CATALOGUE

OF THE

University of the State of Missouri

FIFTY-FOURTH REPORT

OF THE

CURATORS

To the Governor of the State

1895-1896

TRIBUNE PRINTING CO., PRINTERS, JEFFERSON CITY, MO.

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1895-1896

COLUMBIA, MISSOURI

1896.

JULY.

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1897.

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UNIVERSITY CALENDAR.

AT COLUMBIA.

1896—September 3, 4, 5, 7.....Entrance Examinations
September 8, Tuesday.....All Departments Open
November 25, Wednesday, 4 p. m., to November 30, Monday, 8:30 a. m.....Thanksgiving Holidays
December 17, Tuesday.....Semi-annual meeting of the Curators
1897— December 23, Wednesday, at 4 p. m., to January 5, Tuesday, at 8:30 a. m.....Christmas Holidays
January 9, Saturday.....Memorial Day
January 15-23.....Mid-Year Examinations
January 26, Tuesday.....Second Semester Begins
February 22, Monday.....Holiday
May 21 to May 29.....Final Examinations
May 29, Saturday.....Stephens Medal Contest
May 30, Sunday.....Baccalaureate Sermon
May 31, Monday.....Class Day
June 1, Tuesday.....Alumni Day
June 1, Tuesday.....Annual Meeting of the Curators
June 2, Wednesday.....Commencement Day

AT ROLLA.

1896—September 14, Monday, 9 a. m.....Entrance Examinations
September 15, Tuesday.....First Semester Begins
November 26, Thursday.....Thanksgiving Holiday
1897— December 24, Thursday, at 12 m., to January 5, Tuesday.....Christmas Holidays
February 2, Tuesday.....Second Semester Begins
February 22, Monday.....Holiday
June 10, Thursday.....Commencement

CONTENTS.

ERRATA.

Pages 9 and 10 should be exchanged. All the names on page 10 precede those on page 9.

Page 26. Add to list of schools approved for B. L. and B. S. Courses, Clinton High School, C. B. Reynolds (Principal).

Report of the Board of Curators.

To his Excellency, WILLIAM J. STONE, *Governor of Missouri:*

DEAR SIR—I send herewith, as the Fifty-fourth report of the Curators of the State University, the Annual Catalogue for the scholastic year 1895-1896. This catalogue is intended to embody all necessary information in regard to the University, and will be distributed throughout the State as an announcement for the following year.

AN ERA OF GOOD FEELING.

One year ago I had the honor to transmit the Fifty-third Report, and with it a somewhat extended statement of the more recent improvements made both in the external and the internal appointments of the University. Many things were reported as done, many things were doing, and the outlook was regarded as encouraging; yet I felt called upon to regret that many counties in the State were comparative strangers to the University. At the present time I feel justified in saying that there has been great improvement in this respect during the last twelve months. A great many influences have combined to spread correct information in regard to the several departments of the University and their work, and also to stimulate local interest in what the University is, and what it has to offer to young people throughout the State.

THE ATTENDANCE.

The preparatory departments at Columbia having wholly disappeared, and the standard of admission at Rolla having been somewhat raised, the attendance may be regarded as appropriate to a State University and to the various departments in a College of Agriculture and Mechanic Arts. This legitimate attendance is greater than ever before in the history of the University.

THE DEDICATION OF ACADEMIC HALL.

A conspicuous feature in the program on Commencement, in June, 1895, was the dedication of Academic Hall. President James B. Angell, of Michigan University, kindly consented to deliver an oration, which is a valuable contribution to our educational literature. It has been appropriately printed and circulated throughout the State. Without doubt, Academic Hall stands to-day the finest educational building in the State, with

unequalled appointments in many respects. Since September, 1895, its halls, library, lecture rooms, and gymnasium have been in constant use. The universal verdict is that the building is convenient, comfortable, and an honor to the State.

ADDITIONAL LABORATORY EQUIPMENTS.

The appropriations made by the Thirty-eighth General Assembly have been spent as judiciously as possible, and as a consequence every laboratory has had an increase in its apparatus and facilities for instruction and study. Much, however, remains to be supplied in every instance. Science laboratories are never fully equipped. They are always in need of new and improved appliances for the better examination of established laws and familiar phenomena, as well as for research in new fields. Not a month passes without new discoveries in pure and applied science, and not a month goes by without demands upon the Board of Curators for money to procure new and unexpected appliances for the University. It will be our duty as well as our pleasure to submit to the next General Assembly the needs of the University in the direction of science, literature and the arts.

SUMMER SCHOOL OF SCIENCE.

The first session of the Summer School of Science, authorized by the Thirty-eight General Assembly, was held at Columbia during the months of June, July and August, 1895. Though the attendance was not large, the school was regarded as a success; and, on strength of that success and some additional attractions offered, it is expected that during the coming summer the school will be more largely attended. It should be distinctly understood by all that the work of the Summer School is not an exhibition of University work, nor is it for the benefit of University students. It is conducted by the most accomplished teachers obtainable in the State, and illustrates better than is illustrated anywhere else in the State, both the kind and the methods of science instruction in secondary schools. It is for the benefit of those who are now teachers, or are proposing to become teachers, in the schools of the State; and the instruction is absolutely free to all such. The program of the school is found in the pages of the accompanying catalogue.

THE SEVERAL DEPARTMENTS OF THE COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

By authority of the Board of Curators the statement of organization for the University in the present catalogue is slightly changed from what it has been in the past. For the first time the full extent and meaning of "The College of Agriculture and Mechanic Arts" is recognized. This part of the University is due to the Morrill Act of 1862, and the Morrill Act of 1890. To aid in its establishment, the Federal Government has given land

and money, while the State has given it buildings and a larger or smaller share in the University appropriations. As a result of the gifts of land at various times on the part of the Federal Government, the University has an income-bearing endowment of $571,881, of which $350,000 is for the benefit of the College of Agriculture and Mechanic Arts. Under this general title fall the Department of Agriculture, the various departments of Engineering, and the Department of Mechanic Arts. The Engineering Department is subdivided into courses known as Civil Engineering, Mechanical Engineering, Electrical Engineering, Mining and Metallurgy; the general subject of Mining and Metallurgy forming the prominent feature of what is known as the "School of Mines," situated at Rolla. The fact that the School of Mines is an integral part of the College of Agriculture and Mechanic Arts has been duly recognized by the State in making arrangements for the distribution of the income of the endowment from Federal lands, and of the Federal money paid over to the Board of Curators for the benefit of the College of Agriculture and Mechanic Arts under the Morrill Act of 1890.

When it is fully understood that the College of Agriculture and Mechanic Arts is thus properly inclusive, and that Agriculture is but one of its many subjects of instruction, it is seen to be doing a very much greater work than has been credited to it in the past. It is hoped that this statement and the organization shown in the following pages will tend to the diffusion of a better knowledge and a fairer judgment in regard to the work of this great branch of the University.

The completion of the Horticultural Laboratory (popularly known by the rather misleading term of "greenhouse"), and the appointment of an accomplished Entomologist, have placed our horticultural department on excellent footing. In these new features the Board realized improvements long sought for and earnestly worked for. Taken in connection with the somewhat meagre improvements we have been able to make in the agricultural department in connection with dairying, etc., they justify, in my opinion, a very sanguine view of the agricultural and horticultural departments in the University.

ATHLETIC CULTURE.

During the past year great progress has been made in the way of systematic and rational physical culture. With the means at the disposal of the Board a very excellent gymnasium was fitted up in the basement of Academic Hall, the athletic grounds were laid out in a very satisfactory manner, and an accomplished professor of physical culture and hygiene was appointed, who has entire charge of all the systematic physical training authorized by the Board of Curators. The indoor appliances are available throughout the year, and the athletic grounds are for use during all

the spring and fall months, when outdoor exercise and sports are to be preferred. The object of all these arrangements is the systematic development of the muscular system in all students. It is is believed that during the student period systematic exercise under the direction and in accordance with the advice of a competent professor is of priceless value to every young man and every young woman. The young women have the exclusive use of an indoor gymnasium, about 35 feet square, with a lofty ceiling. All students connected with the University are permitted to use the gymnasium and the athletic grounds free of charge.

SCHOOL OF MINES.

That portion of the catalogue relating to the School of Mines needs no explanation. The careful reader will see that great improvement has been made in the plant during the past year, that the school is far more attractive than ever, that its standard of general and professional attainment is higher, and that it is admirably equipped for its special work.

SCHOLARSHIP ACT.

What is known as the Yeater Scholarship Act has now been in force for nearly a year, and scholarship endowments have been accruing in nearly every county in the State. In some instances the funds have been invested as required by law; and during the coming year there will be in some counties an income available for the benefit of those students who receive the scholarships. During the present year, by action of the Board, a single free scholarship was established in every county, but as there were no funds available no appropriations were made to assist the students receiving such scholarships. All necessary steps were taken by me as President of the Board to secure the appointment of duly qualified students to fill these free scholarships throughout the State. As a result of such efforts 45 scholarships were filled while 70 are still vacant. It is probable that the number of scholarships in some counties will be increased during the coming year. As required by law, the President of the Board will take steps during the month of July to have the 70 vacant scholarships properly filled.

A FIXED REVENUE FOR THE UNIVERSITY.

In a recent report of Hon. John R. Kirk, Superintendent of Public Instruction, there is a letter of mine in which, among other things, I mention the duty which seems to devolve upon the Curators to press upon the General Assembly the claims of the University. To lighten that duty as much as possible, and yet not neglect the interests of higher education, I took the liberty of suggesting to the people of the State that their representatives forming the Thirty-ninth General Assembly, with the approval of the Governor, should deliberately set aside from the revenues of the State for the benefit of the University an equivalent of *one-sixth of a mill per*

annum upon every dollar of the *assessed value* of the taxable property of the State.

In support of this proposition, I said in substance:

A fixed proportion (one-third of the revenue, I think), is always set aside for the benefit of the common schools; a similar arrangement can be extended to the University. The amount I propose is a very moderate one, much less than is regularly set aside by many of the States in the Union; and the method is one that is extremely popular wherever it is tried. It removes the question of appropriations for the University from the arena of rival and opposing claims, and it insures, in the most dignified manner, an adequate income for the support of higher education. The taxable property of the State is at present about one billion dollars, consequently the annual appropriation I recommend would amount at present to about $166,666.67. This amount should include the income of the State endowment of $646,958.23 on which now biennially appropriation is made to the University from the revenues of the State, and all appropriations for the School of Mines. As the wealth of the State increases, the amount set aside for the University would increase as well, and properly so, because the University must of necessity increase in size and in completeness with the growth of the State. It should be distinctly understood that I am not proposing any additional tax; I am only urging the adoption of a permanent policy on the part of the State in reference to the University. The State of Michigan, whose educational zeal and eminence are well known, sets aside one-sixth of a mill, as is proposed above; and in addition to that it appropriates money from time to time for the erection of new buildings. Besides Missouri, there is scarcely a Western State that does not provide in this way for its University. Wisconsin and Nebraska set aside a larger proportion. In several other States, while there is no fixed proportion of the revenue set aside for higher education in the State, yet the total appropriations amount to more than I have named—often in consequence of the unwise subdivision into independent and somewhat rival institutions.

This recommendation I respectfully present to the intelligent people of Missouri. It is perfectly evident that the University of the State will be what the State makes it. It cannot rise above the standard set by the people. Every year sees changes in the Board of Curators, and another year will see the responsibility pass from the hands of some of those now actively administrating its affairs to new hands; but the University must ever go on or it must retrograde. If it is to be a crown of glory and a perpetual blessing, it must be nourished and strengthened and enlarged with increasing years. It must be in no sense a bone of contention or the cause of petty jealousy; its policy must be stable; its revenues must be sure, and its promises must be faithfully kept. None of these things can be if the public favor is uncertain, and if the two-yearly appropriations are to

be endangered by sectional or partisan jealousies. It is my earnest hope that the next General Assembly will remove the question of properly supporting the State University from the arena of public and local politics, and place it securely on the platform of those high interests whose support is ensured through the action of a just and unfailing rule.

Respectfully,

C. M. WOODWARD,

President of Board of Curators.

CORPORATION.

THE BOARD OF CURATORS.

C. M. WOODWARD	St. Louis	Term expires Jan. 1, 1897.
NAT. M. SHELTON	Lancaster	
WM. M. EADS	Carrollton	
R. B. OLIVER	Jackson	Term expires Jan. 1, 1899.
G. B. ROLLINS	Columbia	
JAS. T. MOORE	Lebanon	
GARDINER LATHROP	Kansas City	Term expires Jan. 1, 1901.
B. R. CAUTHORN	Mexico	
M. E. BENTON	Neosho	

OFFICERS OF THE BOARD.

C. M. WOODWARD ..... President

NAT. M. SHELTON ..... Vice-President

J. G. BABB, Secretary.

R. B. PRICE, Treasurer.

THE EXECUTIVE BOARD AT COLUMBIA.

C. M. WOODWARD ..... St. Louis

B. R. CAUTHORN ..... Mexico

WM. M. EADS ..... Carrollton

THE EXECUTIVE COMMITTEE OF THE SCHOOL OF MINES.

R. B. OLIVER, Chairman ..... Jackson

M. E. BENTON ..... Neosho

C. M. WOODWARD ..... St. Louis

M. F. FAULKNER, Secretary.

D. W. MALCOLM, Treasurer (office at Rolla).

THE BOARD OF VISITORS.

OLIVER CHAPMAN ..... Breckenridge

THOMAS M. JOHNSON ..... Osceola

R. H. NORTON ..... Troy

E. W. STEPHENS ..... Columbia

C. C. TORBITT ..... Rocheport

Faculty of the University.

Names are printed in order of appointment, except that of the President. Those marked with a star [*] are names of members of the Faculty of the School of Mines and Metallurgy, at Rolla, Missouri.

RICHARD HENRY JESSE, LL. D.,
President.

PAUL SCHWEITZER, Ph. D.,
Professor of Agricultural Chemistry, and Acting Professor of Chemistry.

ANDREW WALKER McALESTER, A. M., M. D.,
Professor of Surgery and Diseases of Women and Children.

WOODSON MOSS, M. D.,
Professor of Anatomy and Practice of Medicine.

WILLOUGHBY CORDELL TINDALL, A. M., M. S.,
Professor of Mathematics.

† JOHN CARLETON JONES, A. M., Ph. D.,
Professor of Latin Language and Literature.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English Language and Literature.

GARLAND CARR BROADHEAD, M. S.,
Emeritus Professor of Geology and Mineralogy, and Curator of Geological Museum.

JAMES AULL YANTIS, LL. B.,
Professor of Law.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

* WALTER B. RICHARDS, M. A.,
Director of School of Mines and Metallurgy, and Professor of Mathematics.

† Absent for session of 1895-6.

HOWARD AYERS, B. S., Ph. D.,
Professor of Biology, and Curator of the Biological Museum.

JOHN CHARLES WHITTEN, B. S.,
Professor of Horticulture.

*COURTNEY DEKALB,
Professor of Mining and Metallurgy.

*ARTHUR HENRY TIMMERMAN, B. S., M. M. E.,
Professor of Physics.

SINDEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

WALTER ALONZO THURSTON (First Lieutenant, U. S. Army),
Professor of Military Science and Tactics.

HENRY JACKSON WATERS, B. A. S.,
Dean of the College of Agriculture and Mechanic Arts, and Director of the Experiment Station.

ISIDOR LOEB, M. S., LL. B., Ph. D.,
Assistant Professor of History, and Secretary to the University Council.

BENJAMIN FRANKLIN HOFFMAM, M. L.,
Professor of Germanic Languages.

FREDERICK BLAKMAR MUMFORD, M. S.,
Professor of Agriculture, and Curator of the Agricultural Museum.

HENRY MARVIN BELDEN, B. A., Ph. D.,
Assistant Professor of English Language and Literature.

JOHN MOORE STEDMAN, B. Sc.,
Professor of Entomology, and Entomolgist to the Experiment Station.

GEORGE WASHINGTON CUTLER, M. D.,
Professor of Physical Culture, and Director of the Gymnasium.

*EUGENE THOMAS ALLEN, A. B., Ph. D.,
Professor of Chemistry and Metallurgy.

RAYMOND WEEKS, A. M.,
Professor of Romance Languages.

JOSEPH FRANCIS PAXTON, A. M.,
Acting Assistant Professor of Latin.

MATTHEW B. HAMMOND, Ph. B., M. L.,
Acting Assistant Professor of Political Economy.

ALEXANDER MARTIN, A. M., LL. D.,
Professor of Law, and Dean of the Law Faculty.

WILLIAM GWATHMEY MANLY, A. M.,
Professor of Greek Language and Literature.

MILTON UPDEGRAFF, M. S., B. C. E.,
Professor of Astronomy, Director of the Observatory, and Assistant Professor of Mathematics.

JOSEPH PHILIP BLANTON, A. M.,
Professor of Theory and Practice of Teaching.

JOHN MILLER BURNAM, Ph. D.,
Acting Professor of Latin Language and Literature.

CHRISTIAN WILLIAM MARX, B. E.,
Professor of Mechanical Engineering, and Superintendent of Mechanic Arts.

JOHN WALDO CONNAWAY, M. D. C., M. D.,
Professor of Physiology (Human and Comparative).

WILLIAM SHRADER, B. S., Ph. D.,
Professor of Electrical Engineering, and Assistant Professor of Physics.

*ELMO GOLIGHTLY HARRIS, C. E.,
Professor of Civil Engineering.

JOHN DAVISON LAWSON, B. C. L., LL. D.,
Professor of Law.

FREDERICK CHARLES HICKS, B. A., Ph. D.,
Professor of History and Political Economy.

JOHN PICKARD, A. M., Ph. D.,
Professor of Classical Archæology, Assistant Professor of Greek, and Curator of Museum of Classical Archæology.

FRANK THILLY, B. A., Ph. D.,
Professor of Philosophy.

HARRY THOMAS CORY, M. E., M. C. E.,
Professor of Civil Engineering.

LUTHER MARION DEFOE, A. B ,
Assistant Professor of Mathematics.

†HOWARD BEERS GIBSON, A. B., Ph. D.,
Professor of Chemistry.

†Died Oct. 18, 1895.

‡———————

Professor of Chemistry.

‡———————

Professor of Elocution.

*PAUL JULIUS WILKINS, B. S.,
Instructor in Academic Department.

SILAS DINSMOOR, A. B ,
Instructor in Chemistry.

*THOMAS LEWIS RUBEY, A. M.,
Instructor in Academic Department, and Librarian.

HOWELL VAN BLARCOM,
Instructor in Mechanic Arts.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

EDWARD BEAUFORD CAUTHORN, B. S.,
Instructor in Mathematics.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

ROBERT EMMET GRAHAM, M. D.,
Instructor in Bacteriology and Pathology.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Geology and Mineralogy.

MARY ESTELLE PORTER, B. L.,
Instructor in Commercial Studies.

*GEORGE EDWARD MILLER, B. S.,
Instructor in Shop-work and Drawing.

IRVING HARDESTY, A. B.,
Laboratory Assistant in Biology.

