should be sent to the Director of Institutes not later than September 30th, when the arrangement of speakers and dates will be made by the College authorities.

COURSE IN CIVIL ENGINEERING.

This course is designed to prepare men for entrance upon professional practice in such work as the location, construction and maintenance of highways, railroads, streets and pavements, waterworks systems, sewerage system, irrigation canals and ditches, reservoirs, bridges, masonry structures; the surveying and mapping of areas; draughting. A thorough grounding in the principles underlying engineering construction is given with their application to as many special lines as time will permit. In addition to his technical training, the student also receives instruction in general studies and in the sciences; and a liberal amount of time is devoted to drawing to enable him properly to represent his designs and other engineering work on paper.

The fifth year, leading to the degree of Civil Engineer, offers opportunity for more advanced study in some of the branches of Civil Engineering than can be had within the limits of the four years course, and includes some work in Electrical Engineering and Mechanical Engineering. While a bachelor's degree is conferred at the end of the four years every student should follow this with the more technical course covered by the fifth year's work.

COURSE IN CIVIL ENGINEERING.

NOTE.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. *Practice* is indicated by italics.

FRESHMAN YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
English (1) Rhetoric and Comp.	3	English (1) Rhetoric and Comp.	3	English (1) Rhetoric and Comp.	3
History (1) Mediæval and Modern.	6	History (1) Mediæval and Modern.	6	History (1) Mediæval and Modern.	6
Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (2) Geometry.	6
<i>Drawing</i> (3) (3)	5	<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5
<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i>	5

SOPHOMORE YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Civil Engineering (1) Survey'g and Leveling.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Languages (1) or (3) French or German.	3	Languages (1) or (3) French or German.	3	Languages (1) or (3) French or German.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Physics (1) General Physics.	3	Physics (1) General Physics.	3	Physics (1) General Physics.	3
<i>Drawing</i> (5) (7)	5	<i>Drawing</i> (5) (7)	5	<i>Drawing</i> (5) (7)	5
<i>Mech. Engineering</i>	5	<i>Physics</i> (1)	5	<i>Civil Engineering</i> (1)	5*
				<i>Physics</i> (1)	5*

*For one-half the term only.

JUNIOR YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Civil Engineering (2) Topog. Surv. and R. E. Eng.	6	Civil Engineering (3) Highways and Pavements.	3	Civil Engineering (4) Mechanics of Materials.	6
Physics (2) Electricity.	3	Chemistry (1) Inorganic.	3	Chemistry (1) Inorganic.	3
Languages (2) <i>or</i> (4) French <i>or</i> German.	3	Languages (2) <i>or</i> (4) French <i>or</i> German.	3	Languages (2) <i>or</i> (4) French <i>or</i> German.	3
Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3	Mathematics (7) Calculus.	3
		Military Science (1) Drill Regulations.	3		
<i>Civil Engineering</i> (2)	5	<i>Civil Engineering</i> (2)	2½	<i>Civil Engineering</i> (4)	2½
<i>Drawing</i> (9)	2½	<i>Chemistry</i> (1)	2½	<i>Chemistry</i> (1)	2½
<i>Physics</i> (2)	2½	<i>Drawing</i> (9)	2½		
		<i>Physics</i> (2)	2½	<i>Drawing</i> (9)	2½

SENIOR YEAR.

FALL.	WINTER.	SPRING.
Civil Engineering (5) Roofs and Bridges.	Civil Engineering (5) Roofs and Bridges.	Civil Engineering (5) Roofs and Bridges.
Civil Engineering (6) Hydraulics.	Civil Engineering (6) Irrigation and Drainage.	Civil Engineering (8) Sanitary Engineering.
Civil Engineering (7) Masonry Structures.	Chemistry (4) Geology.	Chemistry (4) Geology.
History (3) Industrial History.	History (4) Industrial History.	History (5) Political Economy.
Mathematics (8) Calculus.		
Military Science (2)		
<i>Civil Engineering</i> (5a)	<i>Civil Engineering</i> (5) (6)	<i>Civil Engineering</i> (5)
<i>Drawing</i> (10)	<i>Drawing</i> (10)	<i>Drawing</i> (10)

DEPARTMENT OF CIVIL ENGINEERING.

PROFESSOR NAGLE.

ASSOCIATE PROFESSOR SPENCE.

Good text-books, supplemented by explanations and lectures, form the basis of instruction in this department. Practice in the field, in the testing laboratory and designing room follows the instruction in the classroom and serves to impress upon the student's mind the principles and facts there taught him. An effort is made to develop an appreciation of the degree of precision required in different kinds of work and the conditions under which approximate methods are admissible or desirable. Thoroughness in a few of the more important subjects which embody the basic principles of engineering is sought throughout the work, and many exercises and problems are assigned the student in order more clearly to illustrate the application of these principles.

The courses are as follows:

1. **Plane Surveying and Leveling. Sophomore. Spring, 3 hours a week; Practice.**

Recitations throughout the term, and field practice with compass, transit, and level. Engineering students take this course in the spring term of the Sophomore class. Agricultural students take practically the same course in the winter term of the Senior class. Plane Surveying, *Raymond*.

Practice, 5 hours a week for one-half the term.

2. **City and Topographic Surveying, Railroad Engineering. Junior. Fall, 6 hours a week; Practice.**

Recitations and practice. Practice consists in the applications of the transit and stadia method, and the plane table, in topographic work; in curve problems, preliminary and location surveys for a short line in railroad engineering. Slope stakes are set on this line and quantities computed. Plane Surveying, *Raymond*; Field Manual for Railroad Engineers, *Nagle*.

Practice, fall 5 hours, winter $2\frac{1}{2}$ hours a week.

3. **Highway Construction and City Pavements. Junior. Winter, 3 hours a week.**

Recitations. Roads and Pavements, *Baker*.

4. **Mechanics of Materials. Junior. Spring, 6 hours a week; Practice.**

Recitations, supplemented by practice. Mechanics of Materials, *Meriman*.

Practice, $2\frac{1}{2}$ hours a week.

5. **Stresses in Roofs and Bridges, Bridge and Structural Design.** Senior. Fall, Winter, Spring, 3 hours a week; Practice.

Recitations and practice. Roofs and Bridges, Parts I and III, *Merriman* and *Jacoby*.

Practice, Winter, Spring, 5 hours a week.

- 5a. **Graphic Statics.** Senior. Fall, 5 hours a week; Practice.

Practice at the drawing board. Roofs and Bridges, Part II, *Merriman* and *Jacoby*.

6. **Hydraulics, Irrigation Engineering and Land Drainage.** Senior. Fall, 3 hours a week; and Winter, 6 hours a week; Practice.

Recitations and practice. Hydraulics, *Merriman*; Irrigation, Land Drainage, _____.

Practice, Winter $2\frac{1}{2}$ hours a week.

7. **Masonry Structures.** Senior. Fall, 3 hours a week.

Recitations. Masonry Construction, *Baker*.

8. **Sanitary Engineering.** Senior. Spring, 6 hours a week.

This course will include the collection, pumping, storage, purification, and distribution of potable waters; the sewerage and drainage of cities and the disposal of sewage.

9. **Stresses.** Junior. Fall, 3 hours a week; Practice.

Recitations and practice. Required of students in Mechanical Engineering. Roof and Bridges, Parts I and II, *Merriman* and *Jacoby*.

10. **Mechanics of Materials.** Junior. Winter, Spring, 3 hours a week.

Recitations. Required of students in Mechanical Engineering. Mechanics of Materials, *Merriman*.

11. **Astronomy.** Fifth Year. Fall, 3 hours a week.

Recitations, supplemented by such field determinations as the equipment of the department will permit. General Astronomy, *Young*.

12. **Geodesy and Least Squares.** Fifth Year. Fall, Winter, 3 hours a week.

Recitations, supplemented by field practice in triangulation, etc.

13. **Bridge and Structural Designing.** Fifth Year. Fall, Winter, Spring, 3 hours a week.

Recitations, supplemented by practice in the drawing room and test-

ing laboratory. Higher structures, the braced and oblique arch, etc., are investigated in this course.

14. General Civil Engineering. Fifth Year. Winter, Spring, 3 hours a week.

Recitations. This course will include Foundations and such items of general engineering practice as it may be found desirable to incorporate.

15. Contracts and Specifications. Fifth Year. Spring, 3 hours a week.

Recitations. Contracts and Specifications, *Johnson*.

NOTE.—Some of the foregoing courses, particularly those offered during the fifth year are subject to such modification as may be found desirable, as determined by the progress made by the several classes.

EQUIPMENT.

The department owns the following engineering, field and office instruments:

Two surveyor's transits, one of which has Gurley's solar attachment; one complete transit with Saegmuller solar attachment; one railroad transit; three engineer's wye levels; one dumpy level; one drainage level; one terracing level; two hand levels; one solar compass; four needle compasses; one sextant; one plane table; one aneroid barometer; one odometer; one pedometer; one planimeter; one pantograph; one Thacher calculating instrument and several small slide rules; one Colby's topographical protractor and several small protractors; one Colby's stadia reduction slide rule; an assortment of drafting instruments and tables; an assortment of measuring chains, tapes, marking pins, flag poles, leveling rods, etc.

The department has two cement testing machines of 1000 pounds capacity each—one Fairbanks' and one Rhiele—together with such other apparatus as is needed in testing cements. Also a 20,000-pound capacity Rhiele testing machine arranged for making tension, compression and cross-breaking tests. Also a Boyden hook gauge and some large sized models of various types of bridge and roof trusses, together with blue prints, photographs, engravings, etc., of existing structures; also a hand camera and other photographic apparatus.

Other equipment, particularly in the line of testing apparatus and hydraulic laboratory supplies, will shortly be added.

There is a fairly well assorted library of standard and current engineering literature in the department, to which students have access.

COURSE IN ELECTRICAL ENGINEERING.

The object of the instruction in this course is to prepare young men for professional work in the various branches of applied electricity.

The rapidly increasing number of electrical plants and circuits for power transmission, lighting, transportation, telephoning, and telegraphing demand men who are prepared to design, construct, and operate them.

The studies in the course outlined have been carefully selected with this demand in view.

COURSE IN ELECTRICAL ENGINEERING.

NOTE.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. *Practice* is indicated by italics.

FRESHMAN YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediæval and Modern.	6	History (1) Mediæval and Modern.	6	History (1) Mediæval and Modern.	6
Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (2) Geometry.	6
<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5
<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i>	5

SOPHOMORE YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Civil Engineering (1) Survey'g and Level'g.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (1) General Physics.	3	Physics (1) General Physics.	3	Physics (1) General Physics.	3
<i>Drawing</i> (5) (8)	5	<i>Drawing</i> (5) (8)	2½	<i>Drawing</i> (5) (8)	5
<i>Mech. Engineering</i>	2½	<i>Mech. Engineering</i>	2½	<i>Civil Engineering</i> (1)	5*
		<i>Physics</i> (1)	5	<i>Physics</i> (1)	5*

* For one-half the term only.

JUNIOR YEAR.

FALL.		WINTER.		SPRING.	
Electr'l Engineer'g (1)	3			Electr'l Engineer'g (1)	3
Electrical Measur'm't.				Electrical Measur'm't.	
Chemistry (1)	3	Chemistry (1)	3	Chemistry (5)	3
Inorganic.		Inorganic.		Metallurgy.	
Languages (1) or (3)	3	Languages (1) or (3)	3	Languages (1) or (3)	3
French or German.		French or German.		French or German.	
Mathematics (7)	3	Mathematics (7)	3	Mathematics (7)	3
Calculus.		Calculus.		Calculus.	
		Military Science (1)	3		
		Drill Regulations.			
Physics (3)	3	Physics (3)	3	Physics (3)	3
Electri'y and Magnet.		Electri'y and Magnet.		Electri'y and Magnet.	
<i>Electrical Engineer-</i>		<i>Electrical Engineer-</i>		<i>Electrical Engineer-</i>	
<i>ing</i> (1)	5	<i>ing</i> (1)	2½	<i>ing</i> (1)	2½
<i>Chemistry</i> (1)	2½	<i>Chemistry</i> (1)	2½	<i>Chemistry</i> (5)	2½
<i>Drawing</i> (9)	2½	<i>Drawing</i> (9)	2½	<i>Drawing</i> (9)	2½
		<i>Physics</i> (3)	2½	<i>Physics</i> (3)	2½

SENIOR YEAR.

FALL.		WINTER.		SPRING.	
Electr'l Engineer'g (2)	3	Electr'l Engineer'g (2)	3	Electr'l Engineer'g (2)	4
Electrical Machinery.		Electrical Machinery.		Electrical Machinery.	
		Electrical Engineer-		Electrical Engineer-	
		ing (3)	3	ing (3)	3
		Specifications.		Specifications.	
Military Science (2)	1	History (4)	3	History (5)	3
History (3)	3	Industrial History.		Political Economy.	
Industrial History.		Languages (2) or (4)	3	Languages (2) or (4)	3
Languages (2) or (4)	3	French or German.		French or German.	
French or German.					
Mathematics (8)	3	Mech. Engineering	3	Mech. Engineering	3
Calculus.					
Mech. Engineering	3				
<i>Drawing</i> (10)	2½	<i>Drawing</i> (10)	2½	<i>Drawing</i> (10)	2½
<i>Electrical Engineer-</i>		<i>Electrical Engineer-</i>		<i>Electrical Engineer-</i>	
<i>ing</i> (2)	7½	<i>ing</i> (2) (3)	7½	<i>ing</i> (2) (3)	5

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

PROFESSOR BROWN.

The work in Physics is designed to give students a thorough understanding of the general principles of Physics and to prepare them for the more technical engineering studies.

Instruction is given by recitation, lectures, experiment, lantern illustration, and laboratory work. In the laboratory each student takes measurements to calibrate instruments and to prove the physical laws.

The courses in Physics will be found on pages 54 and 80.

The foundation for the course in Electrical Engineering is laid in the departments of mathematics, drawing, and mechanical engineering. On account of the close relation existing between the work of an electrical engineer and that of a mechanical engineer the courses are practically identical during the first two years.

In the advanced work of the course the student is required to apply the principles previously learned to designing, building, and testing of electrical machines and appliances.

EQUIPMENT.

This department is well equipped with apparatus for lecture table experiments. There is a fine projection lantern for general projection of slides and a good supply of slides.

In the laboratory there is sufficient apparatus to enable the students in general Physics to perform individual experiments in mechanics, pneumatics, heat, light, sound, and electricity, and to enable the students in Electrical Engineering to become familiar with all the operations that would be required of them in the practice of their profession.

Students are encouraged to read books related to their work, and for the purpose the departmental library is available.

A dark room has been fitted up for the use of those students who have their own cameras and developing outfits and for those who are using the department equipment for photographic records and physical experiments.

The courses in Electrical Engineering are as follows:

- 1. Electrical Measurements. Junior. Fall, Spring, 3 hours a week; Practice.**

Lectures and recitations on the theory and use of electrical measuring instruments, including galvanometers, bridges, voltmeters, ammeters, condensers, wattmeters, and recording instruments.

Practice, Fall 5 hours, Winter, Spring $2\frac{1}{2}$ hours a week.

The practice includes accurate measurements of various electrical quantities, as resistance, capacity, inductance, etc., and the effect of change of temperature and change of position on these quantities. It includes also a study of the various types of batteries to determine their adaptability to various uses.

2. Electrical Machinery. Senior. Fall, Winter, Spring, 3 hours a week; Practice.

Lectures and recitations on the design, construction, testing, and use of dynamos and motors and on the calculation, erection, and maintenance of transmission lines.

Practice, Fall, Winter, 7½ hours, Spring 5 hours a week.

The practice includes the operation of dynamos and motors, the determination of the hysteresis in fields and armatures, the determination of characteristics, as series, shunt, and compound wound; the determination of efficiencies, and regulation. For these determinations there are available aside from the machines used exclusively for testing in the laboratory, all of the machines located in the power house furnishing power to the laboratories and lights on the campus.

Part of this practice is given in connection with Course 3.

3. Specifications and Contracts. Senior. Winter, Spring, 3 hours a week.

Lectures and recitations on the elements of specifications and contracts, including estimates and methods of construction, underwriters rules and their application to contracts, time limits, penalty clauses, etc.

For *practice* see Course 2.

4. Electrical Designing. Fifth Year. Fall, Winter, Spring, 6 hours a week; Practice.

Lectures, recitations, and calculations on the design of electrical instruments and machines. Each student will be required during the year to complete at least one design of a dynamo, motor or electrical instrument, making detail drawings of all the parts.

Practice, 2½ hours a week.

Most of the work is done on the drawing board. It includes the laying out of electrical circuits for various purposes and later the making of detail drawing for some machine or instrument designed by him.

5. Advanced Electrical Instruments and Machinery. Fifth Year. Fall, Winter, Spring, 3 hours a week; Practice.

This course is practically a continuation of Courses 1 and 2 and deals with the more complicated instruments and machines, such as are used for alternating currents and high potentials. Part of the time will be devoted to telephone circuits and their "faults."

Practice, 5 hours a week.

The practice is in continuation of that given in Course 3. Aside from the machines that are tested in the laboratories, each student will make inspections and reports on various outside plants. At some time during the year students will be given opportunity to make a tour of inspection to some of the larger plants in the State.

For courses in Physics, see page 80.

6. Electrical Power. Fifth Year. Fall Winter, Spring, 3 hours a week.

Lectures and recitations on the installation and operation of power and lighting plants and the lines leading from them. Required of students in Civil Engineering and in Mechanical Engineering.

COURSE IN MECHANICAL ENGINEERING.

The object of the course in Mechanical Engineering is to give the student such training as will enable him to take charge of men and tools, erect machinery, lay out plans, etc. This not only necessitates a study of engineering problems, but also demands a broad foundation of useful knowledge, and a training which leads as much as possible to originality in thought and quick perception of the objects sought. With this in view, the subjects in this course are carefully selected.

COURSE IN MECHANICAL ENGINEERING.

NOTE.—The number in parenthesis following the name of a department refers to the number of the course as shown in the description of that department. *Practice* is indicated by italics.

FRESHMAN YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	6	History (1) Mediaeval and Modern.	6	History (1) Mediaeval and Modern.	6
Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (2) Geometry.	6
<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5
<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i> (3)	5	<i>Mech. Engineering</i>	5

SOPHOMORE YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Civil Engineering (1) Surveying and Leveling.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (1) General Physics.	3	Physics (1) General Physics.	3	Physics (1) General Physics.	3
<i>Drawing</i> (5) (8)	5	<i>Drawing</i> (5) (8)	2½	<i>Drawing</i> (5) (8)	5
<i>Mech. Engineering</i>	5	<i>Mech. Engineering</i> <i>Physics</i> (1)	2½ 5	<i>Civil Engineering</i> (1) <i>Physics</i> (1)	5* 5*

*For one-half the term only.

JUNIOR YEAR.

FALL.		WINTER.		SPRING.	
Chemistry (1)	3	Chemistry (1)	3	Chemistry (5)	3
Inorganic.		Inorganic.		Metallurgy.	
Civil Engineering (9)	3	Civil Engineering (10)	3	Civil Engineering (10)	3
Graphics.		Mechanics of Materials.		Mechanics of Materials.	
Mathematics (7)	3	Mathematics (7)	3	Mathematics (7)	3
Calculus.		Calculus.		Calculus.	
Mech. Engineering (3)	3	Military Science (1)	3	Mech. Engineering (4)	3
Indicator.		Drill Regulations.		Machine Design.	
Physics (3)	3	Physics (3)	3	Physics (3)	3
Electri'y and Magnet.		Electri'y and Magnet.		Electri'y and Magnet.	
Chemistry (1)	2½	Chemistry (1)	2½	Chemistry (5)	2½
Drawing (9)	2½	Drawing (9)	2½	Drawing (9)	2½
Mech. Engineering	5	Mech. Engineering	2½	Mech. Engineering	2½
		Physics (3)	2½	Physics (3)	2½

SENIOR YEAR.

FALL.		WINTER.		SPRING.	
Mech. Engineering (5)	6	Mech. Engineering (5)	3	Mech. Engineering (7)	12
Machine Design.		Machine Design.		Designing.	
Chemistry (6)	3	Chemistry (6)	3		
Industrial.		Industrial.			
History (3)	3	History (4)	3	History (5)	3
Industrial History.		Industrial History.		Political Economy.	
Mathematics (8)	3	Mech. Engineering (6)	6		
Calculus.		Thermodynamics.			
Military Science (2)	1				
Drawing (10)	2½	Drawing (10)	2½	Drawing (10)	2½
Mech. Engineering (18)	5	Mech. Engineering (18)	7½	Mech. Engineering (18)	5

DEPARTMENT OF MECHANICAL ENGINEERING.

PROFESSOR WHITLOCK.

ASSISTANT PROFESSOR DRUMMOND.

MR. WHITEHEAD.

MR. FOY.