EVA JOHNSTON, A. B.,
Teaching Fellow in Latin.

‡To be appointed June 1, 1896.

JENNIE ADAMS, A. B.,
Teaching Fellow in Latin.

MINNA A. KIDWELL, A. B.,
Teaching Fellow in Romance Languages.

THOMAS JACKSON TAYLOR, A. B.,
Teaching Fellow in Germanic Languages.

SUMMARY.

Professors (including President and Deans) in actual service	37
Assistant Professors	9
Instructors	11
Teaching Fellows	4
Laboratory Assistant	1
	62
Counted twice	3
Total	59

OTHER OFFICERS.

J. G. BABB, A. M., LL. B.,
Proctor.

R. B. PRICE,
Treasurer.

———————,
Examiner of Schools.

MISS EVA JOHNSTON, A. B.,
Acting Matron.

MISS MARY IGLEHART,
Registrar.

JOHN WATSON MONSER,
Librarian.

IRVING SWITZLER,
Secretary to the College of Agriculture and Mechanic Arts, and to the Experiment Station.

GEN. J. B. DOUGLASS,
Superintendent Agricultural College Lands.

For officers and staff of Experiment Station, see Index.

PREACHERS AND LECTURERS.

PREACHERS TO THE UNIVERSITY.

Rev. Cameron Mann, D.D., Kansas City, Nov. 11-16, 1895.
Rev. James A. Duncan, D.D., Kansas City, Dec. 9-14, 1895.
Bishop E. R. Atwell, D.D., Kansas City, January 13-18, 1896.
Rev. J. H. Garrison, D.D., St. Louis, Jan. 20-25, 1896.
Rev. W. T. Moore, D.D., Columbia, Mo., Jan. 27 to Feb. 1, 1896.
Rev. S. G. Niccolls, D.D., St. Louis, March 16-21, 1896.
The pastors of churches in Columbia at various times.

LECTURES BEFORE THE UNIVERISTY.

COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

Mr. C. A. Keffer, of Washington, "Economic Aspects of Forestry."

Hon. J. R. Rippey, Secretary to the State Board of Agriculture, "The Missouri Roadster—His Conformation, Breeding and Management."

Hon. N. F. Murray, of Oregon, Mo., Vice President State Horticultural Society, "Commercial Orcharding in Missouri," (12 lectures).

John Patterson, Esq., of Kirksville, Mo., ex-President State Dairymen's Association, "Dairying."

DEPARTMENT OF LAW.

Hon. James O. Broadhead, of St. Louis, ex-minister to Switzerland: "The Monroe Doctrine."

NORMAL DEPARTMENT.

Miss Mary McCulloch, Head of St. Louis Kindergarten Schools, (two lectures).

YOUNG MEN'S CHRISTIAN ASSOCIATION.

Mr. S. D. Gordon, State Secretary of the Y. M. C. A.

Mr. John L. Marshall, Traveling Secretary of the Student Volunteer Movement for Foreign Missions.

For various non-resident lecturers regularly engaged to give instruction, see Faculty lists of various departments.

For announcement of Y. M. C. A. entertainments, see Index, under "Young Men's Christian Association."

DEPARTMENTS OF THE UNIVERSITY.

The University is divided into the following departments:

I—ACADEMIC.

II—NORMAL.

III—LAW.

IV—MEDICINE.

V—MILITARY SCIENCE AND TACTICS.

VI—AGRICULTURE AND MECHANIC ARTS, embracing the Schools of A. *Agriculture*; B. *Mechanic Arts*; C. *Engineering*, and D. *Mines and Metallurgy* (at Rolla, Mo.)

These departments are established and made co-ordinate by the statutes of Missouri.

I. Academic Department.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

WILLOUGHBY CORDELL TINDALL, A. M., M S.,
Professor of Mathematics.

*JOHN CARLETON JONES, A. M., Ph. D.,
Professor of Latin Language and Literature.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English Language and Literature.

GARLAND CARR BROADHEAD, M. S.,
Emeritus Professor of Geology and Mineralogy, and Curator of Geological Museum.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

*Absent for session of 1895-6.

WILLIAM GWATHMEY MANLY, A. M.,
Professor of Greek Language and Literature.

MILTON UPDEGRAFF, M. S., B. C. E.,
Professor of Astronomy, Assistant Professor of Mathematics, and Director of the Observatory.

JOHN MILLER BURNAM, Ph. D.,
Acting Professor of Latin Language and Literature.

WILLIAM SHRADER, B. S., Ph. D.,
Assistant Professor of Physics.

FREDERICK CHARLES HICKS, B. A., Ph. D.,
Professor of History and Political Economy.

JOHN PICKARD, A. M., Ph. D.,
Professor of Classical Archæology, Assistant Professor of Greek, and Curator of Museum of Classical Archæology.

FRANK THILLY, B. A., Ph. D.,
Professor of Philosophy.

LUTHER MARION DEFOE, A. B.,
Assistant Professor of Mathematics.

* HOWARD BEERS GIBSON, A. B , Ph. D.,
Professor of Chemistry.

HOWARD AYERS, B. S., Ph. D.,
Professor of Biology.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

ISIDOR LOEB, M. S., LL. B., Ph. D.,
Assistant Professor of History.

BENJAMIN FRANKLIN HOFFMAN, M. L.,
Professor of Germanic Languages.

HENRY MARVIN BELDEN, B. A., Ph. D.,
Assistant Professor of English Language and Literature, and Secretary to the Academic Faculty.

RAYMOND WEEKS, A. M.,
Professor of Romance Languages.

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*Died October 18, 1895.

JOSEPH FRANCIS PAXTON, A. M.,
Acting Assistant Professor of Latin.

MATTHEW B. HAMMOND, Ph. B., M. L.,
Acting Assistant Professor of Political Economy.

†————————,
Professor of Chemistry.

†————————,
Professor of Elocution.

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Geology and Mineralogy.

IRVING HARDESTY, A. B.,
Laboratory Assistant in Biology.

EVA JOHNSTON, A. B.,
Teaching Fellow in Latin.

JENNIE ADAMS, A. B.,
Teaching Fellow in Latin.

MINNA A. KIDWELL, A. B.,
Teaching Fellow in Romance Languages.

THOMAS JACKSON TAYLOR, A. B.,
Teaching Fellow in Germanic Languages.

† To be appointed June, 1896

REQUIREMENTS FOR ADMISSION.

The condition of high school education in the State is such that the requirements for admission as outlined in the courses for approved schools will not be strictly enforced until the fall of 1897.

For the fall of 1896 the following will be accepted for admission by examination to the Freshman class in the Academic Department:

To the A. B. Course:

1. Latin. Five books of Cæsar's Gallic War, four orations of Cicero, and Allen's Prose Composition. For two books of the Gallic War, eight books of Eutropius, or an equivalent of the *Viri Romæ*, may be substituted. Mastery of the essentials of etymology and syntax is expected.

2. Greek. Students will be admitted who have had thorough drill in the forms and in the ordinary principles of syntax, such as may be had from White's Beginner's Greek Book, and who have read enough to be able to take up Xenophon's Anabasis and advance rapidly in it.

3. English. A. *In General.*—No pupil will be accepted in English whose written work is notably defective in point of *spelling, punctuation, idiom,* or *division into paragraphs.*

B. *English Composition.*—(1) The candidate will be required to write two essays of not less than two hundred words each, on subjects chosen by himself, from a considerable number set before him in the examination paper. One of the topics chosen must be taken from the books assigned for general reading under English Literature. (2) In place of the essay on the topic drawn from the books set for general reading, the candidate will be allowed to offer an exercise book containing the first draft of his school compositions, at least six in number, on topics taken from the prescribed course of reading, and certified to by his last English instructor as in his opinion the unaided work of the pupil.

C. *English Literature.*

1. For General Reading and Composition work:

1896: Shakspere's "A Midsummer Night's Dream;" Defoe's "History of the Plague in London;" Irving's "Tales of a Traveller;" Scott's "Woodstock;" Macaulay's "Essay on Milton;" Longfellow's "Evangeline;" George Eliot's "Silas Marner."

1897: Shakespere's "As You Like It;" Defoe's "History of the Plague in London;" Irving's "Tales of a Traveller;" Hawthorne's "Twice Told Tales;" Longfellow's "Evangeline;" George Eliot's "Silas Marner."

1898: Milton's "Paradise Lost" (Books I and II); Pope's "Iliad" (Books I and XXII); "The Sir Roger de Coverley Papers" in "The Spectator;" Goldsmith's "The Vicar of Wakefield;" Coleridge's "Ancient Mariner;" Southey's "Life of Nelson;" Carlyle's "Essay on Burns;" Lowell's "Vision of Sir Launfal;" Hawthorne's "The House of the Seven Gables."

1899: Dryden's "Palamon and Arcite;" Pope's "Iliad" (Books I, VI, XXII and XXIV); "The Sir Roger de Coverley Papers;" "Vicar of Wakefield;" "Ivanhoe;" DeQuincey's "Flight of a Tartar Tribe;" Cooper's "Last of the Mohicans;" Lowell's "Vision of Sir Launfal;" Hawthorne's "The House of the Seven Gables."

1900: Dryden's "Palamon and Arcite;" Pope's "Iliad" (Books I, VI, XXII and XXIV); "The Sir Roger de Coverley Papers;" "Vicar of Wakefield;" "Ivanhoe;" De Quincey's "Flight of a Tartar Tribe;" Cooper's "Last of the Mohicans;" Tennyson's "Princess;" Lowell's "Vision of Sir Launfal."

2. For Minute and Critical Study:

1896: Shakspere's "The Merchant of Venice;" Milton's "L'Allegro," "Il Penseroso;" Webster's "First Bunker Hill Oration."

1897: Shakspere's "The Merchant of Venice;" Burke's "Speech on Conciliation with America;" Scott's "Marmion;" Macaulay's "Life of Samuel Johnson."

1898: Shakspere's "Macbeth;" Burke's "Speech on Conciliation with America;" De Quincey's "Flight of a Tartar Tribe;" Tennyson's "The Princess."

1899: "Macbeth;" "Paradise Lost" (Books I and II); Burke's "Speech on Conciliation with America;" Carlyle's "Essay on Burns."

1900: "Macbeth;" "Paradise Lost" (I and II); Burke's "Speech on Conciliation with America;" Macaulay's Essays on "Milton" and "Addison."

D. *English Grammar.*—There will be included in the requirement for entrance knowledge of the leading facts of English Grammar, and proper tests of such knowledge will be made a part of the examination.

4. Mathematics, Algebra and Plane Geometry. The equivalent of Smith's Elementary Algebra and of Wentworth's or Bowser's Plane Geometry is required.

5. History, with special reference to that of Greece, Rome and Modern Times.

To the B. L. Course:

1. Latin. Same as for A. B. See above.
2. English. Same as for A. B.
3. Mathematics. Same as for A. B.
4. Science. One year's work, with laboratory practice, in any one of the following Sciences: Biology (Botany and Zoology), Physics, Chemistry.
5. History. Same as for A. B.

To the B. S. Course:

1. French and German—two years' work.

The two years' work in German, when offered, shall mean the ability to read at sight ordinary prose, to translate simple English sentences into

German; and it includes a correct pronunciation of the language. The two years' work in French, when offered, implies the same ability in French as has been described above in German.

2. English. Same as for A. B.

3. Mathematics. Same as for A. B.

4. Science. One year's work each, with laboratory practice, in any *two* of the following Sciences: Biology (Zoology and Botany), Physics, Chemistry.

5. History. Same as for A. B.

The time to be given to each of the above requirements, and the character of the work required in each subject for admission to the Freshman class, are given in detail in the courses outlined for schools approved by the University. See pages 21-25.

Admission from Approved Schools:

For the admission of graduates of approved schools upon their diplomas, see page 21.

Entrance Examinations:

Examinations for admission will be held at the University May 23 to 31 and September 3 to 7, 1896.

If a unit be defined as a year's work in a subject with five (5) periods a week in the class room or laboratory, and a period as about forty (40) minutes, then the subjects required for admission to the Freshman class in the session of 1896-7 have the following values in units: English, 3 units; Latin, 3; Greek, 1; Mathematics, 3; History, 1; Physics, 1; Chemistry, 1; Biology, 1.

The requirements for entrance by examination to the several Academic courses in the session of 1896-7 will be as follows:

A. B.		*B. L.*		*B. S.*	
English	3 units	English	3 units	English	3 units
Math.	3	Math	3	Math	3
History	1	History	1	History	1
Latin	3	Latin	3	French or Ger	2
Greek	1	Science	1	Science	2
Total	11	Total	11	Total	11

In the B. S. course, the student may offer for the two years of French or German two years of Latin. The University will for the present accept this substitution, but does not recommend it. It should be understood, however, that no substitute may be offered unless the student has, in the entrance examination, made a passing grade thereon.

To be admitted to the Academic Department by examination, the student must pass on at least eight (8) units; on the other three (3) he may be conditioned. The deficiency of three units may be in one subject, or in two, or in three; but where three units are required in any subject, the

student must pass on at least two in order to receive any credit in that subject. All conditions must be made up under the direction of the Professor in charge of that subject. If the student is permitted to make up a condition in the University, such work shall not count toward a degree

Requirements for the Session of 1897-8:

In the fall of 1897, the requirements in History will be raised to two (2) units in the B. L. and B. S. courses, and that in Greek to two (2) units in the A. B. course; and at least ten (10) units of the twelve will be required for entrance by examination to the Academic Department. For fuller statement as to the History and the Greek, see "Conditions for the Approval of Schools," page 24. In the fall of 1897, and thereafter, where a foreign language is offered, the student, to receive any credit therein, must pass on at least two units.

Acceptance of Grades:

Students who do not hold diplomas from approved schools (page 26), may present their grades in any subject, but the acceptance of these grades in place of an examination in that subject rests wholly in the will of the Professor of the subject

Advanced Standing:

Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance; of his fitness for advanced work he must satisfy, by examination or otherwise, the Professor of the subject in which he wishes to take work higher than the Freshman.

Special Students:

Special students will be admitted to the University without passing the regular examination required for entrance under the following conditions: (1) They must be at least 21 years of age; (2) they must show good reason for not taking a regular course; (3) they must pass such examination or other tests as shall demonstrate fitness to pursue profitably all the studies in the course selected by them; (4) they will not be allowed to take work in more than two subjects with such kindred work as the head professors may suggest; (5) the advisory committee for each special student shall consist of the head professor or professors with whom the student desires to pursue work. The graduates of the three State Normal Schools in their Advanced course will be admitted as special students, irrespective of age.

Graduate Students:

Students holding academic degrees from reputable institutions will be admitted to advanced undergraduate and to graduate courses upon application to the Committee on Graduate Degrees, and presentation of their diplomas in evidence. By special permission of the Faculty, persons of liberal education, who are not academic graduates, may be admitted to graduate courses. See Index under "Graduate Courses of Instruction"

CONDITIONS FOR THE APPROVAL OF SCHOOLS.

Hereafter schools will be approved upon the adoption of the following course, and the sign that this course has been adopted will be an agreement between the University and the school authorities. This agreement is to be signed on the one hand by the President of the University, and on the other hand by the Principal of the High School, the President of the School Board, and the Superintendent of Public Schools of the town in which the High School is situated. In the case of Private Schools or Colleges, it should be signed by the Principal or President, and by the President of the Trustees. Printed copies of this agreement will be sent to any school seeking approval. It specifies—

1. That the school authorities have made their course of study meet fully the requirements proposed by the University.

2. That the first diploma issued under the new course of study will bear a specified date.

3. That the employment of inefficient teachers in the school will at any time justify the University in severing the relation.

4. That the University on its part will, after the date specified, admit without examination to the Freshman class in any Course for which they have been duly prepared, such graduates of the school as bring proper credentials of the fact that they are recommended for that class by the school authorities; and it will admit free of tuition for the first year the student graduating from the school with the highest honors. The credentials will be (1) the diploma of the school; (2) a certificate from the Superintendent or the Principal stating that the diploma was won in a course for which the school had been approved. Forms of certificates are furnished by the University.

5 That the University will send from time to time representatives of the Faculty to visit the school, and will endeavor to promote, in every way possible, its welfare.

It is distinctly understood that the Course of Study outlined below is a minimum course. It is earnestly hoped that all the Secondary Schools of Missouri will soon be able to make their courses four years long. Many branches of study usually taught in Secondary Schools are not mentioned below. The Course prescribed gives not what should be taught in these Schools, but merely the minimum required by the University for entrance to its Freshman class.

1. *Latin*, not less than five (5) periods a week, continued not less than three (3) years.

In this time it is expected that the student will acquire such a vocabulary and such a knowledge of inflections and syntax as to be able to read readily simple Latin prose, with accurate quantitative pronunciation of the words. The best method of reaching these results cannot be given

here. They will be found fully stated in the "Report of the Committee on Secondary Schools" in the section on Latin. It may be said, however, that correct pronunciation in the teacher is indispensable to correct pronunciation in the pupil, and that in the acquisition of a vocabulary and the mastery of inflections, nothing can take the place of the frequent reviews.

It is expected that the student in three years will read five books of Cæsar's Gallic War and four of Cicero's Orations. For two books of the Gallic War, eight books of Eutropius or an equivalent in time of the *Viri Romæ* may be substituted where it is preferred.

If the students are immature, it will be found best to use some simple beginner's book, and to follow this by Eutropius or *Viri Romæ* as a bridge to Cæsar. If, however, the students are mature, it will be found that no bridge to Cæsar is needed, provided that some strong beginner's book is used and the students are required to master it before taking up Cæsar.

The reading should be accompanied by a careful and systematic review of grammatical forms, and by a study of the leading principles of syntax. At least one exercise a week should be given to rendering English into Latin. The Roman method of pronunciation is strongly recommended, and teachers are urged to give strict attention to accurate pronunciation according to quantity from the outset. Students will be admitted who have not been trained in the Roman method; but they will work at a great disadvantage throughout the entire course. The Mythology of Greece and Rome and the History of the Roman people should be carefully taught. Map-drawing is invaluable for impressing upon the mind the geography of the Ancient World.

2. *English*, not less than five (5) periods a week, continued not less than three (3) years. It is recommended that one-half of the time allotted to English be given to the study of literature, by which is meant not the study of a manual on the history of literature, but literature itself in the selected works of representative authors. Masterpieces, as a whole, suited to the attainments of the class, should be read in class and carefully examined, while other works may be assigned as collateral reading, of which written reports should be required.

In the first year, along with the literature, frequent practice in composition, with or without a text-book on Rhetoric, is strongly urged

In the second year, the literature is to be continued throughout, and with the exercises in Composition, formal Rhetoric may be introduced, or if previously begun, continued. In the teaching of Composition and Rhetoric, chief emphasis should be thrown upon practice in writing. If formal Rhetoric is taught as a separate discipline, it should be of an elementary character, and contributory to the Composition.

In the third year, along with literature and composition, grammar, based on historical principles, might be profitably studied. In case Eng-

lish is extended through 4 years, such grammatical study, in our judgment, should be postponed until the last year.

In the fourth year, in connection with a wider range of reading in literature, an outline or syllabus or a brief history of the literature may be conveniently used, but, possessing little or no culture value, it should always be subordinated to the study of literature itself, and reserved, if used at all, for the last year of the course.

If only three years be given to English, the course outlined for these three years will have taken into view English (1) as a means of expression, (2) as a literature, (3) as a language—all so intimately connected, however, that the proper study of each will bear indirectly upon the other two.

NOTE—Excellent and inexpensive editions in English and American Classics are now offered by many of our publishing houses. The teacher of English will, doubtless, have a preference for one or another of these series, or for some works of one series and some of another. Meiklejohn's Grammar, in lieu of a better work, or Whitney and Lockwood's, or Longman's from Part II, will be found suitable for this course.

3. *Mathematics*, not less than five (5) periods a week, continued not less than three (3) years, and devoted exclusively to Algebra and Geometry. Any other study in Mathematics given in addition to these must be given in additional time. In these three years it is expected that the student will finish Algebra and Plane Geometry. We require the full equivalent of what is contained in Smith's Elementary Algebra and Wentworth's or Bowser's Plane Geometry. Bright students under good instruction will be able to finish in the three years the Algebra, Plane Geometry and several books (if indeed not the whole) of Solid Geometry. For the fourth year we recommend that Solid Geometry be completed, and also Plane Trigonometry.

The following text-books on Algebra and Geometry are especially recommended: *Algebra*—Hall & Knight's Elementary Algebra, revised by Prof. Sevenoak, published by Macmillan & Co.; Chas. Smith's Elementary Algebra, revised by Prof. Stringham (Macmillan & Co.); *Geometry*—Dupuis' Elementary Synthetic Geometry (Macmillan & Co.); Bowser's Plane Geometry (Edition of 1891, D. C. Heath & Co.); Wentworth's Plane Geometry (Edition of 1893, Ginn & Co.)

4. *Science.*—It is expected that not less than five (5) periods a week for an entire year be given to each of two sciences. Of the five periods, at least three (3) should be devoted to laboratory work. For this no outside preparation is required of the pupil. The remaining periods may be given to text-book work and lectures, and experiments illustrating the text. The two Sciences must be taken from this group—Biology (Botany and Zoology), Physics and Chemistry. If Biology be chosen, half a year may be given to Botany and half a year to Zoology; but we recommend that the whole year be given to either one or the other of these branches of the subject. We

recommend that every school teach all three of these sciences, and more over provide good instruction in Physical Geography and Meteorology.

NOTE.—During the summer of 1896, a school of science will be conducted at the University, in which Laboratory courses of six weeks each will be given in Biology, Physics, Chemistry, Physiology and Physical Geography. These courses are designed to prepare teachers to give instruction in these sciences in the Secondary Schools of the State, and especially in those schools which are approved by the University or which are seeking approval. For further particulars, see Appendix I.

5. *History*, not less than five (5) periods a week for two (2) years. The first year shall be devoted to General History equivalent to the work given in Myer's General History. The second year shall be devoted to the History of England and of the United States equivalent to the work given in Ransom's "A Short History of England," and Johnston's "The United States—Its History and Constitution."

It is impossible to understand the life, the literature or the institutions of the ancient world without an accurate study of Mythology. We therefore recommend that every school make provision for this most important study. Some schools may see fit to combine it with the study of History, others with that of Literature, and others may prefer to give four periods a week to Latin or Greek, and the fifth period of each week to Mythology. Other schools may provide for it in other ways. But, in our opinion, no school should, under any condition, omit adequate treatment of the subject. There are some excellent text-books. We especially recommend Guerber's "Myths of Greece and Rome." Invaluable auxiliary reading may be found in Church's Stories from Homer, Virgil, Herodotus, the Greek Tragedians, etc. Any school would be amply repaid by adding to its library, without further inquiry, any book of stories bearing the name of Alfred J. Church. Some of them are in Macmillan's School Library, and most of them are published by Dodd, Mead & Co., New York. Teachers of the classics find in them quite as much pleasure as their pupils.

6. *Greek*, not less than five (5) periods a week for not less than two (2) years.

In this time the student is expected to learn thoroughly the declension of nouns and adjectives, the conjugation of verbs and the ordinary principles of syntax. He should be able to read with facility ordinary Greek prose, such as Xenophon's Anabasis, and to translate easy sentences from English into Greek. The knowledge of the the accent must be insisted on. To secure this end, we recommend for the first year:

White's Beginner's Greek Book (Ginn & Co., Chicago); or Gleason & Atherton's First Greek Book, and Moss' First Greek Reader (Allyn & Bacon, Boston).

For the second year:

Goodwin's Greek Grammar, revised edition 1893 (Ginn & Co., Chicago); Xenophon's Anabasis (three books), Harper and Wallace (American Book

Co., Chicago); Woodruff's Greek Prose Composition (Leach, Shewell & Sanborn, Boston).

This requirement is made of those schools only which desire to prepare students for the Freshman class of the A. B. course.

Any school that gives two years' instruction in Greek, as outlined above, may omit all instruction in Science; but we strongly *recommend* that every school, besides teaching Greek, give at least one year to thorough work in at least *one* of the Sciences mentioned above under No. 4. For the A. B. course, Biology will prove most valuable.

We earnestly recommend that under no circumstances shall any school require of its pupils more than 20 periods of work a week demanding preparation. We think less than this advisable. Ample time should be given for reading, and every Secondary School should contain a good library as well as good laboratories. A library may be rather small and still good. If possible, a librarian should be employed to do nothing else but keep the books and help the pupils in their choice of reading matter.

By a "period" we mean 40 minutes of time devoted to actual teaching, with 5 minutes more for changing class—the total being 45 minutes.

By "session" we mean about 9 months.

This is all in amount that for the present at least the University requires for approval; but as to teachers, we strongly recommend that English and Latin on the one hand and Mathematics and Science on the other hand be taught by graduates of Universities or Colleges of unquestionable reputation; or by those who have taken equivalent courses in these subjects.

Schools should provide rooms, fixtures and apparatus suitable for laboratory work, without which it is impossible to teach science well; but it should be remembered that in the equipment of a laboratory the first step is to secure a thoroughly competent teacher. If it be desired, the University will gladly forward information about the proper equipment of laboratories, or will even send a Professor to aid the school in completing its original outfit.

It is of great importance that only good text-books be used, and information about them is always cheerfully given.

All of the courses recommended by the "Committee of Ten" involve the study of at least one Modern Language. In the teaching of Modern Languages, we desire to emphasize the importance of thorough and accurate drill in pronunciation. In Greek, the prounciation should be strictly according to the printed accent, and in both Latin and Greek much pains should be taken from the first to distinguish in pronunciation short and long syllables. Phonology is of great importance in the study of languages.

Approved Schools.

Approved for B. L. & B. S. Courses.

School.	Sup't and Principal.
Appleton City Academy, Appleton City, Mo.	G. A. Thielman
Bethany High School	J. R. Hale
Bolivar High School	Cary T. Wright
Carthage High School	W. T. Stevens E. E. Dodd
Carrollton High School	L. W. Rader Mrs. R. R. Quisenberry
Ft. Smith High School, Ft. Smith, Ark.	J. L. Holloway
Harrisonville High School	A. F. Treakle
Higginsville High School	H. B. Walker
Independence High School	Wm. F. Bahlman Wm. L. C. Palmer
Joplin High School	W. B. Brown J. D. Elff
Kirkwood High School	W. S. Dearmont
Lamar High School	W. H. Martin
Lancaster High School	W. C. Thompson
Louisiana High School	A. P. Settle. R. R. Rowley
Marshal High School	T. E. Spencer C. A. Snodgrass
Maryville High School	A. E. Clarendon B. F. Duncan
Miami High School	E. E. Barnett
Mexico High School	D. A. McMillen O. K. Brown
Moberly High School	J. A. Whiteford H. H. Holmes
Monroe City High School	R. S. Nichols.
Mound City High School	J. P. Coleman
Montgomery City High School	L. J. Hall
Mountain Grove Academy, Mtn. Grove, Mo.	L. R. Griffin
Nevada High School	W. J. Hawkins
Paris High School	W. D. Christian
Richmond High School	J. M. Baily J. E. Dunn
Rockport High School	B. F. Brown
Sedalia High School	G. V. Buchanan J. D. Wilson
Shelbina High School	J. T. Vaughn
Slater High School	G. W. Newton
Springfield High School	J. Fairbanks W. T. Carrington
Trenton High School	H. E. DuBois E. M. Painter
Westport High School	S. A. Underwood. Sarah E. Steele

Approved for A. B. Course.

Brookfield College, Brookfield, Mo	M. H. Reaser
Marionville Collegiate Institute, Marionville.	M. L. Curl
Mt. Vernon Academy, Mt. Vernon, Mo.	G. H. Pollard

Approved for all Courses.

Buchanan College, Troy, Mo	Wm F. Roberts
Cameron High School	B. Riggs. / Miss Bertha Ensign
Chillicothe High School	W. F. Jamison / S. E. Stout
Columbia High School	R. H. Emberson
Hannibal High School	R. B. Simonson / Miss Gertrude Ashmore
Kansas City High School	J. M. Greenwood / John T. Buchanan
Kemper Family School, Boonville, Mo	T. A. Johnson
Marmaduke Mil. Academy, Sweet Springs	———
Michigan Mil. Academy, Orchard Lake, Mich.	W. H. Butts
Missouri Mil. Academy, Mexico, Mo	A. F. Fleet
St. Joseph High School	Edward B. Neely / C. E. Miller
St. James Mil. Academy, Macon City, Mo	F. W. Blees
St. Louis High School	F. Louis Soldan / Wm. J. S. Bryant
University Academy, Columbia, Mo	Herman F. Harris
Wentworth Mil. Academy, Lexington, Mo	Sanford Sellers

Where two names are given, the first is that of the Superintendent and the second that of the Principal.

Academic Courses.

In the Academic department there are three courses of study, one leading to the degree of Bachelor of Arts (A. B.), one to the degree of Bachelor of Letters (B. L.), and one to the degree of Bachelor of Science (B. S.). In the A. B. course, prominence is given to Classics and Philosophy; in the B. L. course, to Modern Languages (including English), History, and Political Economy; and in the B. S. course, to Mathematics and the Sciences. On reaching the Junior year, the candidate for a degree in any course chooses, under certain limitations, such work as he may prefer.

Taking as the unit one hour a week for one semester, the electives in the A. B. course amount to 35 hours, in the B. L. course to 41 hours, and in the B. S. course to 44 hours. In each course the electives are divided into two classes, *free* and *restricted*. In each of the three courses, the free electives amount to 20 hours.

The restricted electives in the A. B. course may be chosen from the following subjects: Latin, Greek, Philosophy, Classical Archæology, and Roman or Greek History; in the B. L. course from the following: English, Germanic Languages, Romance Languages, Political Economy, and History (including the courses offered in the History of Art). Students in the A. B. and B. L. courses must, at the beginning of the Junior year, select, from the restricted electives offered in their respective courses, a major subject, to which, with such other subjects as may be approved by the Professor of the major subject, they shall confine their restricted electives.

Students in the B. S. course must devote their restricted electives to Mathematics, or the Sciences. At the beginning of their Junior year, they must state, in writing, which of the following groups of studies they wish to pursue: Geology and Biology; Biology and Chemistry; Chemistry and Mineralogy; Chemistry and Physics; Mathematics and Physics; Mathematics and Astronomy; Astronomy and Physics; Botany and Entomology. If a student wishes to take a group not included in the above list, he may do so with the consent of the head professors concerned. When the student has once chosen his group, he must devote to it six hours a week each semester of his Junior and Senior years.

The student may apply his 20 hours of free electives to any Academic elective course for which he is prepared, or to any regular Academic study not required in the course which he is pursuing, or to any of the following courses offered in other Departments: Pedagogy, Agriculture, Horticulture, or Entomology, each for not more than three hours a week for two semesters; Veterinary Science, for not more than three hours a week for one semester; Anatomy or Physiology, or both, or Bacteriology from the Medical course, for not more than six hours a week for two semesters. The student may give all his restricted electives to one study, or divide the time as he may deem proper among the eligible studies.

When the student has elected a subject that he has not studied before, he must pursue it for at least two semesters unless the subject is completed in less time. Electives are open only to Juniors, Seniors and Graduates. Juniors and Seniors who have Freshman or Sophomore work to make up must, in making out their cards, give such work precedence over elective work. A student who is behind his class in one or two subjects, or has been conditioned or failed to pass in any subject, may make up in the summer school, work not exceeding, in any one summer, the equivalent of four (4) hours for one semester of lecture-room work or six (6) hours for one semester of laboratory work (see Appendix I.).

Students may not change from one course to another without permission of the Faculty.

SCHEME OF STUDIES.

A. B.	B. L.	B. S.
Freshman, First Semester	*Freshman, First Semester*	*Freshman, First Semester*
8:30. English, M. F. . 2	8:30. Eng., T. Th. S.. 3	8:30. Eng., M. F.... . 2
9:30. Latin, T. W. Th. F. S..... 5	8:30. Ger. or Fr., M. W. F..... 3	8:30. Ger. or Fr., T. Th. S..... 3
10:30. Greek, M. T. Th. S..... 4	9:30. Latin, T. W. Th. F. S..... 5	9:30. Chem., M. W... 2
10:30. Biology, W. F . 2	9:30. or	10:30. Biology, W. F.. 2
11:30. Math., T. Th. S. 3	10:30 Science, M. M. W. F..... 4	11:30. Math., M. T. Th. F. S..... 5
1:30. Biol. Lab. M. W. 2	11:30. Math., T. Th. S. 3	1:30. Biol. Lab., Th. S. 2
		1:30. Chem. Lab., T. W 2
Freshman, Second Semester	*Freshman, Second Semester*	*Freshman, Second Semester*
8:30. English, M. F... 2	8:30. Eng., T. Th. S.. 3	8:30. English, M. F... 2
9:30. Latin, T. W. Th. F. S 5	8:30. Ger. or Fr., M. W. F..... .. 3	8:30. Ger. or Fr., T. Th. S..... 3
10:30. Greek, M. T. Th. S..... 4	9:30. Latin, T. W. Th. F. S. 5	9:30. Chem., M. W... 2
10:30. Biology, W. F.. 2	9:30. or	10:30. Biology, W. F .. 2
11:30. Math., T. Th S. 3	10:30. Science, M. M. W. F..... 4	11:30. Math., M. T. Th. F. S 5
1:30. Biol. Lab., M. W. 2	11:30. Math., T. Th. S.. 3	1:30. Biol. Lab., Th. S. 2
		1:30. Chem. Lab., T. W 2
Sophomore, First Semester	*Sophomore, First Semester*	*Sophomore, First Semester*
9:30. Greek, T. W. Th. F. S..... 5	8:30. Eng. Hist., M. W. 2	8:30. Math., T. Th. S. 3
10:30. Rom. and Ger. His., M W. F 3	Math. or Sci., T. Th. S. 3	8:30. Eng Hist., M. W. 2
10:30. Eng., T. Th. S.. 3	9.30. Ger. or Fr., M. W. F..... ... 3	9:30. Ger. or Fr., M. W. F..... ... 2
11:30. Latin, M. T. Th. F..... 4	10:30. Eng., T. Th. S .. 3	10:30. Phys., M. W.... 3
3:00. Physics, M. W.. 2	10:30. Gen. Hist., M. W. F..... 3	10:30. Eng., T. Th. S.. 3
1:30. Phys. Lab., F... 1	11:30. Latin, M. T. Th. F..... 4	11:30. Mineral., M. T. Th. F. 4
		1:30. Phys. Lab., F... 1
Sophomore, Sec'd Semester	*Sophomore, Sec'd Semester*	*Sophomore, Sec'd Semester*
8:30. Ger. or Fr. or Physiol. M. W. F. 3	8:30. Political Hist., M. W..... 2	9:30. Ger. or Fr., T. Th. S.. 3
9:30. Greek, M. T. W. Th. F. S 6	9.30. Ger. or Fr , T. Th. S. 3	10:30. Phys., M. W. F. 3
10:30. Eng., T. Th. S. 3	10:30. Gen. Hist., M. W. F 3	10:30. Eng., T. Th. S.. 3
11:30. Latin, M. T. W. F. S..... 5	10:30. Eng., T. Th. S.. 3	11:30. Geol., M. T. Th. F Math. or Sci., M. W. F 3
	11:30. Latin, M. T. W. F S..... 5	1:30. Phys. Lab., W. S. 2
	3:00. Polit. Phil., T. Th 2	
Junior, First Semester.	*Junior, First Semester.*	*Junior, First Semester.*
8:30. Greek, T. Th. S. 3	9:30. Phil., M. W. F. 3	9:30. Phil., M. W. F.. 3
9:30. Philosophy, M. W. F..... 3	or	10:30. Fr. or Ger., T., Th. S..... 3
10:30. Ger., M. W. F... 3	11:30. Econ., M. W. F., 3	11:30. Astro., M. W. F. 3
10:30. French, T. Th S. 3	10:30. Fr. or Ger., T. Th S..... 3	Elective..... 7
Elective..... 4	11:30. Eng., T. Th. S. 3	
	Elective..... 7	

SCHEME OF STUDIES—Continued.

Junior, Second Semester.	*Junior, Second Semester.*	*Junior, Second Semester.*
8:30. Greek, T. Th. S. 3	9:30. Phil., M. W. F., 3	9:30. Phil., M. W. F. 3
9:30. Philosophy, M. W. F..... 3	or	10:30 Fr. or Ger., T. Th., S..... 3
10:30. Ger. M. W. F... 3	11:30. Fin'ce M. W. F. 3	11:30. Astro., M. W. F. 3
10:30 French, T. Th. S 3	10:30. Fr. or Ger., T. Th., S. 3	Elective 7
Elective 4	11:30. Eng., T. Th. S.. 3	
	Elective..... 7	
Senior, First Semester.	*Senior, First Semester.*	*Senior, First Semester.*
9:30. Fr. or Ger., T. Th S..... 3	11:30. Fr. or Ger , T. Th. S..... 3	Elective 15
Elective.....12	Elective 12	
Senior, Second Semester.	*Senior, Second Semester.*	*Senior, Second Semester.*
Elective.....15	Elective.....15	Elective 15

Notes on the Scheme of Studies.—1. Students in the B. L. course may elect in their Freshman year, four hours a week of any one of the following Sciences for which they are prepared: Physics, Chemistry, Geology, Mineralogy, Biology, Astronomy.

2. Students in the B. L. course may substitute for Analytical Geometry, in the first semester of their Sophomore year, three hours a week of any one of the Sciences named above. The same permission is given to students in the B. S. course in the second semester of the Sophomore.

3. Students in the A. B. and B. L. courses that wish to continue the study of Mathematics throughout the Sophomore year may do so with the consent of the Faculty, by temporarily omitting some required study.

4. In any course, the time required for French and German may be divided by the student at his pleasure, provided he do not give to either of these languages less than two semesters.

5. Military Science and Tactics may be taken in addition to 18 hours a week of other subjects.

6. The figure after each study indicates the number of recitations or lectures each week.

ACADEMIC STUDIES.