The object of this department is so to combine theory and practice that, after deriving a theoretical knowledge of the subject from the text-books of standard writers, the student may apply that knowledge in a thoroughly practical manner. With this theoretical preparation, the mind grasps the salient points and avoids the difficulties of the more practical part of the work. The work is carried on by means of practice in the shops and drawing-room, and by lectures and text-books.

First, the machinery of transmission is taken up and discussed, and special attention is paid to shafting, belts, speed pulleys, gear wheels and kindred subjects; and a foundation of general knowledge is laid in which the student gets information concerning the various appliances in common use in boiler and engine rooms. This familiarizes him not only with their general character but also their value from a practical standpoint. Upon this foundation is built up a more particular and specific knowledge of the appliances in common use. The steam engine is given special attention and all its parts carefully studied and discussed.

In all the courses the theoretical points are illustrated as far as possible by reference to tools and appliances in use in the shops and steam plant of the College.

The work in practice begins in the carpenter shop, which is equipped with benches and sets of tools, consisting of those in common use among carpenters. Each student is taught, in the beginning of his work, the use of the tools and the importance of keeping them in good order and in their proper places. The work consists of exercises, embracing the principles of the ordinary joints met with in practice. Each of these exercises depends more or less on those preceding it, and they become more and more difficult, thus carrying the student from "squaring" a piece of wood to the construction of a small bridge truss. The work is carried on from drawings similar to those found in any of our regular shops, and thus the student learns not only to read mechanical drawings, but to construct the article wanted with only such drawings for a guide.

Having finished the woodwork, and acquired a knowledge of edged tools, the student is transferred to the blacksmith shop.

Here, as in the carpenter shop, the exercises are at first very simple, becoming more and more difficult, until, at the end, the student has

made welds of different kinds, a chain with hook and swivel, and has forged out and tempered several tools, such as cold chisels, and punches. He is then transferred to the machine shop for woodturning, and instruction is given in both inside and outside turning, everything being made from drawings furnished.

Then follows instruction in the use of iron working machinery, and here are taught the principles of cutting and shaping the metals in common use.

Throughout the course in the shops the student receives systematic instruction, and the work is so graded as to bring into use, as far as possible, those principles which have been taught in the class-room.

The instruction throughout the course is made as practical as possible, and at the same time is of such a nature as to call for intelligent thought in connection with the manual labor.

In connection with certain courses offered by other departments, a student will be enabled to acquire a good foundation for a knowledge of railway mechanical engineering by taking courses numbered 1, 2, 3, 4, 6, and 11 to 16, inclusive.

Special attention is called to the fact that all work is made from drawings similar to those which are used in all of our first-class machine shops, thus compelling the workman to think for himself, and avoid becoming a mere automaton.

The courses are as follows:

1. Power and Power Transmission. Sophomore. Fall, Winter, 3 hours a week.

Mechanical principles involved in the use of gear wheels, shafting, belting, levers, boilers, engines, water wheels and motors, pumping machinery and other mechanical appliances in general use.

Power and Power Transmission, *Kerr*.

2. Slide Valve Gears. Sophomore. Spring, 3 hours a week.

A practical study of the action of plain slide valves; fundamental principles of balanced and multiple ported valves; discussion of sliding and swinging eccentrics, etc.

Slide Valve Gears, *Halsey*.

3. Indicator and Steam Engine Economy. Junior. Fall, 3 hours a week.

A study of the use of the indicator in detecting defects in methods of steam distribution, setting valves, economy of water consumption, etc. Accompanied by practical use of the instrument on engines in the department and in the steam plant.

Indicator and Steam Engine Economy, *Hemenway*.

4. Machine Design. Junior. Spring, 3 hours a week.

Principles and methods of designing shafts, pullies, gear wheels, etc. Machine Drawing and Design, *Low and Bevis*.

5. Machine Design. Senior. Fall, 6 hours a week; Winter, 3 hours a week.

Application of the principles of designing to the construction of steam engines, pumps, etc. Recitations from the text and work on the drawing tables.

Machine Drawing and Design, *Low and Bevis*.

6. Thermodynamics of the Steam Engine. Senior. Winter, 6 hours a week.

A study of heat and the properties of steam, especially in regard to their application to use in the steam engine.

7. Designing, Laboratory, Etc. Senior. Spring, 12 hours a week.

This course will consist of special work in designing in such lines as will be of the most benefit to the individual student in his chosen line of future employment; laboratory work following similar lines as far as possible; work on thesis under personal direction of instructors, etc.

8. Steam Boilers. Fifth Year. Fall, 6 hours a week.

A study of the design and care of boilers; the choice of boilers for different uses; a practical study of the running and management of boilers as shown in the different plants at the College.

9. High Speed Steam Engines and Governors. Fifth Year. Fall, 3 hours a week.

A special study of the application of the principles of machine design to the high speed engine; and the throttling and automatic governors.

10. Pumps and Pumping Machinery. Fifth Year. Winter, 3 hours a week.

11. Steam Plants. Fifth Year. Winter, 6 hours a week.

Choice and arrangement of machinery in different kinds of plants; placing of boilers to best advantage; best methods for placing piping for steam, water, or other liquids and gases.

12. Mechanical Laboratory. Fifth Year. Spring, 9 hours a week.

Special work in the laboratory bearing on subjects and principles studied throughout the year.

13. Carpentry. Freshman. Two terms, 5 hours a week; Practice.

Instruction in bench work, using the tools in common use among carpenters, and illustrating the joints used in ordinary woodwork.

Bench Work in Wood, *Goss*.

14. Blacksmithing. Two terms, 5 hours a week; Practice.

Instruction in forging iron and steel, welding and tempering.
Freshman and Sophomore, or Sophomore and Junior.

15. Wood-turning. Two terms, 5 hours a week; Practice.

Instruction in outside and inside turning.
Freshman and Sophomore, or Sophomore and Junior.

16. Bench Work in Iron. Junior. One term, 2½ hours a week; Practice.

Chipping, filing and scraping.
Handbook for Apprenticed Machinists, *Brown & Sharpe Mfg. Co.*

17. Machine Work in Iron. Senior. Practice.

Lathe, planer, shaper, milling machine, grinder, drill press.
Five hours a week for one term, and two and one-half hours a week for one term.

Handbook for Apprenticed Machinists, *Brown & Sharpe Mfg. Co.*

18. Engineering Laboratory. Senior. Winter, Spring, 5 hours a week; Practice.

Engine and boiler tests, indicator work, testing gauges, thermometers, indicator springs, pumps, pipe coverings, blowers, water motors, etc.

Engineering Laboratory Practice, *Smart.*

Courses 13, 14, and 15 are shortened for the Civil Engineering students in the Freshman and Sophomore years; and Courses 13 and 14 are modified for the Agricultural students in the Sophomore year.

In addition to the above, each student, in his Senior year, will be required to assume for a short time the duties of assistant engineer of the College steam plant under direction of the regular engineers. This plant comprises a ten-ton ice plant with cold storage, an electric light plant, a laundry, and waterworks with standpipe, deep well and force pumps.

EQUIPMENT.

Carpenters' benches with vise and set of tools; the latter consisting of hammer, cross-cut and panel saws, try square, mallet, chisels, marking gauge, planes and dividers. Various small tools, as framing squares, braces, bits, circular plane, beading planes, etc.; blacksmith's forges with power blast, anvils, hammers, tongs, hardies, etc.; sixteen light lathes, one planer, one shaper, one milling machine, one drill press, one universal grinder, one drill grinder; grindstone, emery wheels, circular saw, jig saw, band saw, drills and reamers; small tools, including gauges, rules, cold chisels, punches, etc.; models of steam engines, parts of machines, valves, oilers, etc.; drawing tables, T-squares and instruments; indicators and plantimeters; various appliances for use in the engineering laboratory, such as thermometers, pyrometer, draft gauges, etc.; books of reference, class-room furniture, blackboards, etc.

COURSE IN TEXTILE ENGINEERING.

The last Legislature made provision for the establishment of a Department of Textile Engineering. A building for this department is in course of erection and will be equipped by the opening of the next session with the necessary machinery. The object of the course will be to acquaint the student with the engineering principles involved in the manufacture of textiles, and to give him a practical insight into the details of the work. Instruction will be given in carding and spinning, weaving, dyeing, designing, and in mill engineering. For the Freshman and Sophomore years, the course will be almost identical with the course in Mechanical Engineering. Students may, therefore, enter upon the four years' course leading to the degree of Bachelor of Science in Textile Engineering at the opening of next session. A two-years' practical course will also be given.

A provisional arrangement of the four years' course is given on the pages following.

The courses of instruction in the Department of Textile Engineering will be announced later.

COURSE IN TEXTILE ENGINEERING.

NOTE.—The number in parentheses following the name of a department refers to the number of the course as shown in the description of that department. *Practice* is indicated by italics.

FRESHMAN YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6	English (1) Rhetoric and Comp.	6
History (1) Mediaeval and Modern.	6	History (1) Mediaeval and Modern.	6	History (1) Mediaeval and Modern.	6
Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (1) (2) Algebra, Geometry.	6	Mathematics (2) Geometry.	6
<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5	<i>Drawing</i> (3) (4)	5
<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i> (13)	5	<i>Mech. Engineering</i>	5

SOPHOMORE YEAR.

FALL.	Hours per week.	WINTER.	Hours per week.	SPRING.	Hours per week.
Drawing (6) Descriptive Geometry.	3	Drawing (6) Descriptive Geometry.	3	Civil Engineering (1) Survey'g and Level'g.	3
English (2) Literature.	3	English (2) Literature.	3	English (2) Literature.	3
Mathematics (4) Trigonometry.	6	Mathematics (5) (6) Algebra, Analytics.	6	Mathematics (6) Analytics.	6
Mech. Engineering (1) Power.	3	Mech. Engineering (1) Power.	3	Mech. Engineering (2) Slide Valve Gears.	3
Physics (1) General Physics.	3	Physics (1) General Physics.	3	Physics (1) General Physics.	3
<i>Drawing</i> (5) (8)	5	<i>Drawing</i> (5) (8)	2½	<i>Drawing</i> (5) (8)	5
<i>Mech. Engineering</i>	5	<i>Mech. Engineering</i> <i>Physics</i> (1)	2½ 5	<i>Civil Engineering</i> (1) <i>Physics</i>	5* 5*

For one-half the term only.

JUNIOR YEAR.

FALL.		WINTER,		SPRING.	
Textile Engineering	6	Textile Engineering	3	Textile Engineering	6
Chemistry (1)	3	Chemistry (1)	3	Chemistry (5)	3
Inorganic.		Inorganic.		Metallurgy.	
Mathematics (7)	3	Mathematics (7)	3	Mathematics (7)	3
Calculus.		Calculus.		Calculus.	
		Military Science (1)	3		
		Drill Regulations.			
Physics (3)	3	Physics (3)	3	Physics (3)	3
Electri'y and Magnet.		Electri'y and Magnet.		Electri'y and Magnet.	
Chemistry (1)	2½	Chemistry (1)	2½	Chemistry (5)	2½
Drawing (9)	2½	Drawing (9)	2½	Drawing (9)	2½
		Physics (3)	2½	Physics (3)	2½
Textile Engineering	5	Textile Engineering	2½	Textile Engineering	2½

SENIOR YEAR.

FALL.		WINTER.		SPRING.	
Textile Engineering	9	Textile Engineering	9	Textile Engineering	9
Mathematics (8)	3	Chemistry	3	Chemistry	3
Calculus.					
History (3)	3	History (4)	3	History (5)	3
Industrial History.		Industrial History.		Political Economy.	
Military Science (2)	1				
Drawing (10)	2½	Drawing (10)	2½	Drawing (10)	2½
Textile Engineering	5	Textile Engineering	7½	Textile Engineering	7½

FIFTH YEAR'S WORK IN ENGINEERING.

In the engineering courses a fifth year's work is offered to young men who have obtained the bachelor's degree in this College or other institution approved by the Faculty. The work of this year leads to the professional degree of Civil Engineer, Electrical Engineer, Mechanical Engineer, or Textile Engineer. The instruction is entirely technical and consists of advanced work in various engineering subjects as shown in the tabular statement following. It is believed that the graduate will find it well worth while to take this work, either immediately after graduation, or after a year or more spent in active work; and that the wider acquaintance with engineering subjects, and the power of investigation so acquired will prove to be decidedly promotive of his professional advancement. No drill is required.

COURSE IN CIVIL ENGINEERING.

(Leading to the degree of Civil Engineer.)

FIFTH YEAR.

FALL.	WINTER.	SPRING.
Civil Engineering (11) 3 Astronomy.	Civil Engineering (14) 3 Gen'l Civil Engineering.	Civil Engineering (14) 3 Gen'l Civil Engineering.
Civil Engineering (12) 3 Least Squares.	Civil Engineering (12) 3 Least Squares.	Civil Engineering (15) 3 Contracts.
Civil Engineering (13) 3 Bridge Designing.	Civil Engineering (13) 3 Bridge Designing.	Civil Engineering (13) 3 Bridge Designing.
Elec. Engineering 3 Electrical Machinery.	Elec. Engineering 3 Electrical Machinery.	Elec. Engineering 3 Electrical Machinery.
Mech. Engineering 3 Power.	Mech. Engineering 3 Pumps.	Mech. Engineering 3 Indicator.
<i>Civil Engineering</i> 7½	<i>Civil Engineering</i> 7½	<i>Civil Engineering</i> 7½

COURSE IN ELECTRICAL ENGINEERING.

(Leading to the degree of Electrical Engineer.)

FIFTH YEAR.

FALL.	WINTER.	SPRING.
Elec. Engineering (4) 6 Electrical Designing.	Elec. Engineering (4) 6 Electrical Designing.	Elec. Engineering (4) 6 Electrical Designing.
Elec. Engineering (5) 3 Adv. Elec. Machinery.	Elec. Engineering (5) 3 Adv. Elec. Machinery.	Elec. Engineering (5) 3 Adv. Elec. Machinery.
Civil Engineering 3	Civil Engineering 3	Civil Engineering 3
Mech. Engineering 3	Mech. Engineering 3	Mech. Engineering 3
<i>Elec. Eng. (4) (5)</i> 7½	<i>Elec. Eng. (4) (5)</i> 7½	<i>Elec. Eng. (4) (5)</i> 7½

COURSE IN MECHANICAL ENGINEERING.

(Leading to the degree of Mechanical Engineer.)

FIFTH YEAR.

FALL.	WINTER.	SPRING.
Mech. Engineering (8) 6 Steam Boilers.	Mech. Engineer'g (10) 3 Pumps.	Mech. Engineer'g (12) 12 Laboratory.
Mech. Engineering (9) 3 High Speed Engines.	Mech. Engineer'g (11) 6 Steam Plants.	
Civil Engineering (6) 3 Hydraulics.	Civil Engineering 3	Civil Engineering 3
Elec. Engineering 3	Elec. Engineering 3	Elec. Engineering 3
<i>Mech. Eng.</i> 7½	<i>Mech. Eng.</i> 7½	<i>Mech. Eng.</i> 7½

GENERAL STUDIES.

DEPARTMENT OF CHEMISTRY AND MINERALOGY.

PROFESSOR HARRINGTON.

MR. MARTIN.

DR. FRAPS.

MR. HARGIS.

The work in Chemistry begins with the Sophomore Class, and extends over two years, with geology in the Senior year. Experimental and laboratory work supplements the class-room instruction.

The courses offered are described below.

Courses 1 to 4, inclusive, are required of Agricultural students; 1 and 4 of Civil Engineering students; 1, 5, and 6 of Mechanical Engineering students.

1. Descriptive Inorganic Chemistry. Two terms, 3 hours a week; Practice.

Recitations and laboratory experiments. The course deals with the principles of the science, and with a study in detail of the common elements and their compounds. The lectures are fully illustrated by experiments, specimens and charts. One or more laboratory periods are consumed by the student in preparation for the lectures of the following day. Inorganic Chemistry, *Storer-Lindsay*.

Practice, 2½ hours a week.

The practice begins with the use of the blowpipe, and the qualitative examination of suitable substances. This is followed by determinative mineralogy, wet analysis, and volumetric work. *Miller, Nason*.

2. Organic Chemistry. Junior. Fall, Winter, 3 hours a week.

Descriptive lectures in elementary Organic Chemistry, with special attention directed to the bearing the science has upon Agricultural Chemistry. Some phases of the Chemistry of Foods and Dietetics will receive brief attention during the work in this course. Elements of Organic Chemistry, *Remsen*.

3. Agricultural Chemistry. Junior, Spring; Senior, Fall, 3 hours a week. Practice.

The chemical principles underlying agriculture and their special relation thereto, are studied in detail, with particular reference to the conditions in this State. The chemistry of soils, natural and artificial fertilizers, irrigation waters, and feed stuffs; the chemistry of plant growth, and changes that take place in the development of a crop, are some of

the subjects which receive attention. Agricultural Chemistry, Vols. II and III, *Storer*.

Practice, Junior 2½, Senior 5 hours a week.

4. Geology. Senior. Winter, Spring, 3 hours a week.

Geology has been assigned to the department, and is taught for three hours a week the last two terms of the Senior year. General Geology, with some special attention to economic Geology is discussed under its various divisions. The subject is illustrated by maps, models, charts, and hand specimens of rocks and fossils. Elements of Geology, *LeConte*.

5. Metallurgy. Junior. Spring, 3 hours a week; Practice.

Special attention is given to the metallurgy of iron and steel. Attention is called to impurities occurring in ores, and the influence these impurities exert upon methods of work and upon the finished products. The different fuels, fluxes and refractory materials are carefully considered in their relative importance and adaptability. Metallurgy, *Sexton*.

Practice, 2½ hours a week.

6. Industrial Chemistry. Senior. Fall, Winter, 3 hours a week.

This subject is given by text supplemented with lectures and when practicable an excursion of several days' duration is made to the most important manufacturing establishments in the State. Practical men who are recognized as authorities in their different branches of work are from time to time invited to address the class.

The course is given to Mechanical Engineering students, and the subjects treated are those which are likely to prove of most aid to the future work of these students. The manufacture of the reagents that are the foundation of manufacturing chemistry is taken up first. This is followed by a study of the established industries of the State, and those processes that will be of particular importance in the development of the resources of the State.

The manufacture of acids and alkalis, the manufacture and refining of sugar, cotton-seed oil, petroleum, salt, the manufacture of fertilizers, ceramics, glass, soap, paper, glucose, starch, the tanning of leather are some of the subjects considered.

It is the aim not only to make the student acquainted with the details of these manufacturing processes, but to broaden his view and conception of the general importance of manufacturing interests to the people of the South. Outlines of Industrial Chemistry, *Thorp*. Lectures. Reference book, Industrial Chemistry, *Sadtler*.

EQUIPMENT.

The chemical laboratories, located in the new Chemical-Veterinary building, afford ample room for instruction in Chemistry.

That portion of the building which is devoted to Chemistry is divided into six laboratories with convenient supply rooms and balance rooms, two lecture rooms having a suitable apparatus room, offices, library, and museum.

The different laboratories are designated as follows: State and Station, Assay, Sophomore, Junior, Senior and Private. The furniture in these laboratories is for the most part slate, soap-stone, or oak, with soap-stone sinks. Each student is assigned to a lock-desk, which contains the necessary equipment. The laboratories are ventilated by efficient hoods. These hoods are operated by means of a fan located in the basement of the building.

The lecture room for general chemistry is provided with more than one hundred terraced seats.

A good reference library is accessible to the students of the department. References are frequently given to familiarize the student with standard works.

The museum occupies a large, well-lighted room.

DEPARTMENT OF DRAWING.

PROFESSOR GIESECKE.

MR. GIDEON.

MR. MITCHELL.

The instruction in this department is designed to give the student the mental and manual training and the technical information necessary to read and to construct the drawings used in other studies, and, upon graduation, to engage in technical work as a mechanical draftsman.

The following courses of instruction are offered:

Courses 1 and 2 are required of Agricultural students; Courses 3 to 10, inclusive, are required of Engineering students, except that Civil Engineering students omit Course 8; others omit Course 7.

1. **Free-hand Drawing. Freshman. Fall, Winter, Spring, 2 hours a week.**

Free-hand drawing from models and still life in pencil, water color, and pen and ink. Drawing Books Nos. 5 and 6, *Prang*.

2. **Mechanical Drawing. Freshman. Fall, Winter, Spring, 2 hours a week.**

Instrumental drawing, lettering, geometrical problems, projections, isometric drawing and working drawings of farm structures. Mechanical Drawing, Part I, *Giesecke*.

3. **Free-hand Drawing.** Freshman. Fall, Winter, Spring, 2 hours a week.

Free-hand drawing from models and still life in pencil and water color. Drawing Books Nos. 5 and 6, *Prang*.

4. **Mechanical Drawing.** Freshman. Fall, Winter, Spring, 3 hours a week.

Instrumental drawing, lettering, geometrical problems, projections and isometric drawing. Mechanical Drawing, Part I, *Giesecke*.

5. **Free-hand Drawing.** Sophomore. Fall, Winter, Spring, 1 hour a week.

Free-hand drawing of tools, and working sketches of details of building construction and machinery.

6. **Descriptive Geometry.** Sophomore. Fall, Winter, 3 hours a week. Recitations.

Descriptive Geometry, *Faunce*.

7. **Descriptive Geometry, Shades and Shadows, and Perspective.** Sophomore. Fall, Winter, Spring, 4 hours a week; Practice.

Exercises in descriptive geometry accompanying Course 6, and a series of problems in shades and shadows and in perspective.

8. **Descriptive Geometry, Shades and Shadows, and Perspective.** Sophomore. Fall, 4, Winter, 1½, Spring, 4 hours a week.

For description see Course 7.

This course is required of Civil Engineering students. For other Engineering students in the Sophomore Class, the time in the winter term is reduced to two and one-half hours a week.

Mechanical Drawing, Part II, *Giesecke*.

9. **Working Drawings.** Junior. Fall, Winter, Spring, 2½ hours a week.

Working drawings of details of machines and bridge construction; tinting, tracing, and blueprinting.

10. **Senior.** Fall, Winter, Spring, 2½ hours a week.

EQUIPMENT.

The department is equipped with the necessary tables, boards, instruments, models, and reference books. The student can purchase the drawing materials at the Colloge book store.

DEPARTMENT OF ENGLISH.

ASSOCIATE PROFESSOR FOUNTAIN.

MR. LOMAX.

MR. EMBRY.

The aim of this department is to give students such training as will enable them to use their mother tongue readily and accurately. An effort is made to teach a student to write well and to love good books. The instruction, therefore, is practical rather than theoretical. Frequent written exercises are required, and these exercises are not only carefully read by the instructor, but are also discussed in personal conferences with the individual student. In this way each student has his attention sharply called to his most frequent errors; and suggestions, especially adapted to his needs, are made. Experience proves that a student often gets more benefit from fifteen minutes personal conference with an instructor than he does from an hour's lecture in the class-room. The required work in English extends through the Freshman and Sophomore years.

The courses are as follows:

1. **Rhetoric and Composition. Freshman. Fall, Winter, Spring, 6 hours a week.**

This course consists of daily recitations, readings from masterpieces of literature in class, exercises in the various kinds of composition, personal conferences with individual students, brief writing, and argumentation. In addition each student is required to read two classics a month.

Principles of Rhetoric, *Hill*; Practical Exercises in English, *Buehler*; Exercises in Punctuation, *Hill*.

2. **English Literature. Sophomore. Fall, Winter, Spring, 3 hours a week.**

The work offered the second year affords an opportunity for the student to obtain a general knowledge of the outline history of English Literature, the different stages of development being illustrated by reading and criticising the leading classics of each period. Students are also required to do a large amount of reading outside of the class-room and to submit written reports thereon. The work of composition writing is continued.

A History of English Literature, *Moody* and *Lovett*; English Poems from Chaucer to Tennyson, *Parratt* and *Long*.

In all courses a monthly written exercise will be required throughout the Junior year and through the winter term of the Senior year.

DEPARTMENT OF HISTORY.

PROFESSOR HUTSON.

MR. POTTS.

The study of history is made obligatory for students of the Freshman and the Senior classes. The hours for Engineering students in the Freshman Class are six times a week through the entire session; for Agricultural students, three times a week; in the Senior for all courses, three times a week.

At present the insufficient knowledge of general history in the case of most applicants makes it necessary for the two courses in history to include only the study of mediæval and modern history. It is hoped that eventually they may both be devoted to a closer study of those nations whose influence on the course of modern progress has been most striking and continuous.

Constant endeavor is made to teach the young men that the history of the race is full of social, political and economic problems still applicable to modern life, in spite of many changed conditions; and that the welfare of humanity now and hereafter depends largely upon the proper correlation of the present and the future with the fund of experience won in the past; in other words, that there is vital meaning in the phrase "continuity of history."

The College library, which is emphatically the toolhouse of this department, contains many valuable histories, biographies, and memoirs; and students are urged and encouraged in every way to make use of collateral reading and to acquire the habit of independent investigation.

The courses are as follows:

1. **Mediæval and Modern History.** Freshman. Fall, Winter, Spring, 6 hours a week.

Introduction to the Middle Ages, *Emerton*; History of the Middle Ages, *Munro*; Modern History, *Schwill*; Recent European History, *Fellows*.

2. **Mediæval and Modern History.** Freshman. Fall, Winter, Spring 3 hours a week.

Mediæval and Modern History, *Myers*.

Course 1 is required of Engineering students; Course 2 of Agricultural students.

ECONOMICS.

3. **Industrial History and Political Economy.** Senior. Fall, 3 hours a week.

Recitations, discussions, lectures, reports.

The purpose of this course is to give the student a general view of the

progress of English industry, commerce, navigation, and social conditions since the Middle Ages. Special attention will be given to the break up of the manorial and guild systems and to the growth of the present factory system and modern methods of land tenure. Industrial and Social History of England, *Cheyney*.

4. Industrial History of the United States. Senior. Winter, 3 hours a week.

Beginnings, growth, and shifting of industry in this country; inventions, navigation, canals, railways; labor and capital, trade unions, strikes; industrial development since the Civil War. *Wright's Industrial Evolution of the United States* will probably be used as the text-book.

5. Political Economy. Senior. Spring, 3 hours a week.

This course is designed to give a brief view of the fundameital principles of the subject. As far as practicable, special attention will be given to the theory of money, banking, taxation, free trade, and protection. Introduction to Economics, *Bullock*.

6. Economics. Elective. Junior or Senior. Fall, Winter, Spring 3 hours a week.

This course is designed to give a broader general view of economics in theory and in practice. History 3 is pre-requisite. Principles of Economics, *Marshall*; Tariff History of the United States; *Tausig*; History and Theory of Banking, *Dunbar*; Money and Banking, *White*.

DEPARTMENT OF LANGUAGES.

PROFESSOR BITTLE.

MR. CAMPBELL.

It is the object of the department to impart a practical knowledge of German, Latin, French, or Spanish, such as will benefit the student in the prosecution of a scientific career.

To this end, the text-books used and the method of imparting instruction are practical. Latin is taught as an essential to a thorough understanding of English, German and French, because neither the specialist nor the general student can afford to be ignorant of those literatures; Spanish, in view of the rapidly growing intercourse between us and the Latin republics south of us; all of them, because systematology and scientific nomenclature are unintelligible without a knowledge of foreign languages.

Students coming to us, therefore, from the high schools of the State

find here the opportunity to continue their linguistic studies by the side of agricultural and mechanical branches, to which those studies lend effective aid.

The courses are as follows:

1. French. Fall, Winter, Spring, 3 hours a week.

A thorough drill in the elements of the language, its pronunciation, its grammatical forms, is given through oral and written exercises. The reading of simple text is undertaken as early as possible.

2. French. Fall, Winter, Spring, 3 hours a week.

Course 1 is continued and the reading is gradually adapted to the scientific work of other departments. The speaking of the language is encouraged.

3. German. Fall, Winter, Spring, 3 hours a week.

The student is drilled on grammatical forms, the grammar of the word and sentence, and introduced to the simpler written and spoken language.

4. German. Fall, Winter, Spring, 3 hours a week.

Course 3 is continued with a view to reading the scientific literature bearing on the work in other departments.

5. Latin. Elective. Fall, Winter, Spring, 3 hours a week.

Students who have studied Latin in the preparatory schools have the privilege of continuing the course; others who need a more solid foundation in grammatical studies will be drilled with that view in the grammar and elementary reading.

6. Latin. Elective. Fall, Winter, Spring, 3 hours a week.

Course 5 is continued, with all the text-reading possible.

7. Spanish. Elective. Fall, Winter, Spring, 3 hours a week.

The grammar of Spanish with simple reading as early as possible.

8. Spanish. Elective. Fall, Winter, Spring, 3 hours a week.

Advanced grammar, written and oral exercises. Scientific texts for reading.

DEPARTMENT OF MATHEMATICS.

PROFESSOR PURYEAR.

ASSOCIATE PROFESSOR SMITH.

ASSOCIATE PROFESSOR JUNKIN.

Instruction in this department is given by the use of approved textbooks, supplemented by oral explanations and informal lectures. The

student's knowledge of the subject is tested daily at the blackboard, and, in each course, written solutions of selected problems and review exercises involving the work of preceding courses are frequently assigned. Prominence is given to practical applications.

Of the courses named below, 1, 2, and 3 are required of Agricultural students; 1 to 8, inclusive, except 3, are required of Engineering students.

1. **Plane and Solid Geometry. Freshman. Fall, Winter, 3 hours a week; Spring, 6 hours a week.**

The course will include definitions, rectilinear figures, the circle, similar polygons, areas of polygons, regular polygons, measurement of the circle, lines and planes in space, dihedral angles, polyhedral angles, polyhedrons, the cylinder, cone and sphere. *Plane and Solid Geometry, Wentworth.*

2. **Algebra. Freshman. Fall, Winter, 3 hours a week.**

The course will include quadratic equations, simultaneous quadratics, ratio, proportion, variation; arithmetical, geometrical and harmonical progressions; binomial theorem for positive integral exponents, permutations, combinations, limits. *Complete Secondary Algebra, Fisher and Schwatt.*

3. **Plane Trigonometry. Sophomore. Fall, Winter, 3 hours a week.**

Plane and Spherical Trigonometry, *Taylor and Puryear.*

4. **Plane and Spherical Trigonometry. Sophomore. Fall, 6 hours a week.**

The course will include goniometry, review of logarithms, solution of right triangles, problems of heights and distances, properties of triangles, solution of oblique triangles, geometrical applications and a brief treatment of spherical trigonometry. *Plane and Spherical Trigonometry, Taylor and Puryear.*

5. **Advanced Algebra. Sophomore. Winter, 3 hours a week.**

The course will include series, undetermined coefficients, partial fractions, binomial theorem for any exponent, logarithms, logarithmic and exponential series, and such other topics as the time may allow. *Complete Secondary Algebra, Fisher and Schwatt.*

6. **Analytic Geometry. Sophomore. Winter, 3 hours a week; Spring, 6 hours a week.**

The course will include the straight line, transformation of coördinates, circle, ellipse, hyperbola, the general equation of the second degree, solid analytic geometry. *Analytic Geometry, Ashton.*

7. Differential and Integral Calculus. Junior. Fall, Winter, Spring, 3 hours a week.

The course will include differentiation, expansion of functions, indeterminate forms, functions of several variables, tangent and normal, curvature, evolute and involute, contact, maxima and minima; integration, lengths, areas, volumes, moments of inertia. Differential and Integral Calculus, *Osborne*.

8. Calculus. Senior. Fall, 3 hours a week.

Continuation of Course 7.

DEPARTMENT OF MILITARY SCIENCE.

CAPTAIN SARGENT.

It is the aim of this department to send forth the graduates of this institution thoroughly fitted to perform the duties of a subaltern in the regular service. As the course is compulsory, graduates are entitled to the benefits of free instruction at the General Service and Staff College at Fort Leavenworth, Kansas, and of the Officer's Schools at the different military posts.

The students are organized into a battalion of four companies, band and necessary staff, which are under the immediate charge of the Commandant.

The officers and non-commissioned officers are selected from the Senior, Junior and Sophomore classes. They are appointed by the President upon the recommendation of the Commandant. Their appointments are dependent upon the active and soldierly performance of their duties, their sense of duty and responsibility, and their general good conduct and class standing.

The military system is an aid in enforcing discipline and securing regularity in the performance of academic duties, and tends to inculcate in the students habits of truthfulness and manliness of character, which characterize young men as gentlemen.

The courses are as follows:

1. Drill Regulations. Junior. Winter, 3 hours a week.

The course includes infantry drill regulations through the schools of the soldier; company and battalion, both in close and extended order; reviews, inspections, parades, guard mounting, guard duty, articles of war, small arms, firing regulations and instruction in making military records and property returns. It includes also lectures upon tactics, and upon modern fire arms.

U. S. Infantry Drill Regulations, Guard Manual, Small Arms Firing Regulations, oral and written recitations.

2. Military Science. Senior. Fall, 1 hour a week.

This course includes the study of Napoleon's Italian Campaigns, in which the class in given lessons and required to stand a written examination. In connection with the lessons given to the class, the instruction also includes a discussion and lectures upon organization, discipline, mobilization, marches, bases of operations, lines of communication and strategical principles.

Napoleon Bonaparte's First Campaign, *Sargent*; The Campaign of Marengo, *Sargent*.

3. Drill. All classes. Fall, Spring, 3 hours a week.

Infantry drill through the schools of the soldier, company and battalion in close and extended order, advance and rear guard, out-posts and marches, battalion review, inspection, parade escort of the color, guard mounting, target practice for the Senior class, instruction in company reports, muster rolls, rosters, etc.

Drills end December 1st and begin again March 1st; but during the intervening months on the regular drill days, when the weather is pleasant inspections or dress parades are held.

The best drilled company of the battalion has the honor of carrying the trophy flag for a year. This is a handsome silk flag which was presented to the corps by a friend of the College.

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

The courses in Physics are as follows:

1. Elementary Physics. Sophomore. Fall, Winter, Spring, 3 hours a week; Practice.

Lectures, recitations, experiments, lantern illustrations, and problems in the general principles of Mechanics, Heat, Light, and Sound.

Practice, Winter, half of Spring, 5 hours a week.

In the practice, the intention is to give the student some skill in handling instruments and train them in the fundamental requirements of physical quantities. Each student is required to determine a number of physical constants, to calibrate the various instruments in the laboratory, to make accurate measurements of areas, volumes, weights, lengths, diameters, densities, and elasticity. These experiments are performed by the students either individually or in small sections of from two to four. The experiments are not considered completed till the students have accurately calculated the desired constant from the data secured.

2. Elementary Electricity. Junior. Fall, 3 hours a week; Practice.

Lectures, recitations, and lantern illustrations in Electricity and magnetism. This course is a continuation of Course 1.

Practice, fall, winter, $2\frac{1}{2}$ hours a week. The practice includes measurements of electrical and magnetic quantities.

3. Electricity and Magnetism. Junior. Winter, Spring, 3 hours a week; Practice.

Lectures and recitations in the theory of electricity and magnetism and their applications to electrical machines and measuring instruments. The completion of Courses 1 and 2 is required for entrance to this course.

Practice, $2\frac{1}{2}$ hours a week. Measurements of electrical and magnetic quantities, including measurements of resistance current and electro-motive force.

4. Elementary Physics. Junior. Fall, Winter, Spring, 3 hours a week; Practice.

This course is similar to Courses 1 and 2 but covers in three terms what is covered there in four terms, leaving out numerous problems and illustrations that are chiefly useful to engineers. The course includes lectures, recitations, and experiments in mechanics, heat, light, sound, electricity, and magnetism.

Practice, $2\frac{1}{2}$ hours a week, including experiments in properties of matter, heat, light, sound, electricity, and magnetism.

Courses 1 and 2 are required of all Engineering students; Course 3 of students in Electrical, Mechanical and Textile Engineering; Course 4 is required of Agricultural students.

ELECTIVE COURSES.

Elective courses extending through two years are offered upon the following conditions:

1. A new student, in order to enter upon an elective course, must be able to pass the entrance examinations in English Grammar, Composition, Rhetoric, Arithmetic, Algebra through quadratic equations, Plane Geometry.

2. A regular student in order to transfer to an elective course must have the consent of his parent or guardian and of the Faculty; he must also have passed on at least two subjects in the Sophomore or a higher class at the examinations held at the end of the spring term. No student in the Junior Class reported at the end of the session as deficient in more

than two subjects will be allowed to take an elective course. The transfer to an elective course may be made only at the beginning of a term.

3. Every student upon receiving permission from the Faculty to take an elective course must elect, *in conformity to the regular schedule*, studies amounting to at least *eighteen* hours per week and practice amounting to at least *seven* hours per week, besides drill; the course must be largely industrial in character and must be submitted for approval to the Committee on Elective Courses and to the heads of departments concerned. In the second year all the work must be in classes above the Sophomore.

4. He must hand to the chairman of the committee on the *first day of each term* a list of his studies, properly signed.

5. A student in an elective course upon the completion of two full years work, as defined above, will be entitled to a certificate signed by the President and the heads of the departments in which he studied.

6. Elective students shall be subject to all military duties and to the Rules and Regulations just as are regular students.

A TWO-YEARS' COURSE.

Young men, over 18 years of age, who have a fair knowledge of arithmetic may, on special approval, be admitted to the two-years' course outlined below:

First Year.—Elementary algebra, English grammar, and composition, elementary physics; the drawing and shopwork of the Freshman class, engineering courses.

Second Year.—Freshman mathematics, Sophomore drawing and shopwork; and nine hours a week from the following subjects: botany, chemistry, electrical machinery, power and power-transmission.

After completing the work of the first year of this course the student may, if he chooses, enter the regular Freshman class, conditioned on history.

Students in this course are required to drill and perform the regular military duties.

MANUAL TRAINING.

A course in manual training especially designed for teachers is offered by the Department of Mechanical Engineering. The work may be taken up at any time of the session and will usually occupy about eighth weeks. Those desiring to take this course should notify the President before coming to the College.

TEXT-BOOKS USED IN THE SEVERAL DEPARTMENTS.

FRESHMAN CLASS.

DRAWING: Drawing Books Nos. 5 and 6, *Prang*; Mechanical Drawing, Parts I and II, *Giesecke*.

ENGLISH: Principles of Rhetoric, *Hill*; Practical Exercises in English, *Buehler*; Exercises in Punctuation, *Hill*.

HISTORY: Mediæval and Modern History, *Myers*; Introduction to the Middle Ages, *Emerton*; History of the Middle Ages, *Munro*; Modern History, *Schwill*; Recent European History, *Fellows*.

MATHEMATICS: Plane and Solid Geometry, *Wentworth*; Complete Secondary Algebra, *Fisher* and *Schwatt*.

MECHANICAL ENGINEERING: Bench Work in Wood, *Goss*.

PHYSICS:

PLANT HUSBANDRY: Plant Culture, *Goff*.

SOPHOMORE CLASS.

BOTANY: Text-Book and Practical Botany, *Strasburger*; Flora of the Southern States, *Chapman*.

CHEMISTRY: Inorganic Chemistry, *Storer-Lindsay*; *Nason*; *Noyes*; Notes, *Talbot*.

CIVIL ENGINEERING: Plane Surveying, *Raymond*.

DRAWING: Descriptive Geometry, *Faunce*; Mechanical Drawing, Part II, *Giesecke*.

ENGLISH: English Literature, *Moody* and *Lovett*; Poems from Chaucer to Tennyson, *Parrott* and *Long*.

ENTOMOLOGY: Manual for Study of Insects, *Comstock*.

FARM HUSBANDRY: Principles of Agriculture, *Voorhees*.

LANGUAGES: German Grammar, *Joynes-Meissner*, with *Stern's* Studien und Plaudereien, and Select Literature; Spanish Grammar, *De Tornos*; Readers, *Ramsey*, *Knapp*; French Grammar, *Whitney*, with selected readings; Latin Grammar, *Coy*, *Gildersleeve*, with selected readers and literature.

MATHEMATICS: Complete Secondary Algebra, *Fisher* and *Schwatt*; Plane and Spherical Trigonometry, *Taylor* and *Puryear*; Analytic Geometry, *Ashton*.

MECHANICAL ENGINEERING: Power and Power Transmission, *Kerr*; Slide Valve Gears, *Halsey*.

PLANT HUSBANDRY: Principles of Vegetable Growing, *Bailey*.

JUNIOR CLASS.

ANIMAL HUSBANDRY: Breeds of Live Stock, *Shaw*; Stock Feeding, *Henry*.

BOTANY: Physiology of Plants, *Darwin* and *Acton*; Flower Ecology, *Pammel*.

CHEMISTRY: Elements of Organic Chemistry, *Remsen*; Agricultural Chemistry, Vol. II and III, *Storer*; Notes, *Nason*; *Noyes*; Metallurgy, *Sexton*; Inorganic Chemistry, *Storer-Lindsay*.

CIVIL ENGINEERING: Plane Surveying, *Raymond*; Field Manual for Railroad Engineers, *Nagle*; Mechanics of Materials, *Merriman*; Roofs and Bridges, Part II, *Merriman* and *Jacoby*; Roads and Pavements, *Baker*.

ENTOMOLOGY: Insects Injurious to Staple Crops, *Sanderson*.

FARM HUSBANDRY: Agricultural Physics, *King*; Soils and Crops of the Farm, *Morrow* and *Hunt*.

LANGUAGES: German Grammar, *Joynes-Meissner*, with *Stern's* Studien und Plaudereien, and Select Literature; Spanish Grammar, *De Tornos*; Readers, *Ramsey*, *Knapp*; French Grammar, *Whitney*, with selected readings; Latin Grammar, *Coy*, *Gildersleeve*, with selected readers and literature.