English.

Professor ALLEN; Assistant Professors PENN and BELDEN.

1. English Composition, with selected readings in American Literature. Lectures. Text-book, exercises and themes. Sections I and II, *T. Th. S., at 8:30*; Sections III and IV, *M. F., at 8:30*. Assistant Professors PENN and BELDEN. (Freshman.)

2. English Literature. *First semester*, Chaucer to Milton; *second*, Restoration to the present. Lectures. Parallel readings and reports; essays on literary and historical subjects. *T. Th. S., at 10:30*. Professor ALLEN and Assistant Professor BELDEN. (Sophomore.)

3. English Literature. Nineteenth Century, *First semester*, 1789-1830; *second*, 1830–1890. Lectures. Readings and weekly reports. *T. Th. S., at 10:30*. Assistant Professor PENN. (Sophomore.)

4*b*. English Literature. Eighteenth Century; from Restoration to French Revolution. Lectures. Readings and reports *Second semester, W. F., at 3*. Assistant Professor BELDEN. (Junior Elective.)

5*a*. History of the English Language. Lectures and text-book. *First semester, T. Th. S., at 11:30*. Professor ALLEN. (Junior.)

5*b*. Study of Modern Prose Style, based upon master-pieces of representative authors. Essays and reports. *Second semester, T. Th. S., at 11:30*. Professor ALLEN. (Junior.)

6. English Literature. Shakspere. *First semester*, Six selected plays; reading and interpretation; detailed study of style. *Second semester*, Complete works. Lectures. Weekly reports, and occasional essays. *T. Th. S., at 3*. Assistant Professor PENN. (Senior Elective.)

The first half of the course is equally open to Juniors; the second half must be preceded by the first or its equivalent.

14*b*. English Literature. English Drama, from beginnings to Restoration (1250–1660). Lectures. Selected plays and reports; occasional essays. *T. Th. S., at 3*. Assistant Professor PENN. (Senior Elective.)

Course 14*b* alternates with second half of course 6. It was not given in 1895-6.

4*a*. American Literature. Lectures. Selected readings and reports *First semester, W. F., at 3*. Assistant Professor BELDEN. (Junior Elective.)

7. Anglo-Saxon. Prose and Poetry. *W. F., at 11:30.* Professor ALLEN. (Senior Elective.)

8. Studies in Anglo-Saxon, based on Beowulf and the Wulker-Grein Bibliothek. *T. Th. S., at 3.* Professor ALLEN. (Graduate Elective.)

Course 7 or equivalent is required.

9*b*. Higher Composition, and Principles of Versification. *Second semester, W. F., at 8:30.* Professor ALLEN. (Senior Elective.)

10*b*. Middle English. *Second semester, T. Th., at 8:30.* Professor ALLEN. (Senior Elective.)

11. Gothic, with special reference to English Philology; Wulfila. Lectures. *M. W. F., at 3.* Assistant Professor PENN. (Graduate Elective.)

The second half of the year may be given to Old Saxon (Heliand).

12*a*. The French Element in English. *First semester, W. F., at 9:30.* (Knowledge of Latin and French necessary.) Professor ALLEN. (Senior Elective.)

12*b*. Principles of English Etymology. *Second semester, W. F., at 9:30.* Professor ALLEN. (Senior Elective.)

13*a*. Teachers' Course. *First semester.* Professor ALLEN.

Required: For B. L., 1, 2 (or 3), 5*a* and 5*b*; for B S. and A B., the same except 5*a* and 5*b*.

Of the elective courses, 6, 14*b*, 10*b*, are open also to Juniors; and 8, 11, are primarily for graduates.

A special medal, known as the "McAnally medal," is offered for the best essay, thesis or poem by members of the Senior class, competing under certain rules laid down by the founder of the prize. Subject for 1897: "Robert Louis Stevenson."

Latin.

Prof. JONES*, Acting Professor BURNAM, Acting Assistant Professor PAXTON, Miss ADAMS, Miss JOHNSTON.

The following courses are offered:

1. Sallust and Ovid, with sight reading. *T. W. Th. F. S., at 9:30.* Acting Professor BURNAM, Assistant Professor PAXTON, Misses ADAMS and JOHNSTON. (Freshman.)

Text-books: Herberman's Catiline; Kelsey's Selections from Ovid; Allen & Greenough's Introduction to Latin Composition; Allen & Greenough's Latin Grammar; Guerber's Myths of Greece and Rome.

*Absent for session of 1895-6.

2. Virgil and Horace. *First Semester, M. T. Th. Fr., at 11:30. Second Semester, M. T. W. F. S., at 11:30.* Acting Professor BURNAM and Assistant Professor PAXTON. (Sophomore.)

Text-books: Greenough & Kittredge's New Virgil; Smith's Horace; Kirkland's Horace; Grammar and Composition.

3. Cicero, Livy and Tacitus; Minute Study of Syntax and some attention to Latin Philology. *W.F., at 8:30.* Professor JONES. (Junior Elective.)

Text-books: Lord's Livy, Hopkins' Tacitus.

4. Sight-reading. *T. Th., at 9:30.* Professor JONES. (Junior and Senior Elective.)

4. Terence and Plautus. *W. F., at 11:30.* Professor JONES. (Junior Elective.)

6*a*. Course for expectant Latin teachers. *First Semester, M., at 3.* Professor JONES.

7. Critical study of a selected author. *T. Th. S., at 10:30.* Professor JONES. (Graduate Elective.)

8. Historical Latin Grammar. General survey of the syntax of cases, moods and tenses, with careful study of some groups of constructions. *W F., at 3.* Professor JONES. (Graduate Elective.)

Courses 3 to 8 were not given in 1895-6.

9. Cicero de Re Publica and de Legibus; Gajus' or Justinian's Institutes. Lectures. Recitations and reports. *M. T. S., at 8:30.* Acting Professor BURNAM. (Junior Elective.)

10. Roman Public Law. Lectures. Recitations and reports. *W. Th. F., at 8:30.* Acting Professor BURNAM. (Senior and Graduate Elective.)

Must be preceded by Course 9.

11. Selections from Juvenal and Martial, from Catullus and Lucretius. *W. F., at 10:30.* Acting Professor BURNAM. (Junior Elective)

12. Sallust and Ovid. *Th. S., at 10:30.* Acting Professor BURNAM. (Graduate Elective.)

Courses 11 and 12 were special courses for 1895-6.

13. Catullus and the Elegiac Poets. *W. F., at 9:30.* Assistant Professor PAXTON. (Junior Elective.)

Text-books: Merrill's Catullus and Schutze's Roemische Elegiker.

Courses 1 and 2 are required for the A. B. and B. L. degrees; all others are elective. The Roman method of pronunciation only is permitted.

Greek.

Professor MANLY; Assistant Professor PICKARD.

The following courses are offered:

1. Xenophon's Anabasis. *M. T. Th. S., at 10:30* Assistant Professor PICKARD. (Freshman.)

2. Homer, and Xenophon's Memorabilia. *First semester*, Homer's Iliad I-VI., *T. W. Th. F. S., at 9:30. Second semester*, Xenophon's Mem orabilia. *M. T. W. Th., at 9:30.* Professor MANLY. (Sophomore.)

3*b*. Greek History and Literature. *Second semester, F. S., at 9:30.* Professor MANLY. (Sophomore.)

4. Tragedy and Oratory. *T. Th. S., at 8:30.* Professor MANLY. (Junior.)

5. Life of the Ancient Greeks. *M. W. F., at 2.* Professor MANLY. (Elective.)

No knowledge of the Greek language is required for this course Open to all students of the University.

6. New Testament Greek. *T. Th. S., at 3.* Professor MANLY. (Elective.)

7. Homer's Odyssey. Rapid reading and study of Homeric Antiquities. *W. F., at 11:30.* Professor MANLY. (Elective.)

8*a*. Political Institutions of the Greeks. *Two hours a week.* Professor MANLY. (Elective.)

9 Greek Prose Reading at Sight. *Two hours a week.* Professor MANLY. (Elective.)

10. Seminary for advanced study. *Two hours a week.* Professor MANLY. (Elective.)

Elective intended for students who have finished all the required work in Greek.

Courses 1, 2, 3*b* and 4 are required for the A. B. degree.

Classical Archæology.

Professor PICKARD.

1. Classical Mythology. *One semester, two hours a week.* (Elective.)

2. Roman Life. *One semester, two hours a week.* (Elective.)

For a Course in Greek Life, see Course 5, in Greek, above.

3. History of Greek Art. *Three hours a week.* (Elective.)

4. History of Renaissance Art. *First semester*, Art of the Netherlands and of Germany; *Second semester*, Italian Art. *Three hours a week.* (Elective.)

5. Introduction to Greek Epigraphy. *One hour a week.* (Elective.

6*a*. Art of the Homeric Age. *First semester, one hour a week.* (Elective.)

6*b*. Introductory Study of Greek Vases and Vase Paintings. *Second semester, one hour a week.* (Elective.)

7. Etruscan and Graeco-Roman Art. *Two hours a week.* (Elective.)

8. Introduction to Modern Greek. *Two hours a week.* (Elective.)

9. Archaeological Seminar. Pausanias, Corinth and Delphi. (Graduate Elective.)

Courses 1, 2, 3, 4 are strictly undergraduate; 5, 6*a*, 6*b*, 7 and 8, are primarily undergraduate; and course 9 is primarily graduate. Courses 5 and 9 *require* a knowledge of Greek. All except course 4 are restricted electives in the A. B. courses; and courses 2, 3, 4 and 6 in the B. L. course.

Museum of Classical Archæology.

During the past year an excellent beginning has been made in equipping a laboratory for the study of Classical Archæology. For this purpose the third floor of the west wing of Academic Hall, a room 110×36 ft., is fitted up. It is now supplied with models of temples, illustrating the three orders of Greek Architecture, and with fifty plaster casts of the most famous specimens of Greek and Roman Art. These are arranged chronologically, and with them are hung one hundred and fifty framed photographs of other works of classic art. Besides these, the Museum possesses some six hundred photographs, and a fine collection of lantern slides.

Romance Languages.

Professor WEEKS; Miss KIDWELL.

The following courses are offered:

FRENCH.

1. Elementary Course. French Prose and Composition, Grandgent's French Grammar, Rollins' Reader. Several stories are read in addition. Section I, *M. W. F*, *at 8:30;* Section II, *T. Th. S.*, *at 8:30.* Professor WEEKS and Miss KIDWELL.

2. Modern Fiction and Plays, Composition, Reading at Sight. Both semesters. The following texts are read: Erckmann—Chatrian's *Les Fiances de Grinderwald*, and *Les Armoureux de Catherine;* Daudet's *La Belle Nivernaise* (edition of Flammarion), and six of his short stories; Sandeau's *Mlle. de la Seigliere;* de Musset's *Pierre et Camille;* Me. Greville's *Dosio;* Hugo's *Hernani*. *M. W. F., at 9:30.* Professor WEEKS.

3. General view of French Literature in the 17th, 18th and 19th centuries. *First semester*: Two Orations of Bossuet; La Rochefoucauld's *Maximes;* Corneille's *Cid;* Racine's *Esther;* Moliere's *Medecin Malgre Lui;* Voltaire's *Zaire;* Beaumarchais' *Figaro. Second semester:* Hugo's *Ruy Blas;* Balzac's *Eugenie Grandet;* Merimee's *Colomba;* de Musset's *On ne saurait penser a tout,* and extracts from his *Poesies Nouvelles.* Extracts from Lamartine's *Meditations. T. Th. S., at 9:30.* Professor WEEKS.

4. The Classical Period of French Literature. *First semester:* Pascal's *Pensees,* with lectures on Jansenism, and collateral reading; one Oration of Bossuet. *Second semester:* Corneille's *Cinna,* and *Polyeucte;* Racine's *Andromaque, Phedre;* Moliere's *Avare, Fourberies de Scapin, Bourgeois Gentilhomme.* Selections from Saint Simon. *T. Th., at 10:30.* Professor WEEKS.

5. Old French. Constan's *Chrestomathie,* with lectures; the first half of *Raoul de Cambrai* (edited by the *Societe des Anciens Textes Francais*). *M. F., at 10:30.* Professor WEEKS.

This course is meant for Graduates, but Seniors who have taken with credit the preceding courses and who are making a specialty of Romance Languages, may be eligible.

ITALIAN.

1. Beginning Course. Grandgent's Italian Grammar. The following texts are read: Silvio Pellico's *Le Mie Prigioni;* Machiavelli's *Il Principe;* Farina's *Il Signor Io;* Selections from the short stories of De Amicis. *T. Th., at 3.* Professor WEEKS.

SPANISH.

1. Beginning Course. Knapp's Grammar and Reader. Valde's *Jose.* Composition and reading aloud. *T. Th., at 8:30.* Miss KIDWELL.

PHONETICS.

1b. General Introduction to Philology. *Second semester, W. F., at 4.* Professor WEEKS. (Graduate Elective.)

An effort will be made to get at, from a physiological standpoint, some of the causes of sound change. Works of the practical nature of Grandgent's *German and English Sounds* (Ginn & Co), and Rousselox's *Modification du Langage* will be used, and their method illustrated.

Germanic Languages.

Professor HOFFMAN, and Mr. TAYLOR.

The following courses are offered:

1. Beginning German. Thomas' Practical Grammar, Van Daell's Reader, Storm's Immensee, or equivalent easy prose reading. Section I, *M. W. F., at 8:30;* Section II, *T. Th. S., at 8:30.* Professor HOFFMAN and Mr. TAYLOR. (Freshman.)

   During the past year a third section recited *at 11:30, T. Th. S.*

2. German. Freytag's Die Journalisten, Chamisso's Peter Schlemihl's Wundersame Geschichte, Schiller's Wilhelm Tell, Harris' Prose Composition, Syntax. Section I, *M. W. F., at 9:30;* Section II, *M. W. F., at 8:30.* Professor HOFFMAN and Mr. TAYLOR. (Sophomore.)

3. German. Lessing's Minna von Barnhelm, and Nathan Der Weise, Goethe's Faust, Part 1, Heine's Poems, Von Klenze's German Lyrics, Buchheim's Prose Composition. *M. W. F., at 10:30.* Professor HOFFMAN. (Junior.)

4. German. Goethe's Iphigenie Auf Tauris and Torquato Tasso, Lessing's Laokoon, Echtemayr's Auswahl Deutscher Gedichte, Buchheim's Prose Composition. *M. Th., at 4.* Professor HOFFMAN. (Graduate Elective.)

5*a*. Middle High German. Paul's Mittelhochdeutsche Grammatik; Der Arme Heinrich; Kudrun. Lectures. *First semester, M. Th., at 4.* Professor HOFFMAN. (Graduate Elective.)

6*a*. Historical Grammar (Behaghel's Historical Grammar of the German Language); Phonology of the Germanic Dialects. Lectures. *First semester, T. Th. S., at 3.* Professor HOFFMAN. (Graduate Elective.)

   For the present 5*a* or 6*a* will be given, not both.

5*b*. Old High German. Braune's Althochdeutsche Grammatik and Althochdeutsches Lesebuch. *Second semester, M. W. F., at 3.* Professor HOFFMAN. (Graduate Elective.)

6*b*. German Seminary. *Second semester, S., at 4.* Professor HOFFMAN. (Graduate Elective.)

Courses 1, 2, 3 are required studies. Course 4 open also to Seniors.

Course 1 is a Freshman study for B. L. and B. S. students, but Sophomore and Junior for A. B. Course 2 is a Sophomore study for B. L. and B. S., but Junior and Senior for A. B.

History.

Professor HICKS; Assistant Professor LOEB.

The following courses are offered:

1. General History. Sec. I, *M. W. F., at 10:30*; Sec. II, *at 11:30.* (Sophomore.)

2*a*. History of England. *First semester*; Sec. I, *M. W., at 8:30*; Sec. II, *M. W., at 2.* (Sophomore.)

3*b*. Political History of the United States. *Second semester*; Sec. I, *M. W., at 8:30*; Sec. II, *M. W., at 2.* (Sophomore.)

4*a*. Politics, Historical and Comparative. *First semester, T. Th. S., at 2.*

5*b*. Science of Jurisprudence. *Second semester, T. Th. S., at 2.* (Graduate Elective.)

Course 5*b* should be preceded by course 4*a*.

6. Seminarium in History. *Two hours a week.* (Graduate Elective.)

The work of either semester may be taken separately.

7. General Seminarium in Political Science. *Two hours a week.* (Graduate Elective.)

Required: For A. B., course 1, first semester; for B. L., courses 1, 2*a*, 3*b*; for B. S., course 2*a*.

Elective: All courses are elective.

Graduate: Courses 5*b*, 6, 7.

Political Economy.

Professor HICKS; Assistant Professor LOEB.

The following courses are offered:

1*b*. Political Philosophy. *Second semester, T. Th., at 3.* (Sophomore.)

2*a*. Theory of Economics. *First semester, M. W. F,, at 11:30.* (Junior.)

3*b*. Theory of Finance. *Second semester, M. W. F., at 11:30.* (Junior.)

Course 3*b* must be preceded by 2*a*.

4*b*. History of Industrial Development. *Second semester, T. Th. S., at 3.*

5. Problems in Economics. *T. Th. S., at 3.*

This course runs throughout the year, but the work of either semester may be taken separately. Course 5 must be preceded by course 2*a*.

6*a*. Financial History of the United States. *First semester, T. Th., at 3.*

Course 6*b* must be preceded by course 3*b*.

7. Seminarium. *Two hours a week.* The work of either semester may be taken separately.

8. General Seminarium in Political Science. *Two hours a week.*

Required: For B. L., courses 1*b*, 2*a*, 3*b*.

Elective: All courses are elective.

Graduate: Courses 3*b*, 5, 6*b*, 7, 8.

Philosophy.

Professor THILLY.

The following courses are offered:

1. Psychology and Logic. *Two semesters, M. W. F., at 8:30 and 9:30; T Th. S., at 9:30.* (Junior.)

   Text-books: James' Psychology, Briefer Course, and Jevons' Lessons in Logic.

2. Advanced Psychology. A Study of the Works of Modern Psychologists. Reports, discussions, and essays. (Elective.)

   Course 2 must be preceded by Course 1.

3. Ethics. *First semester.* Introduction to Ethics. Lectures and Recitations. *Second semester.* A Study of the Works of Modern Moralists. Reports, discussions, and essays. *T. Th. S., at 3.* (Elective.)

4. History of Philosophy. Lectures, recitations, and private reading. *T. Th. S., at 10:30.* (Elective.)

   Text-book: Weber-Thilly's History of Philosophy.

5*b*. Introduction to Metaphysics. *Second semester.* (Elective.)

   Text-book: Paulson's Introduction to Philosophy.

Course 1 is required for A. B. and B. S. degrees.

Mathematics.

Professor TINDALL; Assistant Professors DEFOE and UPDEGRAFF.

The following courses are offered:

1. Solid Geometry, Plane and Spherical Trigonometry. *T. Th. S., at 11:30.* Assistant Professors UPDEGRAFF and DEFOE. (Freshman.)