MATHEMATICS: Differential and Integral Calculus, *Osborne*.

MECHANICAL ENGINEERING: Handbook for Apprenticed Machinists, *Brown* and *Sharpe Mfg. Co.*; Indicator and Steam Engine Economy, *Hemenway*; Machine Design, *Low* and *Bevis*.

MILITARY SCIENCE: U. S. Infantry Drill Regulations, Guard Manual, Small Arms Firing Regulations.

PHYSICS:

PLANT HUSBANDRY: Principles of Fruit Growing, *Bailey*; Plant Breeding, *Bailey*; Spraying of Plants, *Lodeman*.

VETERINARY SCIENCE: Comparative Anatomy of the Domestic Animals, *Chauveau*; Anatomy of the Horse, *McFadyean*; Anatomie des Pferdes, *Leisering*; Veterinary Medicine, Vol. IV, *Law*; Pathology, and Therapeutics of the Domestic Animals, *Friedberger* and *Frohner*; *Flemming's* Translation of *Neuman*; Operative Veterinary Surgery, *Moller*.

SENIOR CLASS.

CHEMISTRY: Elements of Geology, *Le Conte*; ———, *Brigham*.

CIVIL ENGINEERING: Masonry Construction, *Baker*; Contracts and Specifications, *Johnson*; Roofs and Bridges, Parts I, II, III, *Merriman* and *Jacoby*; Hydraulics, *Merriman*; Irrigation Land Drainage,

FARM HUSBANDRY: Exterior of the horse, *Gobeaux* and *Barrier*; Milk and its Products, *Wing*; Irrigation and Drainage, *King*.

HISTORY: Industrial Evolution of the United States, *Wright*; Introduction to Economics, *Bullock*.

LANGUAGES: German Grammar, *Joynes-Meissner*; Select Literature; Spanish Grammar, *De Tornos*; Readers, *Ramsey, Knapp*; Latin Grammar, *Coy, Gildersleeve*, with selected readings and literature; French Grammar, *Whitney*, with selected readings.

MATHEMATICS: Calculus, *Osborne*.

MECHANICAL ENGINEERING: Machine Drawing and Design, *Low and Bevis*; Engineering Laboratory Practice, *Smart*.

MILITARY SCIENCE: Military Hygiene, *Woodhull*; Organization and Tactics, *Wagner*; Service of Security and Information, *Wagner*.

GENERAL INFORMATION.

GRADES, REPORTS, EXAMINATIONS AND ADVANCEMENT.

Records of the standing of each student are kept by the instructors in the several departments. This standing is indicated by a system of marks based upon 100 as a maximum, with decimal graduations.

A monthly report is mailed to the parent or guardian of each student, showing his class standing and conduct.

Examinations are held at the end of each term.

The passing mark is 66 for the Freshman and Sophomore classes and 70 for the Junior and Senior classes; examination grade and monthly average being given equal weight; but if the examination grade is below 55 the student will not be passed. Special examinations will in no case be given without Faculty action; but there will be examinations for deficient students at the opening of each session. Students who wish to be examined at the time must send to J. A. Baker, Secretary of the College, at least three days before the first day of the session a statement of the subjects on which they wish to be examined.

GRADUATION.

A diploma of the College, with the degree corresponding to the course of study pursued, will be granted students who complete one of the regular courses and pass satisfactory examinations on all of the branches embraced therein. Each candidate for graduation is required to prepare a thesis upon a subject bearing upon his work in some scientific or practical department. The subject must be submitted to the Faculty for approval by March 1.

The thesis must be satisfactory to the head of the department in which it was written.

The diploma fee is five dollars.

HONORS.

The three students of the graduating class who have the best records for scholarship and deportment are known as honor men; but this rule may be modified if the number of students in any class or their scholarship shall not warrant such distinction.

In each of the lower classes the three students having the highest general average in all their studies, and also in each department the three students of the several classes whose final grades are highest, are announced at Commencement as "distinguished."

MAIN BUILDING.

The main building, erected in 1876, stands on the highest point on the grounds. It is four stories high, and contains about forty rooms, used for offices, section rooms, library, book store, society halls, drawing rooms, etc.

MECHANICAL ENGINEERING BUILDING.

North of the main building is the building occupied by the Department of Mechanical Engineering. It consists of two distinct parts; first, the one containing the carpenter shop, class rooms and model room; second, that containing the machine and blacksmith shops. The carpenter shop is fitted up with benches and tools for the accommodation of students, while above it, on the second floor, are two class rooms and a model and designing room. Back of this are the other shops mentioned, in a building of one-story. Power for the machine shop is furnished by an eighteen horse power engine, which was built and set up by the graduating class of 1888. The machine shop is equipped with wood turning lathes, circular, band, and jig saws, emery wheels stand, engine lathes, planer, sharper, drill, and milling machine. The blacksmith shop has twenty-eight forges, with necessary tools, power blast, and exhaust fan.

AGRICULTURAL AND HORTICULTURAL BUILDING.

This building was planned to accommodate the agricultural and horticultural departments of the College and Experiment Station by furnishing rooms for class instruction, laboratory investigations, museum purposes, butter and cheese making, pasteurizing milk, seed store room, photographic room, and the necessary offices for the accommodation of these departments. The building is 160 feet long and 77 feet wide, two stories high, and covered with slate. It contains twenty-seven rooms, fitted with apparatus and machinery for the instruction of students in the several branches of agriculture and horticulture.

THE CHEMICAL AND VETERINARY LABORATORY.

This building, erected in 1902, is of classical design, and is 138 feet long and 130 feet deep. It is built of brick and contains two stories and a basement. On the first floor the Veterinary Department has its office, veterinary laboratory, students' laboratory, dissecting room, operating room, museum, lecture room, and apparatus room. The Chemical Department has on the same floor two store rooms, an assay room, and a laboratory for State chemical work.

The second floor comprises the chemical museum, office and private laboratory of the professor of chemistry, office of the associate profes-

sor of chemistry, laboratory of the Experiment Station, general lecture room, balance room, and two laboratories for students.

The building is ventilated by a fan operated by an engine in the basement. The fan room is connected by pipes with all hoods in the laboratories, by which the entire volume of air in the building can be changed every two and one-half minutes. The building is wired for electric lighting, and piped for water and gas.

GATHRIGHT HALL.

This building was erected in 1876, and is named in honor of Thomas L. Gathright, the first President of the College. Twenty-five of the rooms in it are occupied by students; the others are used as section-rooms, instrument rooms and laboratories of the Department of Physics and Electrical Engineering.

PFEUFFER HALL.

This is a dormitory, erected in 1887, and contains twenty-five rooms. It is named in honor of George Pfeuffer, a former President of the Board of Directors.

AUSTIN HALL.

This is a dormitory, erected in 1888, and contains twenty-five rooms. It is named in honor of Stephen F. Austin.

ROSS HALL.

This is another and more commodious dormitory, erected in 1892, three stories high, with forty-one rooms. It is named in honor of former President L. S. Ross.

FOSTER HALL.

This building was erected in 1899, and is named in honor of the late President L. L. Foster. It is a dormitory, and consists of three separate parts; the central part is four stories high and contains nineteen rooms; the two ends are three stories high and contain eighteen rooms each.

ASSEMBLY HALL.

This is a two-story brick building, erected in 1889, having a main floor and gallery. In it are held the public exercises of the College.

MESS HALL.

This building was erected in 1897. The dining hall has capacity for over five hundred students.

NATATORIUM.

The natatorium, erected in 1894, is a frame building containing a swimming pool 25x50 feet, varying in depth from three and one-half to seven feet.

The water is supplied from a deep well, and it what is known as "white sulphur" water. All students have access to the natatorium at times fixed by schedule for the different classes.

FARM BUILDINGS.

The farm buildings of the College and Experiment Station are situated to the rear of the main building, and consist of a mule barn, a general farm barn, a milking shed, and a piggery. In connection with the main barn the Experiment Station has four silos.

OTHER IMPROVEMENTS.

Other improvements comprise a laundry; an ice plant with a daily capacity of ten tons; a system of waterworks; a sewerage system; an electric light and cold storage plant.

GROUNDS, FARM AND GARDEN.

The garden, orchard, barn yards, and campus are included in the enclosure to the east of the railroad station. The campus, which consists of some twenty-five acres of lawn, shrubbery, and flowers, surrounds the College buildings.

The orchard, vineyard, nursery, and garden are located north and east of the main College building. About fifty acres are devoted to this work.

FARM.

The farm proper comprises about three hundred and fifty acres, not including pasture lands. The pastures contain in the neighborhood of two thousand acres, and furnish grazing for the College herds.

LIBRARY.

The Library contains about 5000 volumes, including standard works of history, biography, agriculture, mechanics, engineering, mathematics, natural science, economics, philosophy, poetry, fiction, general literature, and reference. It is thoroughly classified, indexed and catalogued, is in charge of a regular librarian, and is open six days in the week, from 8:30 a. m. till 5:30 p. m.

There are also about 6000 volumes of public documents, and the various pamphlets, etc., issued by other similar institutions in the United States. About fifty standard technical and general periodicals, and several of the leading daily papers, are subscribed for.

LITERARY SOCIETY.

The Austin Literary Society meets in its hall once a week for practice in debate, literary composition, and declamation.

RELIGIOUS AND MORAL CULTURE.

There is religious service in the chapel every Sunday for the corps of students and the residents of the campus. A Sunday school for Bible study, attendance at which is optional, affords additional help in the way of ethical training. Every effort is made through lecture and personal example to develop and protect good morals in the young men attending the institution.

ATHLETICS.

The usual form of athletic sports are permitted, but they are not allowed to interfere with the regular College duties. No student is allowed to represent the College in any athletic contest if he is deficient in his studies. The College athletic association is a member of the Southwestern Intercollegiate Athletic Association.

SEWERAGE SYSTEM.

The College is now provided with an efficient system of sewers, to which are connected the various barracks, the main building, the agricultural and horticultural hall, the steam plant, the infirmary, the mess hall and several of the residences. The outfall of the system is three-fourths of a mile from the nearest College building and nine-tenths of a mile from the nearest recitation hall or barrack building.

BAND.

An attractive feature is a regularly organized cadet band. Under the direction of a leader employed by the College, it furnishes music for occasions of social and military importance, gives open air concerts in season, leads the battalion in marching to dinner, and plays at guard mounting and dress parade.

AFFILIATED SCHOOLS.

The Faculty desires to bring the College into closer relations with the schools of the State, by providing that graduates of approved schools may be admitted to the College on diploma or certificate *at the beginning of the session* without examination. Superintendents who desire to have their schools enrolled among the affiliated schools are invited to examine the requirements for admission, and the specimen examination questions in the appendix.

The offer of affiliation is made upon the following terms: The superintendent of a school desiring affiliation should obtain from the president of the college a form of application to be filled out and returned. If the application should be approved by the faculty, the superintendent will be notified and the name of the school and that of the superintendent enrolled in the catalogue. The diploma of an affiliated school will admit the candidate to the freshman class. The privilege of affiliation will be withdrawn from any school whose graduates show a lack of thoroughness in their preparation for the work of the college.

Catalogues of the college will be sent regularly to the superintendents of affiliated schools, and they in turn will be expected to send the president copies of their reports or catalogues.

LIST OF AFFILIATED SCHOOLS.

Name.	Superintendent.	Location.
Albany Public School.....	Geo. D. Beason.....	Albany.
Allen Academy.....	J. H. & R. O. Allen..	Bryan.
Alvarado Normal Institute.....	J. E. Garrison.....	Alvarado.
Alvin Public School.....	R. E. Shirley.....	Alvin.
Anson High School.....	Luther B. Giles.....	Anson.
Atlanta City School.....	M. G. Bates.....	Atlanta.
Austin Academy.....	J. Stanley Ford....	Austin.
Bastrop Public School.....	J. C. Edmonds.....	Bastrop.
Beaumont High School.....	H. F. Triplett.....	Beaumont.
Beeville High School.....	W. E. Madderra.....	Beeville.
Bellville High School.....	G. W. Page.....	Bellville.
Belton High School.....	J. B. Hubbard.....	Belton.
Big Springs High School.....	S. E. Thompson....	Big Springs.
Bonham High School.....	I. W. Evans.....	Bonham.
Bowie High School.....	J. P. Massey.....	Bowie.
Brackett High School.....	A. H. Horn.....	Brackettville.
Brandon High School.....	L. W. Lastor.....	Brandon.
Brenham Central School.....	E. W. Tarrant.....	Brenham.
Brownwood High School.....	Geo. H. Carpenter..	Brownwood.
Bruce Academy.....		Athens.

Name.	Superintendent.	Location.
Bryan High School.....	T. S. Minter.....	Bryan.
Calvert Public School.....	I. N. Stephens.....	Calvert.
Cameron High School.....	Wm. J. Sims.....	Cameron.
Central Texas Institute.....	W. J. Lewis.....	Moody.
Cisco High School.....	R. L. Abbott.....	Cisco.
Cisco Public School.....	R. L. Abbott.....	Cisco.
Clarksville High School.....	S. C. Sturgis.....	Clarksville.
Cleburne Academy.....		Cleburne.
Cleburne High School.....	V. M. Fulton.....	Cleburne.
Coles Classical and Military School.....		Dallas.
Columbus High School.....	C. K. Quinn.....	Columbus.
Comanche High School.....	Jno. A. Donaldson.....	Comanche.
Copperas Cove High School.....	J. L. Hicks.....	Copperas Cove.
Corpus Christi High School.....	C. W. Crossley.....	Corpus Christi.
Corsicana High School.....	J. W. Cantwell.....	Corsicana.
Coryell City School.....	A. M. Sams.....	Coryell City.
Crawford High School.....	J. F. Ellis.....	Crawford.
Cuero Public School.....	W. S. Fleming.....	Cuero.
Dallas High School.....	J. L. Long.....	Dallas.
DeLeon High School.....	J. B. Jones.....	DeLeon.
Del Rio Incorporated School.....	T. C. Hickman.....	Del Rio.
Denison High School.....	F. B. Hughes.....	Denison.
Devine High School.....	C. C. Harris.....	Devine.
Douglas-Schuler School.....	S. A. Douglas.....	Waco.
Dublin High School.....	E. I. Hall.....	Dublin.
Eagle Lake High School.....	Mrs. H. W. Carothers.....	Eagle Lake.
Elgin High School.....	J. N. Bigbee.....	Elgin.
Ennis High School.....	W. E. Edelen.....	Ennis.
Evant High School.....	R. L. Bewley.....	Evant.
Flatonia High School.....	D. C. Lake.....	Flatonia.
Fort Worth High School.....	Alex. Hogg.....	Fort Worth.
Gainesville High School.....	E. F. Comegys.....	Gainesville.
Gatesville Public School.....	A. C. Elliott.....	Gatesville.
Georgetown High School.....	A. N. W. Smith.....	Georgetown.
Gladewater High School.....	J. H. Smith.....	Gladewater.
Glen Rose High School.....	J. M. Templeton.....	Glenrose.
Goldthwaite High School.....	Henry Sims.....	Goldthwaite.
Gonzales Public School.....	Thos. H. Lewis.....	Gonzales.
Graham High School.....	B. C. Odom.....	Graham.
Granger High School.....	R. H. Long.....	Granger.
Greenville High School.....	Geo. A. Newton.....	Greenville.
Hamilton High School.....	J. B. Lane.....	Hamilton.
Henderson High School.....	T. R. Day.....	Henderson.
Hico Graded School.....	J. N. Davis.....	Hico.
Hillsboro High School.....	W. D. Butler.....	Hillsboro.
Honey Grove High School.....	F. M. Bralley.....	Honey Gove.
Houston High School.....	W. W. Barnett.....	Houston.
Hutto High School.....	W. H. Emert.....	Hutto.
Jacksboro High School.....	L. C. Collier.....	Jacksboro.
Jeff Davis College.....	J. P. Weatherby.....	Fort Davis.
Karnes City High School.....	A. S. J. Steele.....	Karnes City.
Kaufman Public School.....	C. J. Maxwell.....	Kaufman.

AFFILIATED SCHOOLS.

93

Name.	Superintendent.	Location.
Kemp Public School.....	H. P. Walker.....	Kemp.
Kenedy High School.....	Dan Smith	Kenedy.
Kosse High School.....	W. H. Pendergraft.	Kosse.
Kyle High School.....	F. E. Daniel.....	Kyle.
Ladonia Public School.....	Chas. W. Briles...	Ladonia.
Lampasas High School.....	G. D. Scott.....	Lampasas.
Laredo High School.....	L. J. Christian....	Laredo.
Ledbetter Public School.....	Oliver C. York....	Ledbetter.
Lewis Academy.....	Forney.
Lewisville Academy.....	P. D. Kennamer...	Lewisville.
Liberty Normal and Business College..	T. P. Price.....	Liberty.
Lindale High School.....	O. P. Norman.....	Lindale.
Luling High School.....	R. E. L. Adams.....	Luling.
Marfa High School.....	H. B. Griffin.....	Marfa.
Marlin High School.....	C. P. Hudson.....	Marlin.
Marshall High School.....	W. H. Attebery....	Marshall.
Madison Academy.....	J. J. Joplin.....	Madisonville.
Mexia High School.....	N. R. Crozier.....	Mexia.
Mineral Springs Institute.....	T. R. Howard.....	Garrison.
Mineola High School.....	B. A. Stafford.....	Mineola.
Mineral Wells Public School.....	E. O. McNew.....	Mineral Wells.
McGregor High School.....	W. F. Doughty....	McGregor.
McKinney Public School.....	T. W. Lanham.....	McKinney.
Mt. Pleasant High School.....	L. C. Libby.....	Mt. Pleasant.
Naples High School.....	D. R. Hibbetts....	Naples.
Navasota High School.....	W. B. Bizzell.....	Navasota.
New Braunfels Academy.....	C. W. Feuge.....	New Braunfels.
Nacona Public School.....	T. A. Taggart.....	Nocona.
Orange High School.....	S. B. Foster.....	Orange.
Palestine High School.....	W. F. Wilson.....	Palestine.
Paris High School.....	J. G. Wooten.....	Paris.
Peacock's School for Boys.....	Wesley Peacock ...	San Antonio.
Plano High School.....	J. T. Johnson.....	Plano.
Port Lavaca High School.....	W. F. Hollamon...	Port Lavaca.
Quanah High School.....	K. A. Berry.....	Quanah.
Ranger Public School.....	C. D. Judd.....	Ranger.
Richland Grammar School.....	J. W. Miller.....	Richland.
Rockdale Public School.....	John W. Clark....	Rockdale.
Rock Island High School.....	J. T. Alderton....	Rock Island.
Rock Springs High School.....	D. C. Baylis.....	Rock Springs.
Rosenberg High School.....	W. D. Majors.....	Rosenberg.
Runge High School.....	J. H. Naff.....	Runge.
San Antonio Academy.....	Wm. B. Sealey....	San Antonio.
San Antonio High School.....	L. E. Wolfe.....	San Antonio.
San Diego High School.....	J. H. Hufford.....	San Diego.
San Saba Public School.....	W. F. Elliott, Jr..	San Saba.
Santa Anna High School.....	W. Z. Champion...	Santa Anna.
Seguin High School.....	A. J. Cook.....	Seguin.
Seymour Public School.....	J. W. Curtis.....	Seymour.
Sherman High School.....	P. W. Horn.....	Sherman.
Snyder High School.....	B. W. Hudgins....	Snyder.
Stamford High School.....	C. Rose	Stamford.

Name.	Superintendent.	Location.
State Institute for Blind.....	H. L. Piner.....	Austin.
Stephenville High School.....	D. P. Parker.....	Stephenville.
Sulphur Springs High School.....	Peyton Irving, Jr..	Sulphur Springs.
Sweetwater High School.....	S. A. Maroney.....	Sweetwater.
Taylor High School.....	W. M. Williams...	Taylor.
Temple High School.....	J. E. Binkley.....	Temple.
Teneha Public School.....	M. B. Brown.....	Tenaha.
Terrell High School.....	S. M. N. Marrs....	Terrell.
Texarkana High School.....	W. Owens	Texarkana.
Tivy High School.....	Kerrville.
Troupe High School.....	M M. Dupree.....	Troupe.
Tyler High School.....	J. L. Henderson...	Tyler.
University Military School.....	J. B. Dodson.....	Dallas.
Uvalde High School.....	Uvalde.
Valley Mills High School.....	J. D. Cox,.....	Valley Mills.
Velasco Public School.....	C. P. Jessup.....	Velasco.
Victoria High School.....	Felix E. Smith....	Victoria.
Waco High School.....	J. C. Lattimore....	Waco.
Waxahachie High School.....	W. L. Acker.....	Waxahachie.
Weatherford High School.....	H. G. Reed.....	Weatherford.
West Paris High School.....	J. L. Clark.....	West Paris.
Wichita Falls High School.....	W. F. Jordan.....	Wichita Falls.
Wills Point High School.....	L. H. Kidd.....	Wills Point.
Wortham High School.....	C. M. Thornell....	Wortham.
Yoakum High School.....	T. L. Toland.....	Yoakum.

CATALOGUE OF STUDENTS.

EXPLANATION.

Degrees: B. S., Bachelor of Science; M. S., Master of Science; M. E., Mechanical Engineer; C. E., Civil Engineer.

Courses: Agr., Agriculture; Civ. Eng., Civil Engineering; Elect. Eng., Electrical Engineering.

POST GRADUATES.

R. B. Boettcher, B. S. Weimar.
Ralph H. Kinsloe, B. S. Corsicana.

SENIORS.

Altgelt, Ernest S. Civ. Eng. San Antonio.
Aguayo, Nieves A. Mech. Eng. Parrago, Mexico.
Bauer, Felix. Mech. Eng. Burton.
Bernay, Camp L. Civ. Eng. Brownwood.
Benjamin, Jos. W. Civ. Eng. Cuero.
Blake, Thos. W. Agr. Dallas.
Burns, John C. Agr. Cuero.
Carter, Jas. W. Civ. Eng. Celeste.
Clonts, Thos. P. Civ. Eng. Mart.
Cobbs, Thos. D. Civ. Eng. San Antonio.
Cochran, Jerome. Civ. Eng. Houston.
Conner, Arthur B. Agr. Rosebud.
Cruse, Tom. L. Civ. Eng. Woodville.
Dahlgren, Joseph A. Civ. Eng. Durango, Mexico.
Dahme, August F. Civ. Eng. Yorktown.
Davenport, Henry S. Agr. Palestine.
Dunn, Ralph B. Mech. Eng. Benchley.
Fountain, Thos. D. Civ. Eng. Reagan.
Glass, Robt. H. Mech. Eng. Franklin.
Haner, Ernest. Civ. Eng. San Antonio.
Hill, John E. Mech. Eng. Manor.
Hoffer, Temple B. Civ. Eng. Ballinger.
Houchins, Warren A. Civ. Eng. Hallettsville.
Hull, Burton E. Civ. Eng. Houston.
Japhet, Wm. E. Civ. Eng. Houston.
Kaulbach, Albert. Civ. Eng. La Grange.
Lillard, W. W. Civ. Eng. Fairfield.
Maxwell, J. Worth. Mech. Eng. Austin.
Maedgen, Chas. E. Agr. Troy.
Meek, Robt. W. Mech. Eng. Arcadia.
Moser, C. Otto. Agr. Dallas.
McCutcheon, John W. Civ. Eng. Rice's Crossing.
Pape, Gustav H. Civ. Eng. Marlin.
Peden, L. T. Civ. Eng. Timpson.
Pirie, J. E. Civ. Eng. Parita.

Puckett, John W.....	Civ. Eng.....	Buda.
Rubenkoenig, H.....	Civ. Eng.....	Graham.
Sattler, A. G.....	Civ. Eng.....	Cuero.
Stallcup, James.....	Civ. Eng.....	Dalhart.
Stapp, W. E.....	Civ. Eng.....	Sentinel, O. T.
Stinson, Varner L.....	Civ. Eng.....	Coalgate, I. T.
Tarver, Thos. C. Jr.....	Civ. Eng.....	Liberty.
Vick, John C.....	Mech. Eng.....	Bryan.

JUNIORS.

Abney, Carlton C.....	Civ. Eng.....	Lampasas.
Ballard, Luke L.....	Agr.	Luling.
Becker, Adolph.....	Agr.	Brenham.
Beeman, Del.....	Civ. Eng.....	Comanche.
Born, Thos. C.....	Agr.	Corpus Christi.
Boyce, Chas. W.....	Agr.	Charco.
Carmichael, John F.....	Mech. Eng.....	Sanderson.
Carruth, Walter Lee.....	Civ. Eng.....	Austin.
Church, Marion S.....	Agr.	McKinney.
Cruse, John T.....	Agr.	Woodville.
Durst, Bruno L.....	Civ. Eng.....	Leona.
Ehlers, Victor M.....	Civ. Eng.....	La Grange.
Evans, Elmo C.....	Agr.	Kildare.
Farmer, Henry B.....	Civ. Eng.....	Columbus.
Forsgard, Oscar L.....	Civ. Eng.....	Houston.
Garza, C. M.....	Civ. Eng.....	Brownsville.
Glass, Will V.....	Agr.	Franklin.
Hackney, Jas. G.....	Mech. Eng.....	Burleson.
Hanna, Howard E.....	Agr.	Denison.
Hauck, C. F.....	Mech. Eng.....	Denison.
Holzman, W. R.....	Agr.	Industry.
Kowalski, Bernard.....	Civ. Eng.....	Brownsville.
Knolle, K. C.....	Agr.	Industry.
Kraulick, Hugo J.....	Agr.	Industry.
Leary, Edgar M.....	Civ. Eng.....	Corpus Christi.
Lindeman, James E.....	Mech. Eng.....	Austin.
Marburger, B.....	Civ. Eng.....	Cistern.
Minear, Sylvester A.....	Agr.	Gonzales.
McCormick, Alexis.....	Civ. Eng.....	Weimar.
McFarland, Arthur.....	Mech. Eng.....	Rockwood.
McLennan, Lamar.....	Agr.	Bonham.
Oliver, Gale.....	Civ. Eng.....	Lampasas.
Pendleton, David E.....	Civ. Eng.....	Stratford.
Price, Will A.....	Agr.	Stranger.
Sammons, Tom.....	Agr.	Alvin.
Schroeder, E. F.....	Agr.	Industry.
Seybold, John N.....	Mech. Eng.....	Heidenheimer.
Sternenberg, Paul.....	Mech. Eng.....	Rockdale.
Street, Gustavus C.....	Agr.	Houston.
Stubbs, Van Hook.....	Agr.	Wortham.
Thweatt, Robert E.....	Agr.	Rockdale.
Walden, Clint W.....	Agr.	Dickinson.

Washburn, John E.....	Mech. Eng.....	Houston.
Webb, Tom C.....	Civ. Eng.....	Vernal.
Wheeler, Alonzo C.....	Agr.	Anchorage.
Wickes, John E.....	Mech. Eng.....	Bryan.
Wilson, Ashley F.....	Civ. Eng.....	Houston.
Wilson, Joseph E.....	Civ. Eng.....	Houston.
Woodall, Howard.....	Mech. Eng.....	San Marcos.
Woods, Henry S.....	Mech. Eng.....	Corsicana.
Wyse, John T. Jr.....	Agr.	Dallas.
Yocom, Jay D.....	Agr.	Denison.
Youngblood, Thomas.....	Agr.	Rockdale.

SOPHOMORES.

Acker, Earl.....	Agr.	Lampasas.
Allen, Arthur F.....	Civ. Eng.....	Campbellton.
Armstrong, John F.....	Mech. Eng.....	San Antonio.
Arnold, Ed. C.....	Mech. Eng.....	Graham.
Baines, Huffman.....	Civ. Eng.....	Blanco.
Bomar, Edmund E.....	Civ. Eng.....	Sherman.
Bostick, Newton C.....	Agr.	Kimball.
Bowyer, John Jr.....	Agr.	Abilene.
Boyett, Claude E.....	Agr.	College Station.
Brandt, R. L.....	Mech. Eng.....	San Diego.
Brinkmann, H.....	Mech. Eng.....	Comfort.
Burleson, Worth M.....	Civ. Eng.....	San Saba.
Burney, Robt. L.....	Civ. Eng.....	Amphion.
Burns, Howard.....	Civ. Eng.....	Abilene.
Burritt, W. P.....	Mech. Eng.....	San Diego.
Burton, Ralph M.....	Agr.	Hope.
Campbell, R. E.....	Mech. Eng.....	Plano.
Carlyle, Elmer.....	Agr.	Dallas.
Cobolini, J. A.....	Mech. Eng.....	Rockport
Cobolini, J. L.....	Mech. Eng.....	Rockport.
Cole, Geo. C.....	Elect. Eng.....	Dallas.
Coulter, Wm. W.....	Agr.	Texarkana.
Crist, Robt. C.....	Civ. Eng.....	Blanco.
Crooks, Nolan R.....	Civ. Eng.....	Denison.
Darter, Tom H.....	Agr.	Neal.
Dean, Jas. S.....	Civ. Eng.....	San Antonio.
Dixon, Sam H.....	Civ. Eng.....	Houston.
Dobbins, Ray H.....	Mech. Eng.....	Jefferson.
Downs, P. L., Jr.....	Agr.	Temple.
Dunn, G. H.....	Civ. Eng.....	Benchley.
Duval, H. H.....	Mech. Eng.....	Bastrop.
Eberspacher, Fred.....	Civ. Eng.....	Angleton.
Ehlinger, Leo.....	Civ. Eng.....	La Grange.
Elliott, Frank G.....	Elect. Eng.....	Belton.
Ellis, Olin O.....	Civ. Eng.....	Uvalde.
Finch, Donald.....	Agr.	Huntsville.
Foster, Edmund J.....	Civ. Eng.....	Laredo.
Galladay, James H.....	Mech. Eng.....	May Pearl.

Gilliam, M. M.	Agr.	Temple.
Gleason, Benn.	Civ. Eng.	Hico.
Gooch, Chas. D.	Elect. Eng.	Navasota.
Guinn, Wallace B.	Agr.	Rusk.
Gugenheim, Louis Z.	Civ. Eng.	Mason.
Guyler, Wm. L.	Mech. Eng.	Wallis Station.
Haltom, G. T.	Elect. Eng.	San Antonio.
Hanson, Martin C.	Civ. Eng.	Brownsville.
Hays, Ernest D.	Agr.	Reagan.
Higgins, W. S.	Mech. Eng.	Bastrop.
Hinkle, Jas. V.	Civ. Eng.	Hinkle's Ferry.
Hofmann, Robt. W.	Civ. Eng.	Mason.
Holman, F. B.	Mech. Eng.	Weimar.
Hoyo, Geo. A.	Agr.	Weimar.
James, Robt. B.	Mech. Eng.	Belton.
Kaulbach, Edwin A.	Civ. Eng.	La Grange.
Kendrick, Robt. T.	Agr.	Waco.
Kloss, O. H.	Civ. Eng.	Millheim.
Kohler, Gustavus J.	Mech. Eng.	Bastrop.
Lee, Carrol V.	Civ. Eng.	Morris Ranch.
Lenert, Louva G.	Civ. Eng.	Warrenton.
Lenox, C. D.	Civ. Eng.	Detroit.
Licte, Fritz.	Civ. Eng.	Graham.
Loftin, Sawnie R.	Elect. Eng.	Tyler.
Loving, Jas. W.	Agr.	Jacksboro.
Martin, Thos. A.	Mech. Eng.	Rhea Mills.
Martin, W. A.	Mech. Eng.	San Saba.
Mayer, Max F.	Civ. Eng.	San Antonio.
Metcalfe, Joseph D.	Civ. Eng.	Hutto.
Meyers, E. L.	Civ. Eng.	Cameron.
Muzquiz, Rafael.	Mech. Eng.	C. P. Diaz, Mexico.
Nichols, Robt. W.	Agr.	Terrell.
Norvell, Wm. E.	Civ. Eng.	Henderson.
O'Neal, Hardy E.	Civ. Eng.	Atlanta.
Orr, Wilkin R.	Civ. Eng.	Austin.
Parish, James B.	Agr.	Huntsville.
Penner, Wm. A.	Mech. Eng.	Zulu.
Petty, Franklin W.	Civ. Eng.	Henderson.
Phillips, Edwin L.	Civ. Eng.	Marble Falls.
Pirie, John H.	Mech. Eng.	Parita.
Puryear, Bennet, Jr.	Civ. Eng.	Orange, Va.
Ramsay, J. W.	Elect. Eng.	Houston.
Reese, G. Laurens.	Civ. Eng.	Austin.
Rogers Dudley.	Agr.	McKinney.
Rogers, Fred.	Elect. Eng.	Comanche.
Rollins, Andrew.	Civ. Eng.	Farmersville.
Scherer, Sam S.	Agr.	Anahuac.
Schiller, Robt. E.	Civ. Eng.	Meeks.
Schwarz, Harry D.	Agr.	Hempstead.
Shanklin, Robert W.	Civ. Eng.	Prairie Lea.
Stansell, Wm. A.	Civ. Eng.	Cisco.
Steedman, Seth D.	Agr.	Steedman.

Stevens, Fred M.	Agr.	Liberty.
Storrs, Arthur W.	Agr.	Granger.
Street, LeRoy R.	Civ. Eng.	Houston.
Suber, J. H., Jr.	Agr.	College Station.
Tabor, John R.	Civ. Eng.	Houston.
Tally, Jake C.	Agr.	Smithville.
Thornton John E.	Civ. Eng.	Austin.
Trefry, W. H.	Civ. Eng.	Aldine.
Walker, Wm. T.	Mech. Eng.	San Saba.
Washburn, Harry A.	Civ. Eng.	Hallettsville.
Weaver, Leslie L.	Agr.	Abilene.
Welboan, Joseph.	Agr.	Alvin.
Wickes, Maxcy W.	Civ. Eng.	Bryan.
Windrow, Rollen J.	Civ. Eng.	Temple.
Wright, Alfred A.	Agr.	Driscoll.
Yakey, Carl F.	Agr.	Taylor.
Yakey, Halford.	Agr.	Taylor.
Young, Mark H., Jr.	Mech. Eng.	Bastrop.
Zambrano, Augustin.	Civ. Eng.	Monterey, Mexico.

FRESHMEN.

Adams, Malcolm.	Eng.	Mexia.
Adams, T. J.	Eng.	Fort Worth.
Allen, Jessie M.	Agr.	Graham.
Andrews, T. F.	Eng.	Beaumont.
Arnold, M. G.	Eng.	Dallas.
Badt, Morris B.	Eng.	Mt. Pleasant.
Bean, Benjamin.	Eng.	Kirbyville.
Becker, Edgar.	Agr.	Brenham.
Beverly, Hughston.	Eng.	McKinney.
Bivins, Morris	Eng.	Kildare.
Black, R. S.	Eng.	Jewett.
Blackburn, M.	Eng.	Nacogdoches.
Blake, Howard H.	Eng.	Bay City.
Blount, Edward S.	Agr.	Nacogdoches.
Blount, Herbert F.	Agr.	Nacogdoches.
Bogel, Augustus J.	Eng.	Marfa.
Bogel, Woodworth.	Eng.	Marfa.
Bolton, Oliver.	Eng.	Pittsburg.
Boyce, William Jr.	Eng.	S. Luis Potosi Mex.
Boyett, Wirt L.	Eng.	College Station.
Breihan, Fred F.	Eng.	Bartlett.
Burch, Walter G.	Eng.	Plainview.
Burleson, E.	Eng.	Matador.
Burns, Arthur C.	Eng.	Cuero.
Buttner, R. H.	Eng.	Mexico City, Mex.
Byrd, Arthur.	Eng.	Hico.
Campbell, R. E.	Eng.	Plano.
Campbell, W. R., Jr.	Eng.	Seguin.
Caruthers, Blount V.	Eng.	Alpine.
Cerna, Santiago.	Eng.	Nadadores, Mexico.
Coleman, George.	Eng.	Hallettsville.

100 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

Coleman, J. B.....	Eng.	Cade.
Collins, Jas. A.....	Agr.	Paris.
Cover, R. J.....	Eng.	Parita.
Crittenden, G.....	Eng.	Palestine.
Culver, Dan.....	Eng.	Lampasas.
Cunningham, G. B.....	Eng.	Big Springs.
Cunningham, P. E.....	Eng.	Slayden.
Cuny, Clifford DeBray.....	Eng.	Brookshire.
Currie, Albert W.....	Eng.	Cleburne.
Danquard, John W.....	Eng.	Temple.
Davila, V.....	Eng.	Sabinas, Mexico.
Davis, E. T.....	Eng.	Harrisburg.
Donaldson, I. B.....	Eng.	Kyle.
Durham, E. E.....	Eng.	Hamilton.
Early, Junius.....	Eng.	Paris.
Edsall, Arthur B.....	Agr.	Spring Creek.
Ehlers, Paul.....	Eng.	Smithville.
Ellsworth, H. T.....	Eng.	San Antonio.
Epstein, George.....	Eng.	Luling.
Farley, S. F.....	Eng.	College Station.
Gallaway, K. H.....	Eng.	Jefferson.
Gibbs, Lewis T.....	Eng.	Navasota.
Gilbert, Warren A.....	Eng.	Dallas.
Gonzales, F. G.....	Agr.	Monclova, Mexico.
Granam, H. F.....	Eng.	Bellville.
Gripon, H. A.....	Eng.	Beaumont.
Hayter, Robt. H.....	Eng.	Nacogdoches.
Hensel, Fritz, Jr.....	Eng.	San Antonio.
Hill, Jake.....	Eng.	Trenton.
Hodges, Robt. H.....	Eng.	Ranger.
Hope, Geo. N.....	Eng.	Sherman.
Hopper, John.....	Eng.	Grandview.
Hudgins, J. T.....	Agr.	Greenville.
Hughes, Jas. O.....	Eng.	Atlanta.
Johnson, Andrew S., Jr.....	Agr.	Austin.
Johnson, Will E.....	Agr.	Leakey.
Jouine, G. R. F.....	Eng.	Houston.
Kleinsmith, E. A.....	Eng.	Luling.
Kowalski, Gustave L.....	Eng.	Brownsville.
Krueger, Waller.....	Eng.	San Antonio.
Kurth, Roy W.....	Eng.	Keltys.
LaBar, Roy.....	Eng.	Clinesburg.
Landa, L. M.....	Eng.	Eagle Lake.
Lane, John W.....	Eng.	Manor.
Lilly, R. C.....	Eng.	Jacksboro.
Lindner, M.....	Eng.	Comfort.
Lipscomb, S. A.....	Eng.	Hubbard City.
Lempert, Lewis H.....	Eng.	Marfa.
Lenz, Lewis.....	Eng.	Cuero.
Marbach, Albert.....	Eng.	Bracken.
Marek, Edward L.....	Eng.	Brenham.
Mason, Elmo E.....	Eng.	Farmington, Mo.

Mauk, Albert.....	Eng.	Franklin.
Miller, John W.....	Eng.	Belott.
Milligan, Wayne.....	Agr.	Corsicana.
Moncure, Walter.....	Eng.	Bastrop.
Moore, Walter G.....	Eng.	Paris.
Mosheim, Lorenzo.....	Eng.	Seguin.
Mullen, Percy K.....	Eng.	Laredo.
Myers, Arthur S.....	Eng.	Sherman.
McClure, Kirby.....	Eng.	Rusk.
McDonald, Jas. L.....	Eng.	Lake Arthur.
Noble, Albert D.....	Eng.	Port Lavaca.
Orr, Warren E.....	Eng.	Sandersville, Ga.
Osman, Claude D.....	Agr.	San Antonio.
Parish, Walter A.....	Eng.	Huntsville.
Parramore, James H.....	Agr.	Abilene.
Piper, John H.....	Eng.	Georgetown.
Potts, Arthur T.....	Eng.	
Price, W. W.....	Eng.	Houston.
Puckett, Felix S.....	Eng.	Buda.
Randolph, Philip.....	Eng.	Austin.
Rauh, Leo I.....	Eng.	Columbus.
Reese, Geo. W.....	Eng.	Tehuacana.
Rivers, W. C.....	Eng.	Elgin.
Robinson, Ralph W.....	Eng.	Austin.
Rodriguez, David.....	Eng.	Mexico City, Mex.
Rogers, Carl.....	Eng.	Comanche.
Ross, Alexander.....	Eng.	Rossville.
Ross, Vernon G.....	Eng.	Deep Water.
Sanders, J. W.....	Eng.	Nacogdoches.
Sandilands, E. B.....	Eng.	Galveston.
Serrano, J. M.....	Agr.	Cadereita, Mexico.
Schadt, Chas. A.....	Eng.	Galveston.
Schawe, Wm. A.....	Eng.	Ballinger.
Scholl, Ernest.....	Agr.	Hunter.
Schroeter, H.....	Eng.	Double Horn.
Schumacher, J. C.....	Eng.	La Grange.
Simms, L. A.....	Eng.	Franklin.
Spivey, Maddin.....	Eng.	Burke.
Stovall, Thos. J.....	Eng.	Hico.
Surmann, Arnold C.....	Agr.	Rockhouse.
Thompson, Clyde B.....	Eng.	New Braunfels.
Treadaway, S. J.....	Eng.	Lilac.
Trenckmann, R.....	Eng.	Bellville.
Tuttle, Sidney W.....	Eng.	San Antonio.
Tyson, Walter S.....	Eng.	Wichita Falls.
Underwood, A.....	Eng.	Columbia.
Wallace, Edgar M.....	Eng.	Fort Worth.
Wardlow, W. J.....	Eng.	Ballinger.
Waters, Joseph E.....	Eng.	League City.
Watkins, Wm. Brutus.....	Eng.	Stone Point.
Wessendorf, J. A.....	Eng.	Sealey.
Westbrook, Vivian.....	Agr.	Waco.