   Texts: Dupuis' Solid Geometry, Bowser's Treatise on Trigonometry.

2. Advanced Algebra. *M. F., at 11:30.* Assistant Professor DEFOE. (Freshman.)

   Text: Chas. Smith's Treatise on Algebra.

3. Analytic Geometry and Calculus. *T. Th. S., at 8:30.* Professor TINDALL and Assistant Professor DEFOE. (Sophomore.)

   Texts: Chas. Smith's Conic Sections, and Byerly's Calculus.

4. Theory of Equations and Determinants. *M. W., 9:30.* Assistant Professor DEFOE. (Junior Elective.)

   Texts: Burnside and Panton's Theory of Equations, and Weld's Determinants.

5. Analytic Geometry and Calculus. *M. T. W. Th. F., at 9:30.* Professor TINDALL. (Junior Elective.)

Texts: Same as in course 3.

6. Solid Analytic Geometry. *M. W. F., at 10:30.* Assistant Professor DEFOE. (Senior Elective.)

Text: Chas. Smith's Solid Geometry.

7. Differential Equations. *T. Th. S., at 10:30.* Professor TINDALL. (Senior Elective.)

Text: Johnson's Differential Equations.

8. Higher Plane Curves. *M. W. F., at 10:30.* Professor TINDALL or Assistant Professor DEFOE. (Graduate Elective.)

Text: Clebsch's Geometrie.

9. Modern Higher Algebra. *T. Th. S., at 9:30.* Professor TINDALL or Assistant Professor DEFOE. (Graduate Elective.)

Text: Weber's Lehrbuch der Algebra.

10. Theory of Functions. *T. Th. S., at 11:30.* Professor TINDALL. (Graduate Elective.)

Texts: Klein's Functionentheorie and Picard's Traite d'Analyse.

11. Theory of the Potential Function. *M. W. F., at 10:30.* Professor TINDALL. (Graduate Elective.)

Texts: Peirce's Newtonian Potential Function and Picard's Traite d'Analyse.

Required: For B. L. and A. B., 1; for B. S., 1, 2, and the first half of 3; for the degree in Engineering, 1, 2, 3 and the Calculus of 5.

Courses 6, 7, 11, and the Analytic Geometry of 5, are especially recommended to students of Engineering.

Astronomy.

Professor UPDEGRAFF.

1. Popular Astronomy. Lectures, recitations, and occasional night observations. Treatment non-mathematical. *T. Th. S., at 11:30.* (Elective.)

Trigonometry required. Text: Newcomb's Popular Astronomy (Library Edition).

2. General Astronomy. Lectures, recitations, and occasional night observations. *M. W. F., at 11:30.* (Junior.)

Trigonometry required. Text: Young's General Astronomy.

3*a*. Practical Astronomy (For Seniors in Civil Engineering). Recitations, and practical work in the Observatory. *First semester, five hours a week.*

Text: Doolittle's Practical Astronomy.

3*b*. Geodesy and Least Squares (For Seniors in Civil Engineering). Recitations, and practical work in the field. *Second semester, four hours a week.*

Text: Gore's Geodesy.

4. Spherical and Practical Astronomy. Problems of Spherical Astronomy. Theory and practical use of instruments. *Three hours a week.* (Junior Elective.)

Calculus required. Text: Chauvenet's Spherical and Practical Astronomy.

5. Spherical and Practical Astronomy. Continuation of Course 4. *Three hours a week.* (Senior Elective.)

6. Theoretical Astronomy. Theories of the undisturbed and disturbed motions of comets and planets. *Three hours a week.* (Graduate Elective.)

A thorough course in Calculus and Analytic Geometry is required. Text: Watson's Theoretical Astronomy.

Required: For B.S , Course 2; for B.S. in C.E., Courses 3*a* and 3*b*.

The Laws Astronomical Medal:

An engraved medal, called the "S. S. Laws Astronomical Medal," is offered annually to that member of the graduating class who stands highest in Astronomy, and has at the same time attained a high average of general scholarship. An original thesis written on some astronomical subject, and showing capacity for scientific investigation, is required.

The Laws Observatory:

The Observatory, a building 84 feet long from east to west, and from 14 to 30 feet wide, stands on an elevated portion of the University campus. The equipment consists of a 7½-inch equatorial refracting telescope by Merz und Söhne, of Munich, a 2 1-10-inch transit instrument by Brunner, of Paris, an altitude and azimuth instrument of 2⅛ inches aperture, sidereal and mean-time clocks, sidereal break-circuit chronometer, chronograph, sextant, micrometer, and a complete outfit of smaller instruments.

Both clocks and instruments are mounted on piers of solid masonry, isolated from the floors and walls of the buildings, and are provided with the usual electrical connections. The dome of the equatorial telescope is 18 feet in diameter, and a cone of 14 feet in diameter, which revolves on balls, shelters the altitude and azimuth instrument. The transit-room has three slits in the walls and roof for observation, and contains the transit instrument, chronograph and sidereal clock.

There is in the Observatory a valuable collection of astronomical books and pamphlets, and several of the best astronomical periodicals are regularly received and kept on file.

In the year 1880, Dr. S. S. LAWS, then President of the University, contributed largely from his private funds toward the improvement of the Observatory building and instruments. In recognition of his generosity, the Board of Curators named the Observatory in his honor and founded the Laws astronomical medal.

Physics.

Professor LIPSCOMB; Assistant Professor SHRADER; Mr. GRIFFITH.

1. Elementary Physics. Lectures and recitations, *M. F., at 11:30*; Laboratory, *S., at 1:30.* Mr. GRIFFITH. (First Year Agriculture.)

2. Elementary Physics. Lectures and recitations, *M. F., at 11:30*; Laboratory, *T. Th., at 1:30.* Mr. GRIFFITH. (First Year Medical.)

3*a*. Lectures on the more important principles of Physics, especially in Sound and Light. *First semester, M. W. F., at 3.* Professor LIPSCOMB. (Sophomore.)

Given especially for A. B. students. Required of A. B. students who do not take Course 4. A laboratory course may be given instead of Course 3*a*.

4. General Physics. *First semester:* Lectures and recitations, *M. W., at 10:30*; Laboratory, *F., at 1:30. Second semester*: Lectures and recitations, *M. W. F., at 10:30;* Laboratory, *W. S., at 1:30.* Professor LIPSCOMB. (Sophomore.)

Required in B. S. and all Engineering Courses; elective in B. L. and A. B. Texts: Carharts' University Physics; Laboratory, Nichols (Vol I.)

5*a*. Special Experiments in Mechanics, Heat and Light. *First semester, M. W. F., at 1:30.* Mr. GRIFFITH. (Third Year Agriculture.)

Elective in A. B. and B. L. courses. The first semester of Course 4 may be given to Agricultural students instead of this course.

6*a*. The Practical Application of Electricity in Medicine and Surgery. *First semester, T. Th. S., at 9:30.* Professor LIPSCOMB. (Third Year Medical.)

Elective in Academic courses. Text: Liebig and Rohe.

7*a*. The Theory of Heat. *First semester, T. Th. S., at 10:30.* Professor LIPSCOMB. (Junior Elective.)

Required in E. E. and M. E. Text: Maxwell.

8*b*. The Theory of Light, and Laboratory (Text: Preston). *Second semester:* Lectures, *T. S., at 9:30;* Laboratory, *Th., at 1:30.* Professor LIPSCOMB. (Junior Elective.)

9*a*. Experimental Work in Heat, Light and Electricity. *First semester, T. Th. S.* Professor LIPSCOMB and Assistant Professor SHRADER. (Senior Elective.)

10*b*. Mathematical Theory of Electricity and Magnetism. *Second semester, T. Th. S.* Assistant Professor SHRADER. (Senior Elective.)

NOTE. Courses 7*a*, 8*b*, 9*a* and 10*b* are open only to students who have had Course 4, or its equivalent.

11. Laboratory. Advanced Measurements, and Special Investigations. *Five times a week.* Professor LIPSCOMB.

(Graduate and Senior Elective.)

Open only to those who have had courses 4, 7*a*, 8*b*, 9*a* and 10*b*, or an equivalent amount of work.

Students in any department may elect any courses for which they are prepared.

Chemistry.

*Professor GIBSON; Acting Professor SCHWEITZER; Assistant Professor CALVERT; Mr. DINSMOOR.

The following courses are offered:

1. Inorganic Chemistry. Lectures. *M. W., at 9:30*; Laboratory, *T. W., at 1:30*. Acting Professor SCHWEITZER and Mr. DINSMOOR.

(Freshman.)

2*a*. Quantitative Analysis. Chiefly Laboratory work; Lectures at the option of instructor. *First semester, T. Th. S., at 1:30.* Assistant Professor CALVERT and Mr. DINSMOOR.

(Sophomore B. L. and Junior Elective.)

2*b*. Qualitative Analysis. Chiefly Laboratory Work. *Second semester, three hours a week.* Acting Professor SCHWEITZER and Assistant Professor CALVERT. (Junior Elective.)

3*a*. Toxicology (for medical students). *First semester, two hours a week.* Acting Professor SCHWEITZER.

4*b*. Chemical Theory. *Second semester, M. W. F., at 9:30.* Assistant Professor CALVERT. (Sophomore B. S. or Junior Elective.)

5*a*. The Carbon Compounds. Lectures and Laboratory. *First semester, T. Th. S., at 9:30.* Assistant Professsr CALVERT. (Senior Elective.)

6. Quantitative Analysis, second course. *Three hours a week.* Acting Professor SCHWEITZER and Assistant Professor CALVERT.

(Senior Elective.)

This course may be given either or both semesters.

7. The Carbon Compounds, second course. *T. Th. S., at 10:30.* Acting Professor SCHWEITZER. (Senior Elective.)

First or second semester, as may be decided upon.

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*Died Oct. 18, 1895. His successor will be appointed June 1, 1896.

8*a*. History of Chemistry. *First semester, three times a week.* Acting Professor SCHWEITZER or Assisistant Professor CALVERT.
(Graduate Elective.)

8*b*. Physical Chemistry. *Second semester, three times a week.* Acting Professor SCHWEITZER or Assistant Professor CALVERT.
(Graduate Elective.)

Required for B. S., 1 and 4*b*; for C. E. and M. E., 1; for E. E., 1 and 2*a* (2 hours only.)

Geology and Mineralogy.

Professor BROADHEAD; Mr. MARBUT.

The following courses are offered:

1*a*. Mineralogy. Descriptive and Determinative. Lectures, recitations, laboratory. *First semester, M. T. Th. F., at 11:30.* (Sophomore.)
One semester in Chemistry and one in Physics are required. Text: Dana's Manual of Mineralogy.

2*b*. Elementary Geology. Lectures, recitations, laboratory, field work. *Second semester, M. T. Th. F., at 11:30.* (Sophomore.)
A knowledge of Physical Geography is required. Text: Le Conte's Elements of Geology.

3*a*. Historical Geology. Lectures, recitations, laboratory, field work. *First semester, three times a week.* (Junior Elective.)
One semester in Botany and one in Zoology are required.

4*b*. Economic Geology. Lectures, recitations, field work. *Second semester, T. Th. S., at 9:30.* (Junior Elective.)
Text: Tarr's Economic Geology.

5*a*. Meteorology. Lectures and laboratory. *First semester, three times a week.* (Junior Elective.)
Text: Davis' Elementary Meteorology.

5*b*. Physiography. Lectures and laboratory. *Second semester, three times a week.* (Junior Elective.)

6. Palæontology. Lectures, laboratory, theses, study and determination of fossils. *M. Th., at 8:30.* (Senior Elective.)
Text: Miller's Palæontology, Wood's Palæontology.

7*a*. Petrography. Lectures and laboratory. *First semester, three times a week.* (Senior and Graduate Elective.)

8. American Archæology. Includes discussion of mounds and mound-builders, and pre-historic American races. *Monday, at 3.*
(Elective.)

9. Conchology. *Second Semester, Friday.* (Elective.)

Courses 1*a* and 2*b* are required for the degree of B. S. Courses 1*a* and 4*b* are required of Agricultural students for the degree of B. Agr. Course 4*b* is required in the C. E. course. Agricultural students may elect Course 5*a*; B. S. students, 3*a*, 5*a*, 5*b*, 6, 7*a* and 8; A. B. and L. B. students, 1*a*, 2*b*, 3*a*, 5*a* and 9.

Biology.

Professor AYERS; Mr. HARDESTY (Laboratory Assistant).

A. GENERAL BIOLOGY AND ZOOLOGY.

The following courses are designed and arranged for three classes of students: 1st. Those who desire to become acquainted with the fundamental principles and aims of science; 2d. For those pursuing the course in medicine; 3d. For those who wish either to teach Biology or to penetrate deeper into the phenomena of life and the resultant organization.

1. Elementary Zoölogy. Lectures and demonstrations. Lectures, *W. F., at 10:30;* Laboratory, *M. W., or Th. S., at 1:30.* (Elective.)

2. General Biology. Lectures and Laboratory. *Three times a week.* (Freshman.)

Texts: Dodge's Elementary Biology, and Huxley & Martin's Practical Biology.

3. Invertebrate Morphology. *Three times a week.* (Undergraduate Elective.)

Courses 1 and 2 required. Text: Brook's Invertebrate Zoölogy.

4. Vertebrate Morphology. *Three times a week.* (Undergraduate Elective.)

Courses 1 and 2 required. Text: Marshall & Hurst's Vertebrate Anatomy.

5. Histology. *Three times a week.* (Undergraduate Elective.)

6. Embryology of Vertebrates. *Three times a week.* (Undergraduate Elective.)

Courses 4 and 5 required. Text: Foster & Balfour's Embryology; Marshall's Vertebrate Embryology.

7. Neurology, and Terminal Sense Organs. Lectures and Laboratory. *Three times a week.* (Undergraduate Elective.)

Courses preceding (omitting 1 or 2) required. Text: Edinger's Vorlesungen über den Nevencentralorgan.

8. Advanced Morphology of Animals. Preparatory to original Investigation. Lectures and Laboratory. *Five times a week.* (Undergraduate Elective.)

Same requirements as for Course 7.

9. Theoretical Biology. Lectures. Collateral reading in the works of Lamarck, Darwin, Huxley, Romanes, Poulton, Weissmann and Whitman. *Three times a week.* (Undergraduate Elective.)

Courses 1 or 2, 3, 4 and 6 must precede.

20. Seminary (Investigator's Course). For candidates for degree of Doctor of Philosophy. (Graduate Elective.)

Course 2 is required for A. B. and B. S. degrees; it is elective where not required. Courses 6, 7, 9 are open also to Graduates.

B. ANIMAL PHYSIOLOGY.

1*b*. Beginning Physiology. One lecture and two laboratory exercises each week. *Second semester.* Professor CONNAWAY.

Text: Martin's "The Human Body" (advanced course.) *Laboratory Manuel:* Foster and Langley's Practical Physiology. Open to all who have had Courses 1 and 2 in General Biology, and Course 1 in Chemistry.

2. Advanced Physiology. (Laboratory). *Hours to be arranged.* Professor CONNAWAY. (Senior and Graduate Elective.)

This course is based upon the more advanced text-books, as Foster's or Landoe's; and supplemented by readings from publications on special physiological topics, and from the Journals of Physiology. In the tecnique of laboratory work, the student will find useful such manuals as Stirling's Practical Physiology, Schenck's Physiologisches Prakticum, and Langendorff's Physiologische Graphik.

For description of laboratory equipment, see announcement of Department of Medicine.

C. BOTANY. (INSTRUCTOR TO BE APPOINTED.)

No courses in Botany except the subjoined courses in Bacteriology are announced for 1896-97, but students prepared to do advanced work may arrange to pursue their studies in this science on consultation with the instructor.

D. BACTERIOLOGY.

1. Elements of Practical Bacteriology. Lectures and Laboratory. *Three times a week.* Dr. GRAHAM. (Elective.)

The course in Histology (A. 5 above) required. Text: McFarland's Text-book upon the Pathogenic Bacteria.

The laboratory is newly equipped with the modern apparatus necessary for a thorough course in Bacteriology. Under the guidance of the demonstrator, the student does the actual work assigned to him until he becomes familiar with the processes and the apparatus in the laboratory, and with the conditions which ordinarily modify the development of bacteria.

2. Advanced course. *Hours to be arranged with the instructor.* (Elective.)

This advanced course is laboratory work, in which types of germ diseases will be thoroughly studied by the most approved methods. As requirements for admission to this course, the student must have had the first course, and be prepared to devote the necessary time to the work.

The Museum of Biology—Professor AYERS, Curator.

The biological collections consist, at present, of that part of the former collection saved from the fire, together with the biological portion of the Missouri exhibit at the World's Fair. These collections are housed in new fire-proof rooms, 46x100 feet, built especially for this purpose.

Catalogues of the Museum may be had on application.

Open on week days from 2 to 3 p. m.

II. Normal Department.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

JOSEPH PHILIP BLANTON, A. M.,
Professor of Theory and Practice of Teaching.

WILLOUGHBY CORDELL TINDALL, A. M., M S.,
Professor of Mathematics.

*JOHN CARLETON JONES, A. M., Ph. D.,
Professor of Latin Language and Literature.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English Language and Literature

GARLAND CARR BROADHEAD, M. S.,
Emeritus Professor of Geology and Mineralogy.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

WILLIAM GWATHMEY MANLY, A. M ,
Professor of Greek Language and Literature.

MILTON UPDEGRAFF, M. S., B. C. E.,
Professor of Astronomy, and Assistant Professor of Mathematics.

JOHN MILLER BURNAM, Ph. D.,
Acting Professor of Latin Language and Literature.

WILLIAM SHRADER, B. S., Ph. D.,
Assistant Professor of Physics.

FREDERICK CHARLES HICKS, B. A., Ph. D.,
Professor of History and Political Economy.

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*Absent for session of 1895-6.

JOHN PICKARD, A. M., Ph. D.,
Professor of Classical Archæology, and Assistant Professor of Greek.

FRANK THILLY, B. A., Ph. D.,
Professor of Philosophy.

LUTHER MARION DEFOE, A. B.,
Assistant Professor of Mathematics.

* HOWARD BEERS GIBSON, A. B , Ph. D.,
Professor of Chemistry.

HOWARD AYERS, B. S., Ph. D.,
Professor of Biology.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

ISIDOR LOEB, M. S., LL. B., Ph. D.,
Assistant Professor of History.

BENJAMIN FRANKLIN HOFFMAN, M. L.,
Professor of Germanic Languages.

HENRY MARVIN BELDEN, B. A., Ph. D.,
Assistant Professor of English Language and Literature.

RAYMOND WEEKS, A. M.,
Professor of Romance Languages.

JOSEPH FRANCIS PAXTON, A. M.,
Acting Assistant Professor of Latin Lanuguage and Literature.

MATTHEW B. HAMMOND, Ph. B., M. L.,
Acting Assistant Professor of Political Economy.

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Geology and Mineralogy.

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* Died October 18, 1895.

IRVING HARDESTY, A. B.,
Laboratory Assistant in Biology.

EVA JOHNSTON, A. B.,
Teaching Fellow in Latin.

JENNIE ADAMS, A. B.,
Teaching Fellow in Latin.

MINNA A. KIDWELL, A. B.,
Teaching Fellow in Romance Languages.

THOMAS JACKSON TAYLOR, A. B.,
Teaching Fellow in Germanic Languages.

Requirements for Admission:

The requirements for admission to the Normal department are the same as those to the Academic department. See pages 17-20.

Theory and Practice of Teaching.

Professor BLANTON.

Courses of Instruction:

There are two distinct courses, one Elementary and one Advanced. The Elementary course is intended to prepare teachers for the public schools of the State. Students who complete this course receive a State Certificate which entitles the holder to teach for a period of two years from the date of the certificate.

All students desiring to secure this certificate will be required to enter the Academic department by diploma or by examination without any condition whatsoever, and to take twelve or thirteen hours of Academic work from the Freshman class of any one of the courses found on page 29 of this Catalogue, and two hours of Drawing in the College of Agriculture and Mechanic Arts, and three hours a week of Pedagogics throughout the year. This course in drawing has been especially arranged for teachers. (See Index, under "Drawing.")

I. ELEMENTARY COURSE.

1*a*. History of Educational Theories. Lectures. Parallel readings and Essays. *First semester, T. Th. S., at 11:30.*

1*b*. (1) Elements of Pedagogy; (2) Organization and Management of Schools. Lectures. *Second semester, T. Th. S., at 11:30.*

For the required course in Drawing, see Index under "Drawing."

All graduates of approved High Schools and Academies (the list of which appears on page 26), and all regular Academic Freshmen entering without condition, who shall complete the work mentioned above, will receive a State Certificate authorizing them to teach in the public schools of Missouri for two years.

II. ADVANCED COURSE.

The Advanced course is intended to prepare students as teachers in the Secondary Schools of the State. This course leads to the Normal diploma, which entitles the holder to teach for life in any public school in Missouri. This diploma is given to graduates of the Academic department who have met the following conditions:

1. In the Junior year, the application of three (3) hours in each semester to the work in Pedagogics—the time to be taken out of the free electives. This work counts toward any Academic degree.

2. In the Senior year, the application of three (3) hours each semester to the work in Pedagogics. This work must be done in addition to the fifteen (15) hours required for Academic work in that year.

3. The completion of two (2) Teachers' courses of not more than three (3) hours a week for one semester. These courses are offered as electives by the various Academic Professors. The object is to show the best method of instruction in any given subject, the work done by the class being used as a basis for illustration. Students who have met these conditions successfully may receive a Normal diploma and a life certificate to teach in Missouri, at the same time that they receive an Academic degree.

The following courses are offered:

1. History of Education. Lectures, Essays, Reports, and Discussions. *M. W. F., at 10:30.* (Junior.)

The course should be preceded by course 1 (General History), page 38, and course 1*b* (Political Philosophy), page 38. Texts: Laurie's History of Education, Quick's Educational Reformers.

Special importance is attached to the study of Educational classics. Plato's Republic, Quintillian's Institutes of Oratory, Montaigne's essays on Pedantry, Anger, and on the Education of Children, Mulcaster's Positions, Ascham's Schoolmaster, Milton's Tractate on Education, Locke's Thoughts on Education, Rousseau's Emile, Pestalozzi's Leonard and Gertrude, Spencer's Education, and Thwing's Theory and Practice of Teaching, are read and discussed with reference to the development of educational ideals, methods and institutions.

2. Institutes of Education. Lectures, Recitations, and occasional essays. *T. Th. S., at 3.* (Senior.)

This course must be preceded or accompanied by courses 1 and 3, in Philosophy, page 39. Texts: Rein's Outlines of Pedagogy, Herbart's Science of Education, Rosenkranz's Philosophy of Education. Bi-weekly reports of observations of work in the Columbia Public Schools, and lesson plans on subjects assigned, will also be required.

3*a*. School System of Europe. Lectures. Reading and reports. *First semester, M. W. F., at an hour to be selected.* (Junior Elective.)

Texts: Mathew Arnold's Higher Schools and Universities of Germany, Klemm's European Schools, and others.

4*b*. Philosophy of the Kindergarten. Lectures. A thorough examination by the class of Froebel's Education of Man will be made. Parallel readings and Essays. *Second semester, M. W. F., at hour to be selected.* (Junior Elective.)

5*a*. A thorough examination of Herbart's Doctrine of Interests. Lectures. *First semester, T. Th. S., at an hour to be selected.* (Senior Elective.)

Text: DeGarmo's Herbart and the Herbartians.

6*b*. A comparative study of the school systems of the cities and states of the United States. Boone's Education in the United States will be read, and many of the circulars of information issued by the Bureau of Education will be available in pursuing this investigation. *Second semester, T. Th. S., at an hour to be selected.* (Senior Elective.)

Courses 1, 2 are required for the Normal diploma and Life certificate.

Courses 3*a*, 4*b*, 5*a*, 6*b* are elective.

Degree of Bachelor of Pedagogics:

The degree of Bachelor of Pedagogics (B. P.) will be conferred on any graduate of the Academic department of the University holding the Normal diploma and life certificate, upon application to the Board of Curators after two years of successful teaching, and upon the presentation to the Faculty of a thesis. This is to be known as the thesis for the Bachelorship in Pedagogy, and must be submitted by the candidate not later than May 1 preceding the Commencement at which the conferment of the degree is sought. The thesis must discuss a subject belonging to one of the courses of study in Pedagogy, and must show original treatment or give evidence of independent research. The number of words in the thesis must not be less than five nor more than ten thousand.

Special Courses for Teachers:

Special courses of instruction are annually offered by Professors in the University to teachers of the State free of all charges, beginning April 1,

and continuing two months. Due announcement of the courses to be offered in 1897, beginning April 1, will be made during the second semester by circular to teachers.

Hereafter the University will maintain regularly a summer school, particularly for instruction in laboratory methods of teaching science. It is open to all teachers in the State, but is designed especially for those who teach or wish to teach in High Schools. These courses will begin May 27, and end August 17, 1897. Circulars giving full details may be had upon application by letter to the University. See Appendix I.

No fees are charged for any of these special courses for teachers.

III. Department of Law.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

ALEXANDER MARTIN, A. M., LL. D.,
Dean of the Faculty, and Professor of Law.

JAMES AULL YANTIS, LL. B.,
Professor of Law.

JOHN DAVISON LAWSON, B. C. L., LL. D.,
Professor of Law.

ANDREW WALKER McALESTER, A. M., M. D.,
Lecturer on Medical Jurisprudence.

Hon. GEORGE B. MACFARLANE, Judge of the Supreme Court of Missouri,
Non-resident Lecturer on Criminal Procedure.

Hon. ELMER B. ADAMS, Judge of the U. S. District Court for the Eastern District of Missouri,
Non-resident Lecturer on the Law of Wills and Administration.

Hon. JAMES A. SEDDON, A. M., LL. B., Ex-Judge of Circuit Court of St. Louis,
Non-resident Lecturer on Commercial Law.

Hon. FRANCIS M. BLACK, of Kansas City, Ex-Chief Justice of Missouri,
Non-resident Lecturer on Equity Jurisprudence.

Hon. JAMES B. GANTT, Presiding Judge of Division No. 2 of the Supreme Court of Missouri,
Non-resident Lecturer on Corporations.

Requirements for Admission:

Junior Class—For admission to the Junior Class, no examination in law is imposed. Candidates are advised to complete, if they can, a full academic or collegiate course.

It is the purpose of the University to raise gradually the standard of educational requirements necessary for admission to the Department of Law. Accordingly in the fall of 1896 applicants for admission to the Department of Law must submit to the "Committee on Entrance by Diploma" satisfactory evidence of having completed the common school course of the State; or in lieu of such evidence shall pass satisfactory examinations in writing on each of the following subjects: English, Arithmetic, Geography (Descriptive and Political), and History of the United States. The examination will cover the ground embraced in the text-books adopted by the State for the common schools, namely, Ray's Practical Arithmetic, the Hyde series of Language Lessons, Butler's Geography, and Barnes' History of the United States. As a part of the English examination the applicant will be expected to write a composition of not less than two hundred words.

In the fall of 1897 the entrance requirements will cover the subjects embraced in the first year of a course of study embodying the recommendations of the University to its approved high schools (see pages 21-25); in the fall of 1898 the subjects embraced in two years of such a course; in the fall of 1899 the subjects embraced in three years of such a course.

In the fall of 1900 and thereafter the requirements for admission to the Department of Law will be fully equivalent to those demanded for admission to the Academic Department. (See pages 17-20).

An applicant presenting to the "Committee on Entrance by Diploma" a certificate from the Principal of any Approved high school or academy showing that in any course of study in which said school has been approved by the University the applicant has finished with passing grades the first year, will be admitted without examination in the fall of 1897; upon presentation of such a certificate showing that he has finished two years of such a course he will be admitted without examination in the fall of 1898; in a similar way upon showing that he has finished three years of such a course he may be admitted without examination in the fall of 1899; in the fall of 1900 he must present a diploma from an Approved high school or academy or pass entrance examinations similar to those for admission to the Academic Department.

In lieu of such diploma or certificate the applicant will be required in the fall of 1897 to pass satisfactory examinations on all of the following subjects: History, English, Mathematics, and Latin.

1. In History, the applicant will be examined on the equivalent of the work given in Myer's General History, or in lieu thereof on the equivalent of the work given in Ransome's History of England.

2. In English, the examination will be on Grammar, Rhetoric, and Composition.

3. In Mathematics, the examination will be on Algebra, and the applicant should have a knowledge of the subject equivalent to that found in "Wentworth's Shorter Course in Algebra" up to quadratic equations.

4. The examination in Latin must show a thorough mastery of Collar and Daniell's First Lating Book, or of Gildersleeve's Latin Primer, or of some other Beginner's Book fully equivalent to these.

All examinations will be conducted in writing.

If unknown to the Faculty, the candidate must bring satisfactory testimonials of good character.

Candidates may be admitted to the Junior class at any time during the session, by fulfilling the requirements for entrance, and by passing an examination upon the work accomplished by the class at the date of the examination.

Senior Class.—No one will be admitted to the Senior class as a candidate for a degree unless he applies at the beginning of the year, is possessed of the academic education and moral character required for admission to the Junior class, and has passed a satisfactory examination upon the studies of the Junior year. In exceptional cases, upon failure in one or two branches only, the examination, as to those branches, may be postponed to some period during the term, and the applicant will be admitted to the class as a candidate for a degree, upon condition that he pass at the time appointed a satisfactory examination on those branches. No one is permitted to pursue in one year the full course of two years.

Graduate Class.—No one will be admitted to this class as a candidate for the degree of LL. M., unless he holds the degree of LL. B. from the law department of the University, or is a graduate of some other law school whose course of instruction is equivalent to that offered in this University.

Admission to the Senior or Graduate class will not be permitted after two weeks from the beginning of the year.

Special Course.—The same qualifications as to education and character required of candidates for the Junior class, will be exacted of students admitted to special courses.

COURSES OF STUDY.

The principal object of the courses of study adopted in the school is to qualify its graduates for an efficient and successful discharge of their duties as licensed attorneys. It has never been within the aim of the school to cram its students for the purpose of qualifying them to pass the special examinations which may possibly take place at the bars to which they may seek admission. The courses of study have been adopted with the view of familiarizing the successful candidate for a degree with the principles of substantive law, and the law of remedy and procedure, as prevailing in American jurisprudence. After a short study of the statutes and decisions of the State in which he expects to setle, he will deserve admission to the bar. As the degree of LL. B. from this Department enti-

tles the graduate to admission to the bar of the State of Missouri, the Faculty cannot overlook the fact that a fair knowledge of the general statutes of the State, and of the modifications which the common law has undergone in the decisions of the courts, is an essential qualification for admission to its bar. But, as there is a great similarity in the general statute and judiciary law of the Western, Northwestern and Southwestern states, it is believed that what may be learned in that respect will be of benefit to a student settling in any of said states.

Undergraduate Course:

The undergraduate course covers a term of two years. There are two classes—Junior and Senior. Instruction is given daily to these classes, in the form of lectures, recitations and examinations upon the text-books recommended, and upon leading cases furnished by the Faculty. Every Tuesday they participate in the exercises of a Moot court.

I. The Junior class receives instruction on the following subjects:
   1. Elementary Law, Law of Torts; by Professor YANTIS.
   2. Contracts, Agency, Personal Property (including Sales), Domestic Relations; by Professor LAWSON and Special Lecturers.
   3. Negotiable Instruments, Parliamentary Law; by the DEAN and Special Lecturers.

II. The Senior class receives instruction on the following subjects:
   1. Real Property, Evidence; by Professor YANTIS and Special Lecturers.
   2. Equity Jurisprudence, Pleading and Practice at common law, in equity and under the code, Corporations, Constitutional Law; by the DEAN and Special Lecturers.
   3. Criminal Law, Insurance, International Law; by Professor LAWSON.
   4. Law of Wills and Administration; by Special Lecturers.

The text-books recommended are as follows:

For the Junior Year—

On Elementary Law ....Robinson, Blackstone and Kent
On Torts..... .....Jaggard, Pollock, Cooley
On Contracts..... .....Lawson, Bishop
On Agency.....Story, Meechan
On Sales ....Tiedeman, Brown, Benjamin, Tiffany
On Bailments .....Lawson
On Personal Property ....Smith, Darlington
On Domestic Relations. ..... Brown, Schouler
On Negotiable Instruments .....Norton, Bigelow
On Parliamentary Law .....Roberts, Cushing

For the Senior Year—

On Real Property .....Tiedeman, Williams, Washburn
On Wills .....Chaplin
On Evidence.....Greenleaf, Best, Stadkie
On Criminal Law .....Bishop
On Insurance.....Richards, May
On International Law.....Lawrence, Glenn
On Equity Jurisprudence .....Bisphane, Merwin
On Pleading and Practice.....McKelvey, Bliss, Heard, Desty
On Constitutional Law. .....Black, Cooley
On Corporations .....Taylor, Thompson, Murfree
On Partnership.....Pollock

Graduate Course:

This course is open to graduates of the Law department and to those of other law schools that have completed an equivalent course of study.

The object of the Graduate course is to provide the practitioner with a more extended and practical knowledge of important subjects embraced in modern law, than the limited time of the undergraduate course permits. It is also intended to afford him assistance in prosecuting the study of any particular subject or branch of law which he expects to follow in his future practice.

The course of instruction embraces lectures and recitations on the following subjects:

Constitutional Law, Corporations, Insurance, Trusts, Patents, Copyrights, Law of Homicide, Theory of Jurisprudence.

The student in this course is allowed to select any special subject in law for extended examination, to be prosecuted concurrently with the subjects embraced in the course. His investigations are directed by the Faculty, who advise him of the books and cases to consult, and afford him assistance and counsel.

It is believed that many licensed attorneys will find it to their advantage to take as special students the instruction in this course.

The text-books recommended for the Graduate course are as follows:

Cooley on Constitutional Limitations; Lewin on Trusts; May on Insurance; Walker on Patents; Bishop on Criminal Law; Thompson on Corporations; Holland's Jurisprudence.

Special Course.

Students who do not wish to take any of the full courses, and who are not candidates for any degree, will be permitted to take an elective course, and pursue branches of instruction given in the Department, the exercises of which do not conflict with one another. They will be classed as special students, and will receive from the Faculty certificates of the time spent in the study of the law and of the work therein accomplished.

METHOD OF INSTRUCTION.

Lectures, Recitations, Examinations, and Study of Treatises and Cases.—The first benefit inuring to the student who enters a good law school is to learn how to study law, as distinguished from merely reading it. A student in an attorney's office is too apt to continue, in his study of law, the superficial habit acquired by him in the perusal of newspapers, literary periodicals and novels.

On entering the school he is instructed in the proper method of reading treatises and reports of cases, of examining questions of law, of taking notes of lectures, and of handling digests, dictionaries and compilations of the law.

The Law Faculty is satisfied from experience that the highest results cannot be reached by lectures alone, however clear and thorough they may be; but that the students, as far as possible, should be required to study the text of some approved treatise on the subject of instruction, and to examine critically well-considered cases illustrating the principles discussed in the lecture-room. For the purpose of ascertaining the progress of the student, and impressing upon him the necessity and advantages of precise and definite knowledge of the subject upon which he has received instruction, he should be required to stand frequent examinations on the work accomplished by him. He should also be required to take notes of the substance of the lectures, and of the cases furnished by the Professor for his investigation. In this manner, it is believed, he will receive the full advantages of the lecture and recitation methods of instruction as applied to the study of treatises, and to the examination and analysis of cases. In addition to lectures and recitations, the classes are divided into sections and subjected to quizzes conducted by members of the class, appointed by the Professors for that purpose. The members are also required to explain and develop in the lecture-room subjects assigned to them by the Professors. A combination of these different methods has, in the opinion of the Faculty, produced the most satisfactory results.

Moot Court.—Every Tuesday a Moot Court is held, in which all Law students participate. In this court the matters discussed arise in some supposed cause. Regular pleadings are required, and when the cause is supposed to be in the Supreme Court, in addition to the pleading, papers are prepared necessary in actual practice, as the writ of error, assignment of errors, bill of exceptions embodying the instructions to the jury, ruling upon the admission or exclusion of evidence, motions for new trial, in arrest, etc. Briefs of points and authorities must also be submitted and filed. A member of the Faculty presides at the trial, determining all preliminary and incidental motions. A member of the Senior class or Graduate class is called to sit as special judge in each cause, who, the next week, gives his opinion in writing, subject to appeal to the member

of the Faculty present at the trial. Practical instruction in pleading is given by requiring half of the members of a class to draft pleadings in causes assigned to them, and to submit them to the other half. The pleadings thus drafted are discussed and settled in the presence of the Professor giving instruction on that subject.

DEGREES AND HONORS.

Members of the Senior class who have successfully passed the examinations of the Senior year will be entitled to receive the degree of Bachelor of Laws. Members of the graduate class who have successfully passed the prescribed examinations will be entitled to receive the degree of Master of Laws.

Whenever a candidate for graduation attains a high degree of excellence in his class-work the degree of Bachelor of Laws or Master of Laws will be conferred upon him with distinction, and the words *cum laude* or *magna cum laude* will be incorporated in the diploma. In determining the required degree of excellence the student's conduct as a gentleman, as well as his attainments as a scholar, will be taken into consideration.

The members of the Senior class are all invited to write essays upon some subject in law, assigned to them by the Faculty before January 1 of each year. The essays so written are submitted to a committee of judges charged with the duty of designating the best two of said essays. The names of the authors are placed on the Commencement program. Students not writing essays as aforesaid, and not excused therefrom by the Law Faculty, shall not be eligible to any of the honors and distinctions heretofore mentioned as in addition to the right of graduation.

A prize of $50, provided in the endowment fund of the Hon. James S. Rollins, is awarded each year at Commencement to the member of the Junior Law class, who by superior scholarship and moral conduct, has shown himself entitled thereto.