102 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

White, Walter W.....	Eng.	Cuero.
Wilhite, W. F.....	Eng.	Buda.
Willie, Carl G.....	Agr.	West.
Winston, Robt.....	Eng.	Bay City.
Woodman, Cony U.....	Eng.	Fort Worth.
Wortham, W. B.....	Agr.	Austin.

ELECTIVE STUDENTS.

Abney, Geo. R.....	Franklin.
Brown, Carrol G.....	
Comer, Edward P.....	Tmpico, Mex.
Galt, Sid.....	Mt. Vernon.
Hamner, Stayton W.....	Colorado City.
Johnson, Dick D.....	Sabine Pass.
Johnson, John R.....	Austin.
Krompas, Oscar A.....	Perez, Mexico.
Rainey, Jefferson R.....	Bonham.
Simonds, Fred H.....	Austin.
Thompson, P. D.....	Abilene.

SPECIAL STUDENT.

Wise, E. A.....	Jefferson.
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STUDENTS IN SHORT COURSE IN AGRICULTURE.

Ashton, John.....	Baltimore, Md.
Baird, O. P.....	Tuscola.
Baker, Pitt.....	Goldthwaite.
Browning, Kenneth E.....	Chandler.
Burns, W. L.....	Temple.
Eubank, F. L.....	Florence.
Garnand, W. T.....	Lytle.
Goetze, Karl.....	Iowa Park.
Gossett, J. T.....	Taylor.
Jungiman, A. J.....	Rhineland.
Linberg, J. A.....	Charlie.
Meyer, William.....	Charlie.
Morris, L. L.....	Corpus Christi.
Phillips, T. L.....	Denton.
Russell, W. H.....	San Antonio.
Schmeltz, William.....	Houston.
Steinman, Erwin.....	Swiss Alp.
Telfer, A. D.....	Rice's Crossing.

SUMMARY.

Post Graduates.....	2
Seniors	43
Juniors	53
Sophomores	109
Freshmen	141
Students in Elective Courses.....	11
Students in Special Course.....	1
Students in Short Course.....	18
Total	378

BATTALION ORGANIZATION FOR 1903-'04.

H. H. Sargent, Captain 2nd U. S. Cavalry, Commandant.

STAFF { Blake, T. W., First Lieutenant and Adjutant.
Maxwell, J. W., First Lieutenant and Quartermaster.
Hackney, J. G., Sergeant Major.
Hanna, H. E., Quartermaster Sergeant.
Wickes, J. E., Color Sergeant.
Beeman, D., Trophy Sergeant.

CAPTAINS.

<i>Co. A.</i>	<i>Co. B.</i>	<i>Co. C.</i>	<i>Co. D.</i>
Pirie, J. E.	Moser, C. O.	Peden, L. T.	Hill, J. E.

FIRST LIEUTENANTS.

Dahme, A. F. Bauer, F.	Glass, R.	Pape, G. H.	Benjamin, J. W.
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SECOND LIEUTENANTS.

Conner, A. B.	Clonts, T. P. Stapp, W. E.	Rubenkoenig, H. Bernay, C. L.	Cobbs, T. D. Vick, J. C.
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FIRST SERGEANTS.

Church, M. S.	Street, G. C.	Pendleton, D. E.	Price, W. A.
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SERGEANTS.

Carmichael, J. F. Glass, V. Sammons, T. Woodall, H.	Farmer, H. B. Webb, T. C. Oliver, G. Yocom, J. D.	Born, T. C. Hauck, C. F. Woods, H. L. Becker, A.	Cruse, J. Forsgard, O. L. Ballard, L. L. Stubbs, V. H.
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CORPORALS.

Coulter, W. W. Lenert, L. C. Martin, T. Pirie, J. H. Gunn, W. Welboan, J. Burrirt, W. P.	Schwarz, H. D. Hinkle, J. T. Loftin, S. R. Lichte, F. Dean, J. S. Arnold, E. C. Ramsay, J. W.	Walker, W. T. Higgins, W. S. Thornton, J. E. Foster, E. J. Hofmann, R. W. Shanklin, R. W. Burney, R. E.	James, R. B. Penner, W. A. Dobbins, R. W. Orr, W. R. O'Neal, H. E. Rogers, D. Armstrong, J. F.
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Band.

FIRST LIEUTENANT.

Burns, J. C.

SECOND LIEUTENANT.

Hoffer, T. B.

SERGEANTS.

Marburger, B.

Kroulik, H. J.

CORPORAL.

Mayer, M.

DEGREES AND HONORS.

Conferred at Commencement, June, 1903.

DEGREE OF B. S. (IN AGRICULTURE.)

C. A. Heldenfels.

DEGREE OF B. S. (IN CIVIL ENGINEERING.)

R. E. Barham, J. A. Baum, T. R. Beeman, J. M. Davis, H. Gleason, J. M. Isbell,
N. Lockett, R. H. Mansfield, H. F. Matthews, G. G. Moore, H. S. McCall,
F. McGregor, O. J. McKnight, J. W. Oliphant, R. Ridenhower, G. W.
Risien, P. L. Sanders, J. B. Sterns, W. H. Tilson, T. B. Warden.

DEGREE OF B. S. (IN MECHANICAL ENGINEERING.)

M. L. Abrahams, W. E. Beilharz, E. C. Erhard, D. R. Graves, S. E. Gillespie,
H. A. Heidelberg, T. S. Jobson, R. H. Kinsloe, E. C. Lindeman, E. McKay,
R. B. McLavy, A. J. Neff, L. W. Wallace, E. P. Weatherby, I. L.
Williams, E. E. Worthing.

HONOR GRADUATES—SESSION 1902-'03.

Mansfield, Lindeman, Oliphint.

HONOR MEN BY CLASSES.

First Class—Mansfield, Lindeman, Oliphint.

Second Class—Pirie, J. E., Rees, Maxwell.

Third Class—Woods, Pendleton, Born.

Fourth Class—Ramsay, Dean, Lenerf.

DISTINGUISHED STUDENTS BY DEPARTMENTS.

FIRST CLASS.

Chemistry—Heldenfels, Lindeman.

Civil Engineering—Mansfield, Lockett, Oliphint.

Drawing—(a) Civil Engineering Course: Oliphint, McGregor.

(b) Mechanical Engineering Course: Lindeman, Abrahams.

English—Mansfield, Oliphint, Abrahams.

History—Lindeman, Beeman, Beilharz.

Languages—(a) French: Mansfield; (b) German: McGregor.

Mathematics—Lindeman, Kinsloe, Wallace.

Mechanical Engineering—Neff, Lindeman, Worthing.

Military Science—Beilharz, Mansfield, Heldenfels.

SECOND CLASS.

Agriculture—Burns, Moser.

Botany—Moser, Burns.

Chemistry—(a) Civil Engineering Course: Hoffer, Rees.

(b) Agricultural and Mechanical Engineering Courses: Glass,
Maxwell.

Civil Engineering—Pirie, Clonts, Rees.

Drawing—(a) Civil Engineering Course: Rees, Pirie.
 (b) Mechanical Engineering Course: Glass, Bauer.
 English—Blake, Peden.
 History—Maxwell, Glass, Peden.
 Horticulture—Moser, Burns, Conner.
 Mathematics—Rees, Pirie, Glass.
 Mechanical Engineering—Bauer, Glass, Rubenkoenig.
 Military Science—Pirie, Peden, Cobbs.
 Veterinary Science—Moser, Burns, Conner.

THIRD CLASS.

Agriculture—Born, Church, Kroulik.
 Botany—Glass, Born, Newton.
 Civil Engineering—Woods, Pendleton, Forsgard.
 Drawing—(a) Agricultural Course: McCombs, Knolle.
 (b) Engineering Course: Wilson, A. F., Pendleton.
 English—(a) Agricultural Course: Born, Church, Booth.
 (b) Engineering Course: Woods, Marburger, Wilson, J. E.
 History—Marburger, Woods, Forsgard.
 Horticulture—Born, Church, Hanna.
 Mathematics—(a) Agricultural Course: Born, Morris, Glass.
 (b) Engineering Course: Woods, Forsgard, Marburger.
 Mechanical Engineering—Woods, Woodall, Wickes.
 Physics—Born, Newton, Hanna.
 Veterinary Science—Knolle, Evans, Born.

FOURTH CLASS.

Agriculture—Donalson, Schwarz, Scherer.
 Botany—Darter, Schwarz, Craig.
 Drawing—(a) Agricultural Course: Welboan, Rodriguez, Cupp.
 (b) Engineering Course: Dean, Ramsay, Haltom.
 English—(a) Agricultural Course: Welboan, Schwarz.
 (b) Engineering Course: Orr, Crockett, O., Dean, Ramsay.
 History—Burrirt, Armstrong, Ramsay.
 Mathematics—(a) Agricultural Course: Schwarz, Darter, Welboan.
 (b) Engineering Course: Shanklin, Orr, Lichte.
 Mechanical Engineering—Crockett, C., Dean, Lichte.
 Physics—Agricultural Course: Welboan, Hoyo, Schwarz.

GRADUATING CLASS.

(With Subjects of Their Theses.)

AGRICULTURAL COURSE.

C. A. Heldenfels, Beeville, "A History of Hereford Cattle."

CIVIL ENGINEERING COURSE.

R. E. Barham and P. L. Sanders, Nacogdoches, "Plan for Sewage Purification at College Station, Texas."

T. R. Beeman, Comanche, "A Study of Cement Specifications and the Value of Accelerated Tests for Constancy."

J. A. Baum, Corsicana; O. J. McKnight, Marlin; R. H. Mansfield, Tyler,

"Plans and Estimates of Cost for Supplying the A. and M. College with Brazos River Water."

J. M. Davis, Forney; J. W. Oliphint, Huntsville; G. W. Risien, Oak Cliff, "Review of the H. and T. C. Railway Location Between College Station and Bryan, With Estimante of Cost."

H. Gleason, Hico, "Change of Location of the Texas Central Railway at Steele's Creek."

N. Lockett, Houston; G. C. Moore, DeKalb, "Plans and Specifications for an Electric Railway between College and Bryan."

H. S. McCall, Sabine Pass; H. F. Mathews, College Station, "Road and Sidewalk Construction at the A. and M. College."

H. F. McGregor, Weimar; W. H. Tilson, Plainview; T. B. Warden, McKinney, "Review of the I. and G. N. Railway Location between College and Bryan, With Estimate of Cost."

J. M. Isbell, Pankey, "Design for a Singe Track Railway Bridge."

Ray Ridenhower, Hico, "The Improvement of Brazos County Roads, With Special Estimates for Those on the A. and M. College Grounds."

J. B. Sterns, Houston, "The Evolution of the Modern Bridge."

MECHANICAL ENGINEERING COURSE.

M. L. Abrahams, New Braunfels; H. A. Heidelberg, Marshall, "Description and Use of Water Motors."

W. E. Beilharz, Dallas; A. J. Neff, Lone Oak, "Reinforced Concrete."

E. C. Erhard, Bastrop; R. H. Kinsloe, Corsicana, "Transportation of Oil Fuel from Siding to Steam Plant."

D. R. Graves, College Station; I. L. Williams, Houston, "Test of Steam Pump."

E. P. Weatherby, Tyler, "A Steam Engine Test."

T. S. Jobson, Mesquite; E. E. Worthing, Tipton, Mo., "Boiler Tests."

E. C. Lindeman, Austin; L. W. Wallace, Garfield, "Liquid Fuel on Locomotives."

G. McKay, Longview; R. B. McLavy, Bastrop, "Plans and Construction of a Four-stand Seventy-saw Gin Stand."

ALUMNI.

Alumni Association.

(Organized 1886.)

ORGANIZATION FOR 1903-'04.

F. A. Reichardt, '79, President.....	Houston.
H. P. Jordan, '95, Vice-President.....	Waco.
J. R. Nichols, '89, Vice-President.....	Terrell.
M. M. Carpenter, '02, Vice President.....	Sour Lake.
R. B. Green, '84, Vice-President.....	San Antonio.
W. C. Martin, '98, Secretary and Treasurer.....	College Station.

EXECUTIVE COMMITTEE.

F. A. Reichardt, '79.

E. J. Kyle, '99.

W. C. Martin, '98.

On the following pages are given the names of all graduates of the College, with the courses of study pursued and the degrees obtained; their occupations and residences are also given as far as known. The alumni are requested to aid the Secretary of the association in making the roll as accurate as possible.

From the opening of the College in 1876 to its reorganization in 1880, the studies were elective, and led to appropriate degrees. Degrees received in this interval are noted in the list of names.

From 1881 to 1887, there were two prescribed courses, the Agricultural and the Mechanical, but no degrees were given.

From 1888 to 1895, there were four prescribed courses, leading to the degrees of Bachelor of Scientific Agriculture (B. S. A.); Bachelor of Civil Engineering (B. C. E.); Bachelor of Scientific Horticulture (B. S. H.), Bachelor of Mechanical Engineering (B. M. E.).

From 1895 to 1901 the four prescribed courses remained the same, but the degree in each was Bachelor of Science (B. S.), the particular course being specified in the diploma.

In 1901 the Horticultural course was merged with the Agricultural, leaving three regular courses leading to the degree of Bachelor of Science (B. S.) in Agriculture, in Civil Engineering, and in Mechanical Engineering, respectively.

The courses of study are indicated by the use of Roman numerals, as follows:

I. Agriculture.

II. Horticulture.

III. Mechanical or Mechanical Engineering.

IV. Civil Engineering.

Names of deceased alumni are marked with a star.

108 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

- ABBOTT, E. G., 1894, IV, First Lieutenant United States Army, Fort Baker, Col.
 ABBOTT, H. T., 1898, II, Horticulturist, Weatherford.
 ABRAHAMS, J. E., 1900, III, Machinist, International and Great Northern Railway Shops, Palestine.
 ABRAHAMS, M. L., 1903, III, Student Cornell University, Ithaca, N. Y.
 ACKER, L., 1902, IV, Student Cornell University, Ithaca, N. Y.
 ADAMS, A. S., 1895, IV, Assistant Engineer, International and Great Northern Railway, Palestine.
 ADAMS, F. L., 1892, I, Physician, Stafford.
 *ADRIANCE, D., 1886, I, M. S., 1890, Bryan.
 AHRENBECK, W. T., 1891, III, Minister, Cuero.
 AKERS, M. E., 1902, IV, Rice Farmer, Amelia, Texas.
 ALEXANDER, D. E., 1880.
 ALEXANDER, R. L., 1902, IV, Civil Engineer, 605 Rector Ave., Little Rock, Ark.
 ALLEN, L. E., 1881, III, Manager for Nash, Robinson & Co., Marlin.
 ALLEN, W. H., 1888, I, Druggist, Marlin.
 ALTGELT, E. J., 1892, IV, Merchant, Alpine.
 AMSLER, L. D., 1889, III, Cashier Farmers National Bank, Hempstead.
 AMTHOR, A. W., 1895, IV, Locating Engineer, St. L., B. & M. Ry., McGregor.
 ANDERSON, W. D., 1890, I, Manager Ice Works, Waxahachie.
 ANDREWS, V., 1884, III, Physician, Valley View.
 ARMSTRONG, M. F., 1882, III, Farmer and Merchant, Chappell Hill.
 ASTIN, E. H., 1899, III, Planter, Mumford.
 BACKUS, U. J., 1890, III, Chief Clerk, Eagle Pass Coal and Coke Works, Eagle Pass.
 BAILEY, C. C., 1892, IV, Cashier First National Bank, Bartlett.
 BAKER, J. J., 1879, Merchant, Homer, La.
 BAKER, SEARCY, 1882, III, Superintendent Texas Penitentiaries, Huntsville.
 BANKS, A. L., 1879, B. S., 1892, M. S., 1895, Prof. of Math., Girls Industrial College, Denton.
 BARCLAY, R. L., 1898, III, Merchant, Crenshaw.
 BARHAM, G. S., 1902, III, Medical Student University of Texas, Galveston.
 BARHAM, R. E., 1903, IV, Nacogdoches.
 BARNES, R. M., 1898, III, General Merchant, Abilene.
 BARNES, S. E., 1899, I, Instructor in Dairying, University of Tennessee, Knoxville, Tenn.
 BATTE, T. R., 1902, IV, Instrumentman, Gold and Platinum Mines Co., Supai, Ariz.
 BAUM, J. A., 1903, IV, Student Cornell University, Ithaca, N. Y.
 BEEMAN, T. R., 1903, IV, Instrumentman, G., H. & S. A. Ry., 1005 N. Florence St., El Paso.
 BEESLEY, W. S., 1892, IV, Salesman, Lancaster.
 BEILHARZ, W. E., 1903, III, Timekeeper and Bookkeeper, 915 Franklin Ave., Houston.
 BEYER, F. C., 1892, III, Ginner, Marion.
 *BIBERSTEIN, F. R., 1882, III.
 BIERING, S. R., 1900, IV, Clerk, Gulf, Colorado and Santa Fe Railway, 1615 Winnie Ave., Galveston.
 BITTLE, P. B., 1896, I, Principal High School, Henderson.
 BITTLE, T. C., Jr., 1900, IV, Mining Engineer, Hotel Iturbide, Mexico City, Mex.
 BITTLE, W. A., 1894, I, Teacher, Washington, La.
 BLACK, M., 1879, Minister, Sterling City.
 *BLAKEMORE, T. E., 1880.
 BLAND, L. F., 1899, I, Medical Student, Memphis, Tenn.
 BLEDSOE, F. F., 1880, Teacher, Mabank.
 BLOOR, A. W., 1895, I, Student, Manor.
 BLOUNT, S. L., 1896, I, Meat Inspector, United States Government, Fort Worth.
 BOCOCK, J. H., 1894, I, Traveling Salesman, Salem, Va.
 BOETTCHER, R. B., 1900, III, Draughtsman, Southern Pacific Railway, 334 East Commerce St., San Antonio.
 BOYKIN, R. E., 1892, III, Teacher.
 *BRAUN, P., 1888, III, San Antonio.
 *BRITTINGHAM, W. F., Jr., 1890, IV.
 BRETTSCHEIDER, W., 1898, IV, Assistant Engineer Houston East and West Texas Railway, Houston.
 BREWER, H. A., 1899, III, Farmer, Lytton Springs.
 BROGDON, S. T., 1898, III, Architectural Draughtsman, Beaumont.
 BROWN, R. M., 1901, IV, Civil Engineer, care New York Life Insurance Co., Houston.
 BROWN, T. H., 1879, Sugar Planter, Houston.