All who receive from this University the degree of Bachelor of Laws are by law admitted, without further examination, to practice in all the courts of the State of Missouri.

ADVANTAGES.

The advantages now offered by the University of Missouri for instruction in the science and practice of common law and equity, as prevailing in the United States, are not excelled in any University in the West.

Accommodations:

Since the destruction of the main building of the University by fire, January 9, 1892, the Curators have erected a large, commodious structure for the use of the Law department. It contains a spacious library-room, two large lecture-rooms, moot court and club-rooms, quiz-rooms, and offices for the Professors.

Libraries:

The library of the Law department consists at present of a large collection of reports, and treatises on every subject of the law. It is increasing every year, the Thirty-eighth General Assembly of the State having in 1895 appropriated five thousand dollars to that end, which has been expended in the purchase of treatises and reports. All the decisions of the American courts are received as soon as published. A complete set of digests of decisions and reports is kept up, so that the latest expressions of authority are brought within reach of the students and Professors. Members of the Law department have access to the general library of the University.

Academic Facilities:

The connection of the Law department with the University enables the law student, without additional charge, to take instruction in other departments of the University, provided it does not interfere with his legal studies. Some members of every class have found it convenient to pursue such studies as Latin, French, Logic, English, Military Science, Political Economy, History, etc.

University Societies:

Members of the Law department are eligible to membership in the two literary societies of long standing in the University known as the "Athenæan" and the "Union Literary." They are also eligible to membership in the "Bliss Lyceum," to which members of the Law department alone are admitted.

These societies are nurseries of oratory, debate and parliamentary law.

GENERAL INFORMATION.

For enrollment of students in this Department, see the Index.

The Law department opens with the other departments of the University, on the second Tuesday in September, and closes on the first Wednesday in June of each year.

Examinations for admission will be held in the lecture-rooms on the second Tuesday in September, at 9 o'clock a. m.

Examinations for admission may be accorded at other times, upon request, to suit the convenience of applicants.

For information as to the tuition charges and expenses of the Law department, see "Fees and Expenses" in the Index.

For information and catalogues, address

ALEXANDER MARTIN, Dean,
Columbia, Mo.

IV. Department of Medicine.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

ANDREW WALKER McALESTER, A. M., M. D.,
Dean of the Faculty, and Professor of Surgery and Obstetrics.

WOODSON MOSS, M. D.,
Professor of Anatomy and the Practice of Medicine, and Secretary to the Faculty.

JOHN WALDO CONNAWAY, M. D. C., M. D.,
Professor of Physiology (Human and Comparative).

GEORGE WASHINGTON CUTLER, M. D.,
Professor of Physical Culture.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

†HOWARD BEERS GIBSON, A. B., Ph. D.,
Professor of Chemistry.

HOWARD AYERS, B. S., Ph. D.,
Professor of Biology.

SINDEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

ROBERT EMMET GRAHAM, M. D.,
Instructor in Bacteriology and Pathology

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

IRVING HARDESTY, A. B.,
Instructor in Comparative Anatomy and Histology.

G. R. HIGHSMITH, M. D.,
Lecturer on Abdominal Surgery.

†Died Oct. 18, 1895. His place will be filled on June 1, 1896.

Requirements for Admission:

It is the purpose of the University to raise gradually the standard of educational requirements for admission to the Department of Medicine. For the sessions of 1896-7, and 1897-8, the requirements will be as follows:

(a) Creditable certificates of good moral standing. *(b)* Diplomas of graduation from a literary or scientific College or High School, or, in lieu therof, an examination in the following branches: English Grammar and Composition, Arithmetic, Algebra as far as quadratics, Elementary Physics, United States History, Geography, and Latin (equivalent to one year in a high school).

For the session of 1898-99 the requirement will be two years of a high school course embodying the recommendations of the University to its Approved Schools; for 1899-1900 three years of such a course; and in the fall of 1900 and thereafter, the requirements for admission to the Department of Medicine will be fully equivalent to those demanded for admission to the Academic department. (See pages 17-20.)

It is important for such applicants as are able to do so to present to the President of the University a certificate from the Principal of an Approved High School or Academy showing that in a course of study in which said school has been approved by the University the applicant has finished with passing grades the first year, or the first and second years, or the first, second and third years. While such documents may not supersede the entrance examination, they are valuable aids to the examiners. Such documents should always be brought by those entitled to them, and presented promptly to the President of the University.

COURSE OF INSTRUCTION.

First Year.

First semester:		Second semester:	
Chemistry	4	Chemistry	4
Physics	4	Physics	4
Anatomy (Osteology)	3	Anatomy	3
Comparative Anatomy	3	Physiology	6
Normal Histology	4		

Second Year.

First semester:		Second semester:	
Anatomy	2	Anatomy	2
Physiology	4	Embryology	4
Chemistry	4	Chemistry	3
Bacteriology	3	Practice of Medicine	3
Pathology	3	Pathology	3
Obstetrics	2	Materia Medica	2

Third Year.

First semester:		Second semester:	
Practice of Medicine	3	Practice of Medicine	3
Surgery	3	Surgery	3
Obstetrics	2	Gynecology	2
Surgical Anatomy	2	Therapeutics	2
Therapeutics	2	Electro-Therapeutics	3
Toxicology	2	Anatomy	2

The figures indicate the number of hours a week in the lecture-room. Two and a half hours in the laboratory are reckoned as only one hour in the lecture-room.

PLAN OF INSTRUCTION.

Instruction is given by lectures, recitations, clinical teaching and laboratory work.

The length of the session, nine months, renders it practicable to distribute the different branches among the teachers in a satisfactory manner, and in their natural order and succession. The student is thoroughly drilled each day by examinations upon the lectures of the previous day, and by recitations from text-books.

By this method of teaching, it is believed that the process of cramming—a deleterious practice, too prevalent in the general system of medical education—is avoided; and much will be done to elevate the standard of medical education, and to exalt the dignity of the profession.

The students are taught the use of the microscope, in both pathological and physiological studies. The methods of bacteriological, physiological and histological investigation are taught by practical work in the laboratories.

Medical students in their first year may take, without additional fee, any work offered in the Academic Department and in the College of Agriculture and Mechanic Arts; and in their second and third years, any work offered in the University; but the number of hours shall not exceed 18 a week, and such work shall not count toward the degree of M. D. unless it is included in the regular medical course. Academic students, on the other hand, may take Anatomy and Physiology in the first year of the Medical course, preparatory to entering on the full Medical course after graduating in Arts or Science. (See page 28.) Such students are admitted to the Second year's Medical class.

LABORATORIES.

The following courses are required:

Chemistry:

1. Elementary Organic Chemistry. Lectures, *M. W., at 9:30;* Laboratory, *T. W., at 1:30.* (First Year.)

2. Qualitative and Urinary Analysis. Lectures, with laboratory exercises at option of instructor. *T. W. F. S., at 2.* (Second Year.)

3. Sanitary and Physiological Chemistry. *Three hours a week.*

Topics (in Sanitary Chemistry).—*Air*: Respiration, vitiated air and ventilation; systems of heating and of ventilation; dust, infection, contagion, germ theory of disease; inoculation and immunity; disinfection; septic means and measures. *Water:* Potable water, hard and soft; impurities in it from service pipes or sewage contamination; public water supplies and systems of sewerage and canalization; mineral and other waters; drinking, bathing, climatic and water cures. *Soil:* Micro-organism in it; ground air, ground water and public health. *Food:* Milk, fresh and condensed; bovine tuberculosis and milk supply; milk substitutes and infants' and invalids' foods; emulsified, digested and peptonized food; bread, meat, fat, sugar; preservation and adulteration of foods; poisonous foods; dietaries, specific and general; digestion, natural and aids to it, condiments, tonics, stimulants; food and muscular energy.

Topics (in Physiological Chemistry).—*Physical Exercise:* Mental strain; grief, pleasure, worry, diversion; slums and dirt in their relation to health and morals; environment and social influences reacting upon life of individual and nation; private and public sanitary measures; health boards, communal, State and National, and the scope of their work.

4. Toxicology. *Two hours a week.* (Third Year.)

Physics:

2. Elementary Physics. Lectures and recitations, *M. F., at 11:30.* Laboratory, *T. Th., at 1:30.* (First Year.)

6*a*. The Practical Application of Electricity in Medicine and Surgery. *First semester, T. Th. S., at 9:30.* (Third Year.)

Text: Liebig and Rhoe.

Biology:

1*a*. Comparative Anatomy of Vertebrates (Macroscopic and Microscopic). Lectures and Laboratory. *First semester, seven hours a week.*

Wiedersheim's Comparative Anatomy of Vertebrates, Quain's Anatomy, Gorham & Tower's Anatomy of the Cat.

2. Comparative Embryology of Vertebrates. Lectures, *one hour a week*; Laboratory, *three hours a week.*

Minot's Human Embryology, Marshall's Vertebrate Embryology.

3. Comparative Neurology of Vertebrates. Lectures and Laboratory. (Elective)

Courses 1 and 2 are required for admission to this course. Texts: Edinger's Anatomy of the Central Nervous system, and Oberstein-er's Central Nervous System.

Physiology:

1*b*. Lectures and Laboratory. *Second semester, six times a week.*
(First Year.)

The topics considered are: The blood, circulation, muscle, nerve, digestion, respiration, excretion, etc. The course must be preceded by one semester's work each in Comparative Anatomy, Histology, Physics and Chemistry. Text: Foster's Physiology; Collateral reading—Landois, Waller. Laboratory Manual—Stirling's Practical Physiology.

2*a*. Lectures and Laboratory (a continuation of course 1*b*). *First semester, four times a week.* (Second year.)

Topics—Metabolism, nutrition, nervous system, and reproduction. Course 1*b* must precede. Text: Foster's Physiology; Collateral reading—advanced texts and journals.

Laboratory and Equipment.—The laboratory occupies rooms 2 and 3 in the north wing of the Museum Building, is well lighted, and is furnished with new laboratory tables suited to the work.

The laboratory is supplied with glassware, chemicals, microscopes, a microtome, and a fair equipment of apparatus for graphic and other work, as induction coils, batteries and keys, rheocord, moist chamber, kymograph, student's drums, pendulum myograph, manometers, Marey's tambours, sphygmograph, cardiograph, stethograph, electric time-markers, contact clock, metronomes, tuning fork and electro magnet, rheonom haemacytometer, haemometer, micrometers, artificial eye phakoscope, perimeter, stromuhr, oncometer, electrometer, saccharimeter, ureometer, etc.

Bacteriology:

The laboratory is newly equipped with the modern apparatus necessary for a thorough course in Bacteriology. Under the guidance of the demonstrator, the student does the actual work work assigned to him until he becomes familiar with the processes and the apparatus in the laboratory, and with the conditions which ordinarily modify the development of bacteria.

The *required work* consists of lectures and laboratory work. The lectures treat of the bacteria concerned in diseases, and of the simple methods of manipulation and staining that are of special use to the clinical student and the practitioner, and the laboratory exercises give abundant opportunity for applying the knowledge thus gained, and for acquiring facility correctly to diagnose germ diseases.

The *electives* in Bacterology consist of advanced courses of laboratory work, in which types of germ diseases are thoroughly studied by the most approved methods. For admission to these courses, the student must have had the first course, and be prepared to devote the necessary time to the work. Texts: McFarland, Sternberg.

Pathology:

In the pathological laboratory the student is taught to view Pathology from the histological standpoint. In connection with the lectures, he is made familiar with the technique of the laboratory study of Pathology, including the analysis of urine. The student thus becomes familiar with the various processes of hardening, staining, imbedding and sectioning the tissues. Text, Woodhead.

Anatomy:

Facilities are afforded the students for the thorough study of Anatomy. Provision is made for a supply of subjects amply sufficient for the number of students. The dissecting rooms are large and well ventilated, and are open during the whole winter season, where, under the guidance of a demonstrator, the student, by dissecting, acquires a practical knowledge of the human body in all parts.

The Physiological, Bacteriological and Pathological laboratories are located in the Biological building. The Professors of Surgery, Obstetrics, and Practice of Medicine, have rooms on the first floor of the Academic Hall. The old medical building is now the Anatomical Hall.

Clinics:

The number and variety of Medical and Surgical Clinics are ample for purposes of instruction.

DEGREES AND CERTIFICATES.

Upon a satisfactory completion of the above course, the degree of Doctor of Medicine will be conferred. The degree of "M. D. *cum laude*" is given to all graduates in the Medical course who have the degree of A. B., B. S., or B. L.

At the close of each year, the following certificate is issued to students completing the work of that year:

"The Medical department of the University of the State of Missouri hereby grants this certificate to —— as an evidence that he has attended the — year's course, and passed the final examinations."

Upon the certificates, the subjects and grades are recorded. No certificate of any character will be issued during the progress of the session.

REQUIREMENTS FOR GRADUATION.

1. The candidate must have completed the course prescribed and passed a satisfactory examination thereon.

2. He must be twenty-one years of age, and must exhibit evidence satisfactory to the Faculty of possessing a good moral character.

3. His last course of lectures must have been attended in this Department.

4. He must have been regular in attendance upon lectures and recitations and in laboratories.

5. Every candidate must appear before the members of the Faculty for examination in the various branches in medicine, at the time appointed for such examinations.

6. Conformity to the general laws established by the Curators and the Faculty for the government of the University, faithful discharge of duties and regular attendance upon lectures and laboratories, are required of all students.

For tuition charges, fees, etc., see "Fees and Expenses" in the Index.

For further information, address

A. W. MCALESTER, M. D.,
Dean of Medical Faculty.

For catalogues, address

WOODSON MOSS, M. D.,
Secretary Medical Faculty, Columbia, Mo.

V. Department of Military Science and Tactics.

WALTER ALONZO THURSTON, Lieut. 16th U. S. Infantry,
Professor of Military Science and Tactics, and Commandant of Cadets.

Requirements for Admission:

No cadet will be received who is under 16 or over 25 years of age, or who is less than five feet one inch in height, or who is in any way physically disqualified for military service.

All male students of the University not physically disqualified, who come within the limits of age and height, will be allowed to enroll themselves as voluntary cadets, but only State cadets will be matriculated in the Academic department of the University without payment of the tuition fees, and provided with the tailor-made uniform without expense to themselves. A copy of the regulations for the government of cadets will be given to each cadet upon his entrance into the Missouri State Military School. These regulations require cadets to enter and report to the Commandant for duty *before* September 25th of each year. They should report by September 12th, if possible.

Battalion Staff and Non-commissioned Staff.

Cadet Major.....N. D. Jackson
Cadet First Lieutenant and Adjutant.....C. C. Conover
Cadet First Lieutenant and Quartermaster.....H. K. Hinde
Cadet Sergeant Major.....G. H. English
Cadet Quartermaster Sergeant.....(Vacant)

Company A.

Cadet Captain.....Lee Highley
Cadet First Lieutenant.....H. H. Lotter
Cadet Second Lieutenant.....J. D. McNeely
Cadet First Sergeant.....W. H. Turner

Company B.

Cadet Captain.....C. L. Willoughby
Cadet First Lieutenant.....R. M. Snyder
Cadet Second Lieutenant.....B. Munday
Cadet First Sergeant.....C. M. Jackson

Company C.

Cadet Captain.....E. G. Pringle
Cadet First Lieutenant.....A. Gwinn
Cadet Second Lieutenant.....L. Hegnauer
Cadet First Sergeant.....F. L. Weakley

Band.

Band Leader.....F. Pannell (Civilian)
Drum Major.....J. C. Fast
Chief Musician.....J. W. Welch

Those Cadets are appointed to office who show ready obedience, zeal and capacity in the discharge of military duty. The Governor of Missouri issues commissions to those entitled by their battalion rank to receive them.

General Supplies:

One hundred and fifty Springfield cadet rifles of the latest model, one Gatling gun, cal. 45, with full equipment, two 3-inch rifled field-guns, with carriages and implements, and a suitable amount of ammunition and target materials, are furnished by the United States. The State supplies ammunition, camp equipage, utensils, etc. The University supplies instruments and instruction for the band.

Uniforms:

Cadets wear but one style of uniform, known as the undress or fatigue uniform. Uniforms must be worn at all military exercises, and may be worn on all occasions. Tailor-made uniforms are supplied to volunteer cadets at a cost of $14.20 each, including cap and gloves. The State furnishes uniforms to regularly appointed cadets free of cost (usually one entire uniform and one extra pair of trousers every year to each appointed cadet).

COURSE OF INSTRUCTION.

FIRST YEAR.

Practical instruction in the Schools of the Soldier, Company and Battalion (infantry), and Extended Order.

Practical instruction in rifle-firing, 100, 200 and 300 yards.

Practical instruction in duties of camp, embracing guard duty, etc.

Recitations in Infantry Drill Regulations through School of the Company, ceremonies of guard mounting, dress parade, inspection, review, muster and extended order.

Recitations in guard duty, rifle-firing and cadet regulations.

SECOND YEAR.

Practical instruction in the Schools of the Company and Battalion, and in Extended Order.

Practical instruction in the service of field-guns (foot battery), with mechanical maneuvers.

Practical instruction in rifle-firing, 100, 200 and 300 yards.

Practical instruction in the duties of camp, embracing guard duty, etc.

Practical instruction in military signaling.

Recitations in Infantry Drill Regulations, School of the Battalion.

Recitations in Artillery Tactics, manual of the piece dismounted.

Recitations in the elements of Field Fortifications.

Lectures are given on Army Organization, the Army of the U. S., the regulations of the U. S. army, courts-martial and military law and, the customs of war, street fighting, etc.

Certificate of Proficiency:

To have passed through the entire course does not entitle a cadet to receive a certificate of proficiency in Military Science and Tactics, but it is the rule now adopted in the University that the certificate will be issued to every cadet, State or volunteer, who takes the entire course and attains a grade of at least 70 per cent in *every examination* given during the two years in Military Science and Tactics.

Appointment of State Cadets:

The following extracts from the Militia law of the State of Missouri, enacted by the Thirty-eighth General Assembly, and now in force, will be of interest to those who desire to receive the appointment of cadet:

Be it enacted by the General Assembly of the State of Missouri, as follows.

SECTION 1. The military department of the University of the State of Missouri as organized under section 1225, Revised Statutes of the United States, and section 8741, Revised Statutes of Missouri 1889, is created the Missouri state military school.

SEC. 2. The corps of cadets of the Missouri state military school shall consist of one from each senatorial and representative district of this state. All appointments under this section shall be for the term of two years. Each senator and representative of the general assembly of Missouri shall have power to appoint a cadet from his district, by the first day of August in any year in which there may be a vacancy in such corps from such district: Provided, that if there shall be no application for such cadetship, in any such district, by the first day of August in any such year, then such appointment may be made from any other district in this state; and provided, that in case of death, resignation or expulsion from the university of any cadet from such district, the senator or representative thereof may fill such vacancy at any time. All appointees under this section shall pass the required examination for admission to the university.

SEC. 3. Cadets receiving instruction, as provided in the preceding section, shall be matriculated in all academic departments of the university, free of tuition and other fees.