- BROWN, W. H., 1880, IV, Planter, Navasota.
- BRUCE, E. L., 1894, IV, Lawyer, Orange.
- BRYAN, B. F., 1897, I.
- BRYAN, W. I., 1900, III, Superintendent, Elevator Machinery, Celina.
- BUCKMAN, C. A., 1889, IV, Clerk, Denison.
- BUFORD, F. L., 1892, IV, Assistant Engineer Gulf, Colorado and Santa Fe Railway, Silsbee.
- BUHLER, C. M., 1897, III, Chief Clerk, Disbursements, S. P. Co., 7532 Hampson St., New Orleans, La.
- BUHLER, C. W., 1892, IV, Chief of Car Department, San Antonio and Aransas Pass Railway, San Antonio.
- BUHLER, W. A., 1900, III, Draftsman, San Antonio and Aransas Pass Railway, 308 King William St., San Antonio.
- BULLARD, T. O., 1899, III, International and Great Northern Shops, Mart.
- BURCK, L. B., 1889, IV, Importer Tea, Coffee and Spices, Galveston.
- BURFORD, J. M., 1882, III, Physician and Surgeon, Independence.
- BURGHARD, C. L., 1886, III, Cashier Bank of Goliad, Goliad.
- BURGOON, C. E., 1895, III, M. E., 1899, General Signal Foreman, Sunset Lines, Houston.
- BURLESON, R. W., 1895, III, Fire Insurance Agent, San Saba.
- BURNEY, J. W., 1896, III, Stockman, Kerrville.
- *CALDWELL, J. C., 1883, III.
- CAMPBELL, D., 1879, Stockman, El Paso.
- CAMPBELL, R. W., 1899, III, Bookkeeper, Railroad Construction Company, Marshall.
- CARPENTER, M. M., 1902, I, Oil Man, Fourth Street and Avenue I, Sour Lake.
- CARSON, A. B., 1897, IV, Office Engineer, S. S. and N. Railway, Durant, I. T.
- CARSON, J. M., 1886, I, Superintendent Alta Vista Creamery Company, Fort Worth.
- CARSON, J. W., 1886, I, Director of Farmers' Institutes, College Station.
- CARSON, R. C., 1899, III, Machinist, 115 Fourth St., Palestine.
- CARTER, J. D., 1900, IV, Assistant Engineer, Missouri Pacific Railway, Morrillton, Ark.
- CARTER, W. T., Jr., 1898, I, Assistant in Bureau of Soils, Washington, D. C.
- CARUTHERS, F., 1885, I, Cashier United States Land Office, Oklahoma, O. T.
- CAVEN, G. P., 1897, I, Clerk M., K. & T. Ry., 200 San Jacinto St., Dallas.
- CAVITT, W. H., 1897, III, Oil Well Contractor, Beaumont.
- CHAMBERS, M. L., 1879, Real Estate and Loans, 509 Main St., Fort Worth.
- CLARK, H., 1895, I, Physician, Crowell.
- CLAYTON, W. D., M. S., 1897, I, Farmer, Wakefield, La.
- CLEMENT, T. H., Jr., 1900, IV, Civil Engineer, H. & T. C. Ry., Houston.
- COBBS, S. A., 1896, IV, Civil Engineer, Muskogee, I. T.
- COCHRAN, E. G., 1879, Druggist and Surgeon, Royse.
- COHN, S. L., 1897, IV, Advertising Manager Sherman Oil and Cotton Company, Sherman.
- COOK, E. A., 1892, III, Cleburne.
- COTTINGHAM, I. A., 1886, III, Division Engineer, Southern Pacific Railway, El Paso.
- COTTINGHAM, W. P., 1892, IV, Draftsman, Southern Pacific Railway, Houston.
- COTTON, H., 1897, IV, Insurance, Austin.
- COUCH, E., 1897, III, Structural Draftsman, Mosher Manufacturing Company, Dallas.
- COULTER, H. T., 1895, II, Physician, Rockdale.
- COULTER, W. J., 1895, III, Merchant, Bryan.
- COULTER, R. E., 1901, III, Foreman Fuel Department, Texas and Pacific Ry., Texarkana.
- COUSINS, R. W., 1899, III, Electrician, General Electric Company, Schenectady, N. Y.
- COX, D. W. S., 1892, IV, Bookkeeper, Cotton Seed Oil Mill, Temple.
- CRAVENS, J. R., 1882, III, General Agent, Fire Insurance, Dallas.
- CROW, W. E., 1898, II, Physician, Dallas.
- CUNNINGHAM, A., 1879, Railroad Postal Clerk, Houston Heights.
- CUSHING, E. B., 1880, III, C. E., 1899, Chief Engineer, T. & N. O. R. R., 1518 Crawford Street, Houston.
- CUSHING, D., 1891, III, Pharmacist, Columbus, Miss.
- DASHIELL, W. R., 1891, IV, Physician, 506 1-2 East Houston St., San Antonio.
- DAVIS, J. M., 1903, IV, Farmer, Forney.
- DAVIS, J. N., 1885, III, Superintendent Public Schools, Hico.
- DAWSON, N. A., 1884, III, Lawyer, Austin.
- DAY, T. R., 1902, I, Superintendent of Schools, Henderson.
- DAZEY, W. L., 1894, IV, Dentist, Hillsboro.
- DIETERT, R. H., 1888, III, Car Foreman Houston and Texas Central Railway, 1214 Prairie Street, Houston.
- DONALSON, C. B., 1898, III, Agent, International and Great Northern Ry., Madisonville.

110 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

- DOWNS, J. R., 1879, Lawyer, Waco.
 DOWNS, P. L., 1879, Cashier First National Bank, Temple.
 DRISDALE, W. E., 1889, II, Physician and Surgeon, May and Broadway Sts., Yoakum.
 DROSS, Ph., 1902, III, Draftsman, Queen and Crescent Route, Meridian, Miss.
 DUDLEY, F. E., 1885, III, Stockman, Banning, Cal.
 *DUGAN, G. H., 1881.
 DUGGAN, A. P., 1895, IV, Attorney at Law, Stamford.
 DWYER, W. F., 1899, I, Car Clerk, Atcheson, Topeka and Santa Fe Railway, Deming,
 N. M.
 EDWARDS, J. F., 1883, III, Merchant, Dallas.
 EBERSPACHER, G., 1896, III, Machinist, Houston.
 EBERSPACHER, R., 1901, III, Houston and Texas Central Railway, Houston.
 *ELDRIDGE, H. M., 1897, IV.
 ELLIS, B. V., 1892, I, Physician, 102 East Side Square, Paris.
 ELLIS, FORT O., 1894, IV, Manager Commissary, Floralo Saw Mill Co., Floralo, Ala.
 ELROD, H. E., 1901, III, General Manager Bartlett Steel Co., 526 Wall St., Joplin, Mo.
 EPPRIGHT, F. G., 1902, III, Machinist, International and Great Northern Shops, Palestine.
 ERHARD, E. C., 1903, III, Student Ohio State University, Columbus, Ohio.
 EVANS, C. D., 1899, IV, Engineering Department, Southern Pacific Railway, Algiers, La.
 FARMER, A. G., 1895, III, Stockman, Roosevelt.
 FAUST, H., 1900, III, Student, University of Texas, 1900 Whitis Avenue, Austin.
 FAUST, W., 1897, IV, Assistant Cashier of First National Bank, New Braunfels.
 FEARHAKE, J. D., 1889, IV, Attorney, 5 Nassau Street, New York City.
 FEHRENKAMP, E. B., 1901, IV, Civil Engineer, Galena, Mo.
 FERGUSON, A. M., 1894, II, M. S., 1896, Special Agt. U. S. Dept. Agr. Bot. Lab., Univ.
 of Missouri, Columbia, Mo.
 FIELD, H. Y., 1891, I, Clerk of Justice Court, 169 Main Street, Dallas.
 FINNEY, C. B., 1896, IV.
 FITZGERALD, A. H., 1895, I, Druggist, Gonzales.
 FITZGERALD, L., 1900, III, Superintendent North Shore Gas Co., Waukegan, Ill.
 FITZHUGH, E. E., 1880, Fire Insurance, 1501 West Avenue, Waco.
 FLOYD, J. F., Jr., 1892, III, Merchant, Ada.
 FLYNT, H. C., 1890, I, Wood and Coal, San Antonio.
 FORT, F. W., 1879, Wholesale Grain, Provident Building, Waco.
 FORDTRAN, F. L., 1887, I, Physician, Kerrville.
 FOWLER, E. G. R., 1894, IV, Lawyer and Member of the Legislature, Palestine.
 FOUNTAIN, S. J., 1901, IV, Architectural Draftsman, Houston.
 FOUNTAIN, T. L., 1901, IV, Student, Cornell University, Ithaca, N. Y.
 FOUTREL, G. F., 1898, III, Machinist, 208 S. Pressa Street, San Antonio.
 FOY, V. H., 1902, III, Instructor, Iron Work, A. and M. College, College Station.
 *FREEMAN, J. H., 1887, III, Insurance Agent, Austin.
 *FULLER, T. A., 1879.
 GARBADÉ, W. T., 1901, I, Pharmacist, Twenty-first and Market Sts., Galveston.
 GARNETT, R. M., 1902, IV, Section Foreman, S. P. Ry., Bay City.
 GIESECKE, F. E., 1886, III, M. E., 1892, Professor of Drawing, A. and M. College,
 College Station.
 GIESECKE, G., 1884, III, Merchant Miller, 228 Washington Street, San Antonio.
 GIESECKE, W. E., 1892, III, Civil Engineer and Architect, Gomez Palacio, Durango, Mex.
 GILBERT, J., 1894, I, Surgeon Confederate Home, Austin.
 GILLESPIE, S. E., 1903, III, Draftsman, F. W. & D. C. Ry., Childress.
 GILMORE, H. C., 1896, III, Electrician, Lakeside, Ills.
 GLEASON, H., 1903, IV, with Gulf, Colorado and Santa Fe Railway, Cleburne.
 GLOVER, W. F. H., 1898, I, Planter, Yemassee, S. C.
 GOLDBERG, I. L., 1896, II, Merchant, Jefferson.
 *GRAVES, C. S., 1882, III.
 GRAVES, D. R., 1903, III, Signal Department H. & T. C. Ry., Houston.
 GRAY, J. L., 1884, M., Civil Engineer.
 GREEN, R. B., 1884, III, Judge, San Antonio.
 *GREENWOOD, F. J., 1898, IV, Stoneham.
 GRIFFITHS, T. W., Jr., 1900, III, Lumber Dealer, Lamar and Cadiz Sts., Dallas.
 GRUENE, E., 1887, III, Teacher, New Braunfels.
 GRUPE, G., 1892, III, Superintendent Steam Plant, College Station.
 GURLEY, D. R., Jr., 1892, IV, Farmer, Waco.
 HANSCKE, R., Jr., 1890, III, Manager Advertising Department Freie Presse fuer Texas
 Publishing Company, 225 King William St., San Antonio.

- *HARE, H. C., 1887, III, Sherman.
 HARE, S. C., 1882, III, Lawyer, 566 S. Travis St., Sherman.
 HARRINGTON, C. B., 1902, I, Medical Student, Tulane University, New Orleans, La.
 HARRISON, C. C., 1889, II, U. S. Dept. Agr. Scientific Aid, Washington, D. C.
 HARRISON, J., 1902, III, Pump and Boiler Inspector, Southern Pacific Railway, Houston.
 *HARRISON, W. A., 1898, II.
 HAWKINS, J. W., 1893, I, General Land Office, Austin.
 HADEN, J. H., 1879, Farmer and Stockman, Blooming Grove.
 HEIDELBERG, H. A., 1903, III, Draftsman, 1310 Lawrence, Memphis, Tenn.
 HELDENFELS, C. A., 1903, I, Beeville.
 HENDERSON, H. W., 1891, I, Cotton Buyer, Ladonia.
 HEREFORD, J. B., 1887, III, Fire Insurance, Special Agent and Adjuster, 207 Cedar St., Dallas.
 HERNSTADT, S. J., 1890, IV, Stockman, Groesbeck.
 HILDEBRANDT, A. M., 1896, II, M. S., 1898, Theological Student, Sewanee, Tenn.
 HOFFMAN, F. C., 1888, III, Jeweler, New Braunfels.
 HOLCOMB, B., 1902, IV, Engineering Corps Gulf, Colorado and Santa Fe Railway, Cleburne.
 HOLMAN, J. R., 1895, IV, Assistant Engineer Southern Pacific Railway, Rusk.
 HOLZMAN, F. R., 1902, I, Bureau Plant Industry, 150 E. St., N. E., Washington, D. C.
 HOMANN, A. C., 1898, III, Bank Cashier, Maysville, I. T.
 HOOPER, J. J., 1901, I, Student in Animal Husbandry, Iowa State College, Ames, Iowa.
 HOPKINS, S. H., 1890, I, Attorney, Gonzales.
 HORN, T. L., 1899, III, International and Great Northern Shops, 107 S. Sye St., Palestine.
 HOUGH, S. C., 1885, III, Lawyer, Rock Springs.
 HOUSTON, F. N., 1894, IV, Roadmaster, S. P. R. R. Co., La Fayette, La.
 HOWELL, J. W., 1894, I, Merchant, Bryan.
 HOWELL, R. W., 1896, I, Merchant, Bryan.
 HUDGINS, F. D., 1897, IV, Resident Engineer, A. and C. Railway, 501 E. Austin St., Marshall.
 HUTCHINSON, E. W., 1889, IV, Merchant, 709 Main St., Houston.
 HUTCHINSON, O. D., 1893, I, Farmer and Stockman, Chickasha, I. T.
 HUTCHINSON, W. F., 1897, IV, Hardware Clerk, Denton.
 HUTSON, A. C., 1900, IV, Student Cornell University, 309 Hustis St., Ithaca, N. Y.
 HUTSON, H. L., 1896, III, Mechanical Engineer, Lockett Pump Co., New Orleans, La.
 HUTSON, W. F., 1895, I, Engineering Department, Southern Pacific Railway, 709 Chartres Street, Houston.
 ISBELL, J. M., 1903, IV, Chainman, 616 Girard St., Houston.
 *JACK, D. M., 1879.
 JACOT, H., 1902, IV, Assistant Engineer, Mexican Central Railway, Mexico City.
 JAHN, F. C., 1894, II, Horticulturist, Gonzales.
 JAPHET, G., 1894, III, Wholesale Butter, Cheese and Eggs, 108 Main St., Houston.
 JOBSON, T. S., 1903, III, Signal Maintainer, S. P. R. R., 2114, Opelousas, Houston.
 JONAS, E. C., 1894, IV, Draftsman, Resident Engineer's Office of the Galveston, Houston and San Antonio Railway, 327 Austin St., San Antonio.
 JONAS, H. F., 1888, IV, Chief Draftsman, Maintenance of Way Department, Southern Pacific Railway, 702 McKinney Ave., Houston.
 *JONES, W. F., 1889, IV.
 JORDAN, H. P., 1895, IV, Lawyer, Waco.
 JOSEY, N. L., 1888, I, Merchant, San Antonio.
 KAHN, M. S., 1900, II, Resident Student, Tulane University, New Orleans.
 KELL, E., 1894, III, Mechanical Engineer, 2221 Columbus St., New Orleans.
 KENEDY, O., 1883, III, Attorney at Law, Groesbeck.
 KERR, E. W., 1896, III, M. E. 1899, Instructor, Machine Design, Purdue University, La Fayette, Ind.
 KERR, J. G., 1898, I, Farmer, R. F. D. No. 6, McKinney.
 KINSLOE, R. H., 1903, III, Special Student, A. and M. College, College Station.
 KLEINSMITH, M. L., 1901, IV, Engineer, Rio Bravo Oil Co., Sour Lake.
 KLOSS, E., 1902, III, Machinist, International and Great Northern Shops, 108 S. Sycamore Street, Palestine.
 KNOLLE, A. P., 1888, IV, Physician, Ellinger.
 KNOLLE, B. E., 1884, III, Physician, Industry.
 KNOLLE, E. R., 1887, III, Physician, Wesley.
 KNOLLE, O. J., 1897, I, Physician, Industry.
 KNOLLE, W. H., 1888, IV, Physician and Surgeon, 1902 Canal St., New Orleans.

112 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

- KOPKE, L. J., 1880, IV, Civil Engineer and Real Estate Agent, 1068 Liberty St., Beaumont.
- KUEHNE, J. F., 1889, III, Manufacturing and Commission Agent, Aparatado 2045, Mexico City.
- KYLE, A. J., 1897, I, Stockman, Bovina.
- KYLE, E. J., 1899, II, Professor of Plant Husbandry, College Station.
- KYLE, H. C., 1896, I, Stock Farmer, Nursery.
- KYLE, J. A., 1890, I, Physician and Surgeon, Binz Building, Houston.
- * KYLE, T. M., 1893, III, Nursery.
- LAW, F. M., 1895, I, Bank Bookkeeper, Bryan.
- LAWLEY, L. P., 1902, I, Stock Farmer, Oakville.
- LEGGETT, W. K., 1889, IV, Infantry, United States Army, Manila.
- LEWIS, F., 1894, IV, United States Surveyor, Muskogee, I. T.
- LEWIS, J., 1900, I, Student Iowa State College, Ames, Iowa.
- LEWIS, L. L., 1893, I, M. S., 1894, Professor of Zoology and Veterinary Science, Oklahoma A. and M. College, Stillwater, O. T.
- LEWIS, M., 1899, III, Draftsman, 509 La Fayette Ave., St. Paul, Minnesota.
- LINDEMAN, C. E., 1903, III, with G., C. & S. F. Ry., Cleburne.
- LIPSCOMB, R. S., 1882, III, Physician, Grapevine.
- LITTLEJOHN, R. G., 1891, IV, Deputy Assessor and Collector, City Hall, Fort Worth.
- LOCKETT, N., 1903, IV, Engineering Department, G., C. & S. F. Ry., Cleburne.
- LOVE, A. C., 1899, IV, Draftsman, Office Residence Engineer, G. C. & S. F. Ry. Beaumont.
- LUCKETT, W. H., 1891, I, Physician and Surgeon, 112 W. 119th Street, New York.
- * LUCKETT, W. M., 1894, III, Bastrop.
- * LUHRSEN, C. W., 1900, IV, Stratton.
- MABRY, R., 1889, IV, 806 Cherry Street, Fort Worth.
- MACKENSEN, B. C., 1884, III, Teacher, 204 Woodlawn Avenue, San Antonio.
- MACKENSEN, L., 1885, III, Poultry Breeder, Houston.
- MANSFIELD, R. H., 1903, IV, Tyler.
- MARKHAM, E. L., 1902, IV, Rodman, St. Louis and Southwestern Railway, Texarkana.
- MARTIN, E. L., 1899, IV, Assistant Engineer, Kansas City Southern Railway, 711 N. Smelter Avenue, Pittsburg, Kan.
- MARTIN, H. B., 1895, III, Construction Department, Missouri Pacific Railway, Aurora, Mo.
- MARTIN, W. C., 1898, II, M. S., 1901, Instructor in General and Industrial Chemistry, College Station.
- MASSENBERG, W. G., 1894, IV, Engineering Department, Atchison, Topeka and Santa Fe Railway.
- MATTHEWS, H. F., 1903, IV, With Guffey Petroleum Company, Beaumont.
- MEAD, J., 1897, IV, Division Engineer, International and Great Northern Ry., Anderson.
- * MERRITT, W. B., 1889, I.
- MERRIWETHER, W. T., 1891, IV, Civil Engineer, Eagle Lake.
- MIDDLEBROOK, E. S., 1889, IV, Attorney at Law, Columbus.
- MIDDLEBROOK, R. M., 1891, III, Attorney at Law, Columbus.
- MILEY, J. H., 1896, IV, Attorney at Law, Smithville.
- MILLER, C. S., 1886, Real Estate, Abstract and Cattle Raising, Ballinger.
- MILLER, H. J., 1883, III, Merchant, Bellville.
- MITCHELL, A., 1894, IV, Instructor in Drawing, College Station.
- MITCHELL, W. H., 1893, IV, Druggist, Holland.
- MITTMAN, E. F., 1902, IV, Student, Cornell University, 123 Quarry Street, Ithaca, N. Y.
- MONROE, J. S., 1900, IV, Assistant Engineer, Mexican Central Railway, Mexico City.
- MONTGOMERY, F. L., 1889, I, Lawyer, Sherman.
- MOORE, F., 1902, I, Edna.
- MOORE, G. G., 1903, IV, Merchant, De Kalb.
- MOORE, R., 1892, I, Druggist, Tilden.
- MOORE, T. E., 1892, I, Physician, 916 Wyoming Street, San Antonio.
- MOORE, W. M., 1895, IV, Cotton Factor, McKinney.
- MORRILL, C. R., 1891, IV, Division Engineer, Southern Pacific Railroad Co., San Antonio.
- * MOSELY, W. E., 1883, III, Jefferson.
- MOURSUND, A. F., 1895, IV, Roadmaster Southern Pacific Railway, Algiers, La.
- MOURSUND, E. M., 1897, IV, Vice President and General Manager H. & B. V. Ry. Hearne.
- MOUSER, E. B., 1895, I, Physician, Electra.
- MULLINS, E. Y., 1879, President Southern Baptist Theological Seminary, Norton Hall, Louisville, Ky.

- MYERS, O. W., 1900, III, Machinist, International and Great Northern Shops, Palestine.
- MYERS, W. G., 1894, III, Mining, Parral, Mexico.
- McCALL, H. S., 1903, IV, Sabine Pass.
- McCONNICO, S. F., 1901, I, Bookkeeper, Houston, Texas.
- McCORMICK, GEO., Jr., 1891, III, Chief Draftsman Motive Power Department Southern Pacific Railway, 1502 Leland Avenue, Houston.
- McCULLOCH, C. C., 1886, C. E., 1890, Surgeon United States Army, Manila, Philippine Islands.
- McDONALD, H. F., 1895, III, Student Iowa State College, Ames, Iowa.
- McDONALD, W. H., 1902, I, Surveyor, Athens.
- McGINNIS, F. K., 1900, II, Superintendent Green Demonstration Farm, Terrell.
- McGREGOR, F., 1903, IV.
- McKAY, G., 1903, III, Machinist, Longview.
- McKNIGHT, 1903, IV, Marlin.
- McLAVY, R. B., 1903, III, Assistant Engineer Steam Plant, College Station.
- McMILLAN, M., 1895, III, Physician and Surgeon, Puerto Principe, Calle Cisneros, 22, Cuba.
- MacNAIR, H. J., 1887, III, Civil Engineer, 803 New England Building, Cleveland, Ohio.
- McNEIL, J. C., 1896, IV, Surveyor, Brazoria.
- McQUEEN, T. B., 1884, III, Bookkeeper, Marlin.
- NEATHERY, D. E., 1892, I, County Treasurer of Collin County, McKinney.
- NEFF, A. J., 1903, III, care of S. P. Ry., Houston.
- NESS, H., 1889, II, Truck Farmer, Henderson.
- NEWTON, G., 1898, I, Bookkeeper, Thorndale.
- NICHOLS, J. F., 1898, II, Attorney, Greenville.
- NICHOLS, J. R., 1889, I, First Assistant Surgeon, North Texas Insane Asylum, Terrell.
- NICHOLS, W. L., 1891, IV, Chief Engineer S. L. and P. Ry., 286 Cole Avenue, Dallas.
- O'BAR, J. H., 1893, I, Cotton Buyer, Coleman.
- OGLESBY, G. B., 1894, IV, Stock Farming, Cedar Mills.
- OLDS, T. H., 1902, IV, Levelman, care of Lewis Kingman, Mexico City, Mexico.
- OLIPHINT, J. W., 1903, IV, Maintenance of Way Department, S. P. Ry., Houston.
- ORTIZ, J. A., 1892, IV, Stockman, 915 Zaragosa Street, Laredo.
- OVERSHINER, E. M., 1897, IV, Lawyer, 106 1-2 Chestnut Street, Abilene.
- PARK, C. M., 1896, IV, Publisher, 53 Jefferson Street, Station A, Dallas.
- PARSONS, B. C., 1893, II, Deputy Collector of Customs, Terlingua.
- PATRICK, A. T., 1883, III.
- PEARSON, H. A., 1893, IV, Planter, Troy.
- PENNINGTON, R. E., 1884, I, Lawyer, Brenham.
- PERLITZ, W. E., 1893, IV, Merchant, Schulenberg.
- PESCAY, C. H., 1885, III, Special Insurance Agent and Adjuster, 206 Carondelet Street, New Orleans.
- PETERS, R. F., 1894, III, Bookkeeper, Texarkana.
- PFEUFFER, F. L., 1885, III, Merchant, 213 Alamo Plaza, San Antonio.
- *PFEUFFER, W. O. R., I, New Braunfels.
- PFEUFFER, U. S., 1891, IV, Lumber Merchant, New Braunfels.
- PHILPOTT, W. B., 1884, III, M. S., 1890, Principal Philpott Academy, Hillsboro.
- PITTUCK, B. C., 1894, I, Adjunct Professor Agriculture, Box 356, Baton Rouge, La.
- POLK, W. A., Jr., 1895, IV, Salesman Wholesale Grocery Company, 406 South 15th Street, Corsicana.
- POULTER, R. J., 1899, II, Merchant, Porters Bluff.
- RADFORD, J. S., 1890, II, Manufacturer, Houston.
- RAGSDALE, J. W., 1890, I, Lawyer, Hallettsville.
- RATCHFORD, W. P., 1892, III, County Surveyor and Land Agent, Fort Stockton.
- RAWLINS, H. E., 1898, III, Superintendent Quarries Supply Company, Campo Florida, Cuba.
- REICHARDT, F. A., 1879, Cashier Planters and Merchants Bank, Houston.
- RENNERT, F., 1888, I, Cotton Exporter, San Antonio.
- RHODES, S. E., 1896, III, Machinery Dealer, Bryan.
- RHOME, R. J., 1901, I, Law Student, 2006 University Avenue, Austin.
- RICE, D., 1882, III, Public Weigher, 703 Webster Avenue, Houston.
- RICE, E. R., 1902, III, Electrician, Pocatello, Id.
- RIDENHOWER, R., 1903, IV, Hico.
- RIKE, H. M., 1893, IV, Surveyor and Stockman, Haskell.

114 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

- RISIEN, G. W., 1903, IV, Rodman, L. S. & M. S. Ry., Toledo, Ohio.
- ROACH, G. W., 1884, III, Superintendent County Schools, 913 N. Kansas St., El Paso.
- ROBERTSON, D. K., 1902, III, Ass't Sec'y Southern Foundry Co., 475 Pearl St., Dallas.
- ROBSON, G. C., 1898, II, Manager Southwestern Telephone and Telegraph Company, La Grange.
- RODRIGUEZ, D., 1896, IV, Civil Engineer and Planter, 114 Zaraona St., Porfirio Diaz, Mexico.
- ROGAN, CHAS., 1879, Lawyer, 502 East 10th Street, Austin.
- ROGERS, B. F., 1889, IV, Banker, Jefferson.
- ROGERS, C. P., 1900, II, Attorney at Law, San Marcos.
- ROGERS, G. A., 1887, III, Merchant, Longview.
- ROGERS, R. A., 1874, Cotton Factor and Commission Merchant, Galveston.
- ROLLINS, C. W., 1893, IV, Civil Engineer for Treadway Canal, Box 728, Beaumont.
- ROLLINS, H. M., 1897, III, Foreman Texas and New Orleans Creosoting Works, 1306 Texas Avenue, Houston.
- ROSE, W. F., 1894, III, Draftsman, Oregon Railroad and Navigation Co., Albina Shops, Portland, Oregon.
- ROSENTHAL, H. H., 1896, IV, Bookkeeper, 14 McAllister St., San Francisco, Cal.
- ROSS, F. R., 1894, I, Physician and Surgeon, 1010 Capitol Avenue, Houston.
- ROSS, J. G., 1894, IV, Attorney at Law, Cole Springs.
- ROSS, J. L., 1902, IV.
- ROSS, R., 1902, IV, Civil Engineer, Mexico Central Railway, Mexico City.
- ROUNTREE, T. D., 1898, IV, Physician, Grant, I. T.
- ROWELL, T. D., 1885, I, Attorney at Law and County Judge, 37 Walnut Street, Jefferson.
- RUDASILL, W. S., 1890, IV, Farming, Box 94, Sherman.
- RUST, W. M., Jr., 1901, III, with G., C. & S. F. Ry., Galveston.
- SAMUSCH, L., 1902, IV, Engineering Department, Gulf, Colorado and Santa Fe Railway, Temple.
- SANDERS, P. L., 1903, IV, Surveyor and Draftsman, Nacogdoches.
- SANDERS, W. O., 1896, II, Wholesale Provisions, Bryan.
- SAUVIGNET, E. H., 1892, I, Physician, Laredo.
- SAWYER, R., 1882, III, Lumber Merchant, Clarendon.
- SCHERER, C. L., 1896, IV, Civil Engineer, V. Weiss Building, Beaumont.
- SCHERER, W. A., 1898, II, Stockman, Anahauc.
- SCHMIDT, C. L., 1890, III, Machinist, Laredo.
- SCHMIDT, D. T. C., 1894, IV, Section Foreman, H. & T. C. Ry., Ennis.
- SCHUMACHER, H. C., 1892, IV, Wholesale Grocer, La Grange.
- SEWELL, M. S., 1894, IV, Merchant, McGregor.
- *SHIRES, F. N., 1897, III.
- SHIRES, G. M., 1897, III, Chief Engineer Houston Post, Houston.
- SHIRLEY, A. L., 1884, I, Farmer and Merchant, Anna.
- *SHIRLEY, M. W., 1889, III, McKinney.
- SHIRLEY, W. M., 1889, IV, Clerk of Collin County, McKinney.
- *SHIRLEY, Z. M., 1888, III, McKinney.
- SHORT, A. K., 1900, I, Herdmaster for B. C. Rhome's Stock Herd, Rhome.
- SHORT, J. L., 1893, I, Physician and Surgeon, 300-309 Kiam Building, Houston.
- SIMPSON, J. H., 1901, IV, Deck Officer, Coast Survey, U. S. S. "Endeavor," Washington, D. C.
- SIMPSON, O. N., 1900, IV, Civil Engineer for Nelson & White Beaumont.
- SIMPSON, S. H., 1900, IV, Assistant Engineer, Houston and Texas Central Ry., Houston.
- SLEEPER, W. M., 1879, III, Lawyer, 714 North 12th Street, Waco.
- SLOSS, A. M., 1899, I, National Metal Co., via San Andresde la Sierra, Los Reyes, Durango, Mexico.
- SMITH, A. U., 1895, III, Chief Engineer Street Railway, 360 Commerce Street, Dallas.
- SMITH, E. J., 1888, I, Attorney at Law, Denison.
- SMITH, T. L., Jr., 1898, IV, Chief Engineer Brazos Canal Company, Eagle Lake.
- SMITH, T. M. 1901, I, Bookkeeper, Columbia.
- SMITHER, R., 1894, III, Grocer, Huntsville.
- *SMYTHE, H. G., 1879, Bryan.
- SNEED, G. L., 1898, I, Minister, Howe.
- SOLES, C. B., 1899, III, Machinist, International and Great Northern Shops, 107 Trinity St., Palestine.
- *SPANN, E. W., 1885, III.
- SPEER, R. H., 1894, IV, Stockman, Quanah.

- STERNENBERG, E. H., 1897, IV, Principal of School, Buckholt.
- STERNS, J. B., 1903, IV, Brownsville Transfer Co., Eleventh and Madison Streets, Brownsville.
- STEWART W. W., 1888, III, Mill and Gin Owner, and County Surveyor, Steward's Mill.
- STRIEBER, C. A., 1902, III, Machinist, International and Great Northern Shops, 108 S. Sycamore St., Palestine.
- SWAIN, M. S., 1888, II, Stock and Bond Broker, Austin.
- TALBÖT, A., 1882, III, Planter, Calvert.
- THANHEISER, C. A., 1901, IV, Resident Engineer, Southern Pacific Railway, El Paso.
- THOMAS, M. F., 1901, III, Assistant Professor of Mechanical Engineering, Oklahoma A. and M. College, Stillwater, O. T.
- THROWER, J. D., 1900, I, Student Ohio State University, Columbus, Ohio.
- TILSON, M. D., 1886, III, Manufacturer and Merchant, 223 Pine Street, Texarkana.
- TILSON, P. S., 1888, I, M. S., 1894, Associate State Chemist, College Station.
- TILSON, W. H., 1903, IV, Plainview.
- TODD, A. M., 1894, IV, Assistant Engineer, U. S. Engineer's Office, Greenville Miss.
- TODD, C. C., 1897, II, First Lieutenant United States Army, retired, Little Rock, Ark.
- TRACY, H. H., IV, Stock Farming, Tullia.
- TRENCKMAN, W. A., 1878, Newspaper Publisher, Bellville.
- *TULLER, W. L., 1883, III.
- UECKERT, H. H., 1897, IV, Draftsman, Southern Pacific Railway, 406 Crawford Street, Houston.
- VAN ZANDT, K. M., Jr., 1879, Commissary Agent United States, Manzanillo, Estado Colima, Mexico.
- VAN ZANT, 1890, IV, Receiver, National Bank, Fort Worth.
- VINTHER, F., 1897, III, Machinist and Draftsman, 602 W. 15th Avenue, Pine Bluff, Ark.
- VON ROSENBERG, F. C., 1884, III, Attorney at Law, Austin.
- WALDEN, W. J., 1900, M. S., 1903, I, Loading Clerk Southern Pacific Railway Company, Galveston.
- WALLACE, L. W., 1903, III, Special Apprentice, 723 N. Main, Cleburne.
- WANGEMANN, A. E., 1890, I, Wholesale Grocer, Brenham.
- WARDEN, T. B., 1903, IV, Houston.
- WATKINS, R. C., 1895, IV, Assistant Civil Engineer, Southern Pacific Railway, Houston.
- WATKINS, W. A., 1892, IV, Agent Northwestern Life Insurance Co., Bryan.
- *WATSON, D. H., 1882, III, Brenham.
- WATSON, W. D., 1893, I, Clerk, Markham.
- WEATHERBY, 1903, III, with Taylor Signal Co., Fort Worth.
- WEIDEL, J., 1893, IV, Civil Engineer, A., T. and S. Fe Ry., Pueblo, Colo.
- WELHAUSEN, C. B., 1891, III, Merchant, Shiner.
- WELLS, D. D., 1895, I, Physician, 18 San Diego, Acapulco, Mex.
- *WESSEN, J. M., 1883, III.
- WEST, T. B., 1887, III, Agent Southern Pacific Railway at Glidden, Columbus.
- WHELAN, J. J., 1891, III, Machinist, Houston and Texas Central Railway, Houston.
- WHEAT, N., 1897, IV, Draftsman, Riverside Bridge Company, Martins Ferry, Ohio.
- WHISENANT, W. H., 1899, II, Pharmacist, San Antonio.
- WHITAKER, W., 1885, III, Oil Broker, Sour Lake.
- WHITE, G. R., 1895, IV, Stockman, Brady.
- WHITENER, H. L., 1891, I, Physician, 2009 E. Grand St., St. Louis.
- WHITLOCK, E. H., 1886, III, First Assistant Superintendent and Expert Mechanical Engineer of the National Carbon Works, 47 Eastman Street, Cleveland, Ohio.
- WHITTLE, C. T., 1899, III, Mining, Craig and Eighteenth Sts., Pueblo, Col.
- WINKLER, A., 1900, I, Farmer, The Grove.
- WIGHT, A. T., 1895, IV, General Merchandise, Roxton.
- WILLIAMS, I. L., 1903, III, Signal Department, T. and N. O. Ry., 1904 Baldwin Street, Houston.
- WILLIAMS, L. D., 1897, IV, Clerk Austin National Bank, Austin.
- WILSON, W., 1893, IV, Attorney at Law and Vice President of First National Bank, Port Lavaca.
- WIPPRECHT, W., 1884, I, B. S. A., 1889, President Mexia Compress Company and Manager of the Bryan Press Company, Bryan.
- WISDOM, F. L., 1896, IV, Bookkeeper, 623 Olive St., Texarkana.
- WOOD, W. M., 1888, IV, Clerk United States Treasury Department, Pine and Montgomery Sts., Tokoma, D. C.
- WOODWARD, W. F., 1886, M., Stockman, Antelope.

116 AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

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WRIGHT, E., 1892, IV, Lawyer, Paris.

WRIGHT, H. L., 1886, III, Insurance and Land, 305 Royall Street, Palestine.

WURZBACH, W. A., 1888, IV, Lawyer, San Antonio.

WYSE, IRA O., 1901, I, Dallas.

YARBROUGH, R. W., 1901, III, Merchant and Planter, Red River Parish, Greening, La.

YOUNGBLOOD, B., 1902, I, Principal Graded Schools, Henderson.

NUMBER OF GRADUATES BY CLASSES.

Class of 1878.....	2	Class of 1891.....	16
Class of 1879.....	23	Class of 1892.....	25
Class of 1880.....	7	Class of 1893.....	15
Class of 1881.....	1	Class of 1894.....	31
Class of 1882.....	12	Class of 1895.....	27
Class of 1883.....	8	Class of 1896.....	22
Class of 1884.....	14	Class of 1897.....	27
Class of 1885.....	10	Class of 1898.....	23
Class of 1886.....	11	Class of 1899.....	22
Class of 1887.....	10	Class of 1900.....	26
Class of 1888.....	17	Class of 1901.....	19
Class of 1889.....	19	Class of 1902.....	27
Class of 1890.....	14	Class of 1903.....	36
			<hr/>
Total Graduates			464
Deceased			29
			<hr/>

APPENDIX.

SPECIMEN ENTRANCE EXAMINATIONS.

(For the beginning of the session.)

Special attention is called to the following specimen entrance examinations. Young men intending to apply for admission are urged to satisfy themselves by actual trial before coming to College that they can answer such questions.

Algebra.

- Factor: $x^3 + y^3$, $x^6 - y^6$, $x^2 + 4x - 21$.
- Simplify: $\left(\frac{a+b}{a-b} + \frac{a^2+b^2}{a^2-b^2}\right) \div \left(\frac{a-b}{a+b} - \frac{a^3-b^3}{a^3+b^3}\right)$.
- Given: $\frac{x-5}{4} - \frac{2x-y-1}{3} = \frac{2y-2}{5}$ and $\frac{2y+x-1}{9} = \frac{x+y}{4}$, find the values of x and y .
- Find the square root of $10x^2 - 4x^3 + 9 - 12x + x^4$.
- Simplify: $3a^2 \times a^{\frac{1}{3}}$, $6a^{-2} \div 3a^{-5}$, $(a^2)^7$
- Simplify: $\sqrt{50}$, $4\sqrt[3]{320}$, $\sqrt{\frac{1}{2}}$.
- Reduce: $\frac{3\sqrt{5}+2\sqrt{2}}{3\sqrt{5}-2\sqrt{2}}$ to an equivalent fraction having a rational denominator.
- Solve: $\sqrt{2x-7} + \sqrt{2x-9} = 8$.

Advanced Grammar.

Mention the four principal uses or construction of the noun.

In the sentence "We footed it through the woods," explain the use of *it*.

In the sentence "Now I lay me down to sleep," explain the use of *me*.

In the sentence "I love so much as love me," parse *as*.

Write a sentence containing an indirect object.

What is a phrase? What is a participle?

Write a sentence containing the infinitives and participles of the following verbs: sing, play, shoot, pass, stand.

Write a synopsis of the active forms of the verb *do*.

Write a synopsis of the active forms of the verb *see*.

What is the difference between prepositions and conjunctions?

What is the difference between analysis and parsing?

Write a sentence containing a noun clause.

Write a sentence containing a phrase used as an adverb.

In the following sentences, parse the italicized words:

The pole is ten *feet* long.

Who made him *umpire*?

He giveth his *beloved* sleep.

Flee from the wrath to *come*.

The wind goes *whistling* through the trees.

Analyze the following sentences:

Who steals my purse steals trash.

Winter coming on, the troops were disbanded.

The fact that he said it, needs no proof.

Love thy neighbor as thyself.

The sun shines bright.

I slept and dreamed that life was Beauty,

I woke and found that life was Duty.

History.

1. State what parts of North America were held by the French at the time of Braddock's march. By the English at the same time.
2. State what parts of North America were held by the English at the time of the passing of the Stamp Act.
3. What was the significance to the Americans of the surrender of Burgoyne's army?
4. Under what form of government did the colonists make their struggle with Great Britain?
5. State how the United States acquired the territory lying along the Mississippi.
6. How was the territory along the Pacific acquired?
7. What causes brought on the war between the States?
8. Give an account of Lee's two campaigns north of the Potomac.
9. How was Alaska acquired?
10. What lands beyond the seas are now subject to the United States State how they were acquired.
11. Describe the advantages of the basin of the Nile, the Tigris, and the Euphrates for the beginnings of civilization.
12. What race had most to do with disseminating the civilization of these early empires; and what commercial wares tempted them further and farther westward and northward?
13. Describe how the Persian empire came into collision with the Greeks.
14. Contrast the Athenian with the Spartan state.

15. Describe the extent of Hellenic colonization before the time of Alexander.

16. Describe the wide extension of Hellenic civilization in the time of the Ptolemies and the Selenkids.

17. Describe the first struggle of the Romans with Greek troops.

18. State the successive steps in the Roman conquest of the Mediterranean area.

19. Sketch rapidly Rome's struggles with her slaves, and with her gladiators, and her civil wars before the establishment of the empire.

20. State how there came to be an Eastern and a Western Roman Empire.

INDEX.

	PAGE.		PAGE.
Admission, Requirements for.....	17	Experiment Station.....	41
Affiliated Schools.....	91	Expulsions.....	20
Agricultural Course.....	22	Faculty.....	6
Alumni Association.....	107	Farm.....	89
Athletics.....	90	Farm Buildings.....	89
Band.....	90	Farmers' Institutes.....	43
Battalion Organization.....	103	Fifth Year's Course.....	68
Board of Directors.....	5	General Information.....	86
Buildings.....	87	General Studies.....	70
Catalogue of Students.....	95	Grades.....	86
Civil Engineering Course.....	45	Graduate Course in Agriculture...	39
College Calendar.....	4	Graduating Class.....	105
Courses of Study.....	21	Graduation.....	86
Degrees and Honors.....	104	Health.....	15
Department of—		Historical Sketch.....	11
Animal Husbandry and Dairy		Honors.....	86
Husbandry.....	27	Hospital.....	16
Botany and Mycology.....	29	Instructors and Officers.....	7
Chemistry and Mineralogy....	70	Library.....	89
Civil Engineering.....	48	Literary Society.....	90
Drawing.....	72	Manual Training.....	82
English.....	74	Matriculation.....	18
Entomology.....	31	Mechanical Engineering Course...	57
Farm Husbandry.....	32	Methods and Scope of Instruction.	15
History.....	75	Monthly Reports.....	86
Languages.....	76	Natatorium.....	89
Mathematics.....	77	Objects.....	13
Mechanical Engineering.....	60	Postoffice.....	15
Military Science.....	79	Religion.....	90
Physics and Electrical Engi-		Session.....	17
neering.....	54, 80	Sewerage System.....	90
Plant Husbandry.....	35	Short Courses.....	40
Veterinary Science.....	38	Student Labor.....	20
Discipline.....	14	Text-Books.....	83
Distinguished Students.....	104	Textile Engineering Course.....	65
Elective Courses.....	81	Two Years' Course.....	82
Electrical Engineering Course....	51	Uniforms.....	19
Entrance Examinations.....	117		
Examinations.....	86		
Expenses.....	18		