SEC. 4. The corps of cadets, as provided in the preceding sections, shall have the military organization prescribed for the national guard of the State and reckoned a part thereof, and as such entitled to all such provisions as are or may hereafter be made for the national guard of Missouri.

SEC. 5. The military government and discipline of the cadets shall be prescribed by regulations prepared by the faculty of the university and approved by the Governor of the State. The officers of the corps of cadets shall be appointed and commissioned by the Governor of the State, upon the recommendations of the faculty of the university, and shall have the powers conferred by said regulations.

SEC. 6. Cadets shall be individually reponsible for all State property issued directly to them, and shall constitute a guard for the safe-keeping and preservation of all university property.

Approved April 11, 1895.

Regulations:

Cadet regulations prescribe that military drills, etc., shall be held at least three hours a week, one of which shall be for theoretical and two for practical instruction. The regulations also require, whenever the means of the University permit it, an annual encampment of from eight to ten days, during which the instruction is entirely military and practical. Here the cadets are put through all the duties of camp life. They conduct their own commissary and quartermaster departments. They have target practice at 100, 200, 300 and 400 yards, and perform the duties of sentinels, patrols, etc., and are given all the drills and ceremonies prescribed in the two years' course. The expenses of the encampment are borne by the University.

Enrollment:

During the present session 147 cadets have received instruction in Military Science and Tactics.

VI. College of Agriculture and Mechanic Arts.

FACULTY.

Names marked with a (*) are names of members of the Faculty of the School of Mines and Metallurgy, at Rolla, Missouri.

RICHARD HENRY JESSE, LL. D.,
President.

HENRY JACKSON WATERS, B. A. S.,
Dean of the Faculty, and Director of the Experiment Station.

* WALTER B. RICHARDS, M. A.,
Director of School of Mines and Metallurgy, and Professor of Mathematics.

PAUL SCHWEITZER, Ph. D.,
Professor of Agricultural Chemistry, Chemist to the Experiment Station, an Acting Professor of Chemistry for 1895-6.

WILLOUGHBY CORDELL TINDALL, A. M., M S.,
Professor of Mathematics.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English Language and Literature.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English Language and Literature.

GARLAND CARR BROADHEAD, M. S.,
Emeritus Professor of Geology and Mineralogy, and Curator of Geological Museum.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

MILTON UPDEGRAFF, M. S., B. C. E.,
Professor of Astronomy, Director of the Observatory, and Assistant Professor of Mathematics.

CHRISTIAN WILLIAM MARX, B. E.,
Professor of Mechanical Engineering, and Superintendent of Mechanic Arts.

JOHN WALDO CONNAWAY, M. D. C., M. D.,
Professor of Veterinary Surgery.

WILLIAM SHRADER, B. S., Ph. D.,
Professor of Electrical Engineering, and Assistant Professor of Physics.

*ELMO GOLIGHTLY HARRIS, C. E.,
Professor of Civil Engineering.

FREDERICK CHARLES HICKS, B. A., Ph. D.,
Professor of History and Political Economy.

HARRY THOMAS CORY, M. E., M. C. E.,
Professor of Civil Engineering.

LUTHER MARION DEFOE, A. B.,
Assistant Professor of Mathematics.

† HOWARD BEERS GIBSON, A. B , Ph. D.,
Professor of Chemistry.

HOWARD AYERS, B. S., Ph. D.,
Professor of Biology.

JOHN CHARLES WHITTEN, B. S.,
Professor of Horticulture.

*COURTNEY DEKALB,
Professor of Mining and Metallurgy.

*ARTHUR HENRY TIMMERMAN, B. S., M. M. E.,
Professor of Physics.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

WALTER ALONZO THURSTON, (First Lieutenant U. S. Army),
Professor of Military Science and Tactics.

BENJAMIN FRANKLIN HOFFMAN, M. L.,
Professor of Germanic Languages.

FREDERICK BLAKMAR MUMFORD, M. S.,
Professor of Agriculture, and Curator of the Agricultural Museum.

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† Died October 18, 1895. His successor will be appointed June 1, 1896.

HENRY MARVIN BELDEN, B. A., Ph. D.,
Assistant Professor of English Language and Literature.

JOHN MOORE STEDMAN, B. Sc.,
Professor of Entomology, and Entomolgist to the Experiment Station.

*EUGENE THOMAS ALLEN, A. B., Ph. D.,
Professor of Chemistry and Metallurgy.

RAYMOND WEEKS, A. M.,
Professor of Romance Languages.

MATTHEW B. HAMMOND, Ph. B., M. L.,
Acting Assistant Professor of Political Economy.

T. A. WHITE, D. V. S.,
State Veterinarian, and Lecturer on Veterinary Surgery.

*PAUL JULIUS WILKINS, B. S.,
Instructor in Academic Department.

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

*THOMAS LEWIS RUBEY, A. M.,
Instructor in Academic Department, and Librarian.

HOWELL VAN BLARCOM,
Instructor in Mechanic Arts.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

EDWARD BEAUFORD CAUTHORN, B. S.,
Instructor in Mathematics.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

ROBERT EMMET GRAHAM, M. D.,
Instructor in Bacteriology and Pathology.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Geology and Mineralogy.

MARY ESTELLE PORTER, B. L.,
Instructor in Commercial Studies.

*GEORGE EDWARD MILLER, B. S.,
Instructor in Shop-work and Drawing.

IRVING HARDESTY, A. B.,
Laboratory Assistant in Biology.

MINNA A. KIDWELL, A. B.,
Teaching Fellow in Romance Languages.

THOMAS JACKSON TAYLOR, A. B.,
Teaching Fellow in Germanic Languages.

Historical Statement:

This College had its origin in the beneficence of National, State and local governments. Its location, objects and aims are defined in the following extracts from the acts of Congress and the laws of the State of Missouri:

Its leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life. (Act of Congress, 1862, Sec. 4.)

There is hereby established the Agricultural and Mechanical College, and a School of Mines and Metallurgy, provided for by the grant of the Congress of the United States, as a distinct Department of the University of the State of Missouri. (R. S. of Missouri, Sec. 8738.)

To effect the said leading objects of the College, as herein established, it is provided that the students and members thereof shall be admitted to the libraries, museums, models, cabinets and apparatus, and to all lectures and instructions of the University which now exist or may hereafter exist, and to all other rights and privileges thereof, in a manner as full and ample as are the students of any other Department in said University; and to provide for instruction in military tactics, as herein required, it is enacted that in case a system of military education shall be established by Congress, the State University is hereby required by law to make the necessary provision for carrying out the plan so established in connection with the institution. (R. S., Sec. 8741, p. 2017.)

The Agricultural and Mechanical College, and the School of Mines and Metallurgy herein provided for, shall have each a separate and distinct Faculty, whose officers and professors may be the same in whole or in part as the officers and professors in other Colleges and Departments of the University. (R. S. of Missouri, Sec. 8742.)

In consideration of the permanent location of the Agricultural and Mechanical College in connection with the State University, the county of

Boone shall donate not less than $30,000 in cash, to be used in erecting such buildings and making such improvements as may be needed for such College, and also for a Mechanical College in connection with the State University, and that the same shall be held for the uses and purposes of said Agricultural and Mechanical College. (R. S. of Missouri, Sec. 8744.)

In accordance with the above provisions, the citizens of Boone county made a donation of $90,000 for the erection of a building and the purchase of lands for an experiment farm, and this College was permanently located at Columbia as a Department of the University, and the School of Mines and Metallurgy was located at Rolla, in Phelps County. The latter is under the same general control as the College of Agriculture and Mechanic Arts.

Endowment of the College :

The support of the College is derived from—

1. The proceeds of the sales of the public lands donated to Missouri by the act of Congress of July 2, 1862. This State received as her share two hundred and seventy-five thousand acres, of which there have been sold up to date two hundred and sixteen thousand seven hundred and sixty acres, yielding three hundred and twenty-two thousand dollars. This sum is invested in State certificates of indebtedness, at five per cent, and yields sixteen thousand two hundred dollars. Of this amount one-fourth, or four thousand and fifty dollars, is by law appropriated to the support of the School of Mines and Metallurgy, at Rolla.
2. The act of Congress of March 2, 1887, known as the "Hatch bill," which appropriates $15,000 annually to the College of Agriculture for the maintenance of an Experiment Station. The object of this Station is to conduct experiments in various lines of work connected with agriculture. By the acts of Congress making the above appropriations, the expenditures are expressly restricted for the purposes of instruction, illustration and original scientific investigations in agriculture, and no part can be used for the erection or repair of buildings; such facilities are to be provided by the State of Missouri.

   The annual appropriations under act of Congress of August 30, 1890. The first appropriation of $15,000, for the years 1889-90, is increased each year $1000, and this is to continue until it reaches $25,000, which shall remain an annual appropriation. Of this amount, one-sixteenth is by law appropriated to the "Lincoln Institute," at Jefferson City, for the education of negro children in agriculture and mechanic arts, and one-fourth of the remainder to the School of Mines and Metallurgy, at Rolla.

   The College buildings and Farm. This farm cost originally $60,000.

The above sums, together with the assistance derived from the association of the College of Agriculture with the University, furnish an abundant income for all purposes of instruction and scientific investigation.

The College is divided into four schools, as follows:

A.—The School of Agriculture, including the Agricultural Experiment Station.

B.—The School of Mechanic Arts.

C.—The School of Engineering.

D.—The School of Mines and Metallurgy (at Rolla, Mo.)

A. SCHOOL OF AGRICULTURE.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

HENRY JACKSON WATERS, B. A. S.,
Dean of the Faculty, and Director of the Experiment Station.

PAUL SCHWEITZER, Ph. D.,
Professor of Agricultural Chemistry.

CHRISTIAN WILLIAM MARX, B. E.,
Superintendent of Mechanic Arts.

JOHN CHARLES WHITTEN, B. S.,
Professor of Horticulture, and Secretary to the Faculty.

JOHN WALDO CONNAWAY, M. D. C., M. D.,
Professor of Veterinary Science.

FREDERICK BLACKMAR MUMFORD, M. S.,
Professor of Agriculture, and Curator of the Agricultural Museum.

JOHN MOORE STEDMAN, B. Sc.,
Professor of Entomology, and Entomologist to the Experiment Station.

T. A. WHITE, D. V. S.,
State Veterinarian, and Lecturer on Veterinary Surgery.

WILLOUGHBY CORDELL TINDALL, A. M., M. S.,
Professor of Mathematics.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English Language and Literature.

GARLAND CARR BROADHEAD, M. S.,
Emeritus Professor of Geology.

MILLARD LEWIS LIPSCOMB, A. M..
Professor of Physics.

FREDERICK CHARLES HICKS, B. A., Ph. D.,
Professor of Political Economy.

*HOWARD BEERS GIBSON, A. B., Ph. D.,
Professor of Chemistry.

HOWARD AYERS, B. S., Ph. D.
Professor of Biology, and Curator of the Biological Museum.

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Assistant Professor of Chemistry.

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Acting Assistant Professor of Economics.

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

HOWELL VAN BLARCOM,
Instructor in Mechanic Arts.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

EDWARD BEAUFORD CAUTHORN, B. S.,
Instructor in Mathematics.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

ROBERT EMMET GRAHAM, M. D.,
Instructor in Bacteriology and Pathology.

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*Died October 18, 1895. His successor will be appointed June, 1896.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Geology.

MARY ESTELLE PORTER, B. L.,
Instructor in Commercial Studies

IRVING HARDESTY, A. B.,
Laboratory Assistant in Biology.

Requirements for Admission:

Applicants for admission to the Freshman class must be not less than sixteen years of age, and must have completed the "public school" course of the State. They must submit to the "Committee on Entrance by Diploma" satisfactory evidence of having completed the public school course; or in lieu of such evidence must pass satisfactory examinations in writing on each of the following subjects: English, Arithmetic, Geography (Descriptive and Political), and History of the United States. The examination will cover the ground embraced in the text-books adopted by the State for the common schools—namely, Ray's Practical Arithmetic, the Hyde series of language lessons, Butler's Geography, and Barnes' History of the United States. As a part of the English examination, the applicant will be expected to write a composition of not less than two hundred words.

Applicants for admission to advanced classes must furthermore pass examinations in all the studies previously pursued by the class which they propose to enter. If they have pursued such studies in any of the High Schools of the State approved by the Faculty, or in any other institutions of similar rank, they may receive credit therefor upon presenting to the "Committee on Entrance by Diploma" a certificate from the proper officers of such institutions.

For the dates of examinations for admisssion, see the calendar, p. iii. For board and other expenses, see Index.

COURSES OF INSTRUCTION.

I. A TWELVE WEEKS' WINTER COURSE.

This course is designed to meet the wants of a large number of young men who cannot afford the time or the money necessary for a regular college course in agriculture, and yet desire a better preparation for their life work than can be acquired on the farm.

To suit the convenience of farmers the course is given in the winter. It is open to all over 16 years of age, and no entrance examination or special preparation is required. Any intelligent man with a common

school education will be able to pursue the course with profit. An entrance fee of $5 covers all college expenses.

It is the aim to give the student the largest amount of thoroughly practical information about farming, dairying, gardening, fruit-growing, veterinary science, carpentry and blacksmithing, possible in the twelve weeks allotted to the course, and, at the same time, to instruct him in the elements of chemistry, geology, entomology and botany as applied to agriculture and horticulture. The instruction is imparted by means of lectures, and practical illustrations on the farm, in the barn, in the greenhouse, the laboratories, and machine shops of the college.

The course consists of 216 lectures, divided as follows:

Agriculture, 72; Horticulture, 60; Dairying, 20; Agricultural Chemistry, 30; Economic Entomology, 10; Veterinary Science, 24; Carpentry and Blacksmithing, ten exercises of two and one-half hours each; Book-keeping and farm accounts, six exercises of two and one-half hours each.

In addition to the course outlined, a number of special lectures are given by practical men who have been especially successful in particular branches of farming, fruit or vegetable growing, dairying, stock feeding, or stock breeding.

During the winter of 1896, the following gentlemen delivered lectures in this course: Hon. J. R. Rippey, Secretary to the State Board of Agriculture, Columbia, two lectures on the Missouri Road Horse; Hon. N. F. Murray, Oregon, Mo., Vice-President of the State Horticultural Society, twelve lectures on Commercial Orcharding in Missouri, and six practical exercises in grafting, budding, setting and pruning orchards; John Patterson, Esq., Kirksville, Mo., ex-President of the State Dairymen's Association, six lectures on Butter-making, with twelve practical exercises of two and one-half hours each.

The course will open Tuesday, January 5, 1897, and will be continued daily, except Sunday, until March 29, 1897. Full details will be given in a special circular, which will be ready for distribution in October, 1896, and will be sent to all applicants.

II. A TWO YEARS' COURSE.

The course embraces the first two years of the regular Four Years' Course, and aims to give the student the most comprehensive knowledge of the laws underlying the best modern practice in Agriculture, Horticulture, etc., as well as to develop the highest skill in Mechanical Drawing, Carpentry, and Blacksmithing, that is possible in the time.

In addition to the mental discipline afforded by a study of these useful arts and sciences, the student is instructed in English, Mathematics, etc., with the view of broadening his mind and better fitting him for his duties as a citizen.

It is the purpose of the course to educate the student back to the farm instead of away from it, and to give him such knowledge as will be most useful in the practice of his profession.

The requirements for admission are the same as for the Four Years' Course.

Students completing this course will be granted a certificate.

III. A FOUR YEARS' COURSE.

This course, a continuation of the Two Years' Course, is more scientific, but no less practical.

It has been recast in order to adapt it as far as possible to present requirements in both science and practice. Its object is to give young men a thorough education at the same time that they are carefully instructed in the relations that the sciences bear to the various branches of agriculture; to give the mental training that is indispensable to success and to the discharge of the highest duties of citizenship, as well as the scientific and technical training and knowledge requisite for becoming efficient workers in agricultural affairs, whether as practical farmers, teachers, or investigators. It aims to impart a thorough and comprehensive knowledge of the principles underlying the business of farming according to modern methods. Practice is combined with theory, whenever it is necessary for the demonstration of a principle or involves skilled labor, but the student's time is not consumed in merely manual operations. Increased teaching force and equipment have been provided for the work, and the opportunities offered young men were never so satisfactory as at the present time.

Students completing this course will be entitled to a diploma, conferring upon them the degree of B. Agr.

SCHEME OF STUDIES.

TWO-YEAR AND FOUR-YEAR COURSES.

First Year.

	First semester.			Second semester.	
8:30.	Algebra and Geometry, T. W. Th. F. S.	5	8:30.	Algebra and Geometry, T. W. Th. F. S	5
8:30.	*Commercial Course, M.	1	8:30.	*Commercial Course, M.	1
9:30.	Agriculture, T. Th. S.	3	9:30.	Agriculture, T. Th. S	3
9:30.	English, M. W. F.	3	9:30.	English, M. W. F	3
11:30.	Physics, M. W. F.	3	11:30.	Physics, M. W. F	3
1:30.	*Shop work and Drawing.	5	1:30.	*Shop-work and Drawing.	5
4:00.	Military Science (optional).		4:00.	Military Science (optional).	

Second Year.

First semester.			Second semester.		
8:30.	Agriculture, M. W. F..	3	8:30.	Horticulture, M W. F.....	3
9:30.	English, T. Th. F. S.....	4	8:30.	Animal Physiology, T. Th.S.	3
9:30.	Chemistry, M. W..	2	9:30.	Vegetable Physiology, T. Th. S.....	3
10:30.	Algebra and Geometry, T. W. Th. F. S..... ...	5	9:30.	Chemistry, M. W..... ..	2
1:30.	Chemical Lab., T. W. S.....	2	10:30.	Trigonometry and Surveying, T. Th. S.....	3
1:30.	Shop work and Drawing....	4	1:30	Shop-work and Drawing...	4
4:00.	Military Science (optional).		1:30.	Chemical Lab., T. W.....	2
			4:00.	Military Science (optional).	

Third Year.

First semester.			Second semester.		
8:30.	Horticulture, T. Th. S.....	3	8:30.	Forestry, T. Th.....	2
8:30.	Veterinary Science, M W. F.	3	8.30.	Veterinary Science, S.....	1
9:30.	Agricultural Chemistry, T. Th. S.....	3	9:30.	Agricultural Chemistry, T. Th. S	3
9:30.	Physics, M. W. F	3	10:30.	Systematic Botany, T.Th.S.	3
10:30.	Vegetable Physiology, T. Th. S	3	10:30.	Climatology, F.....	1
	Elective....	3	10:30.	Landscape Gardening, M. W	2
				Elective	6

Fourth Year.

First semester.			Second semester.		
8:30.	Agriculture, T. Th. S.....	3	8:30.	Agriculture, T. Th. S.... ...	3
8:30.	Entomology, M W. F.....	3	10:30.	Geology, T. W. F	3
11:30.	Economics, M. W. F.....	3	10:30.	Economics, M W. F	3
11:30.	Bacteriology, T. Th..... . .	2	11:30.	Bacteriology, T. Th	2
	Elective.....	6		Elective.....	6

*No preparation is required, hence two and one-half times the number of hours given above are spent in the Shop, and in the Drawing and the Commercial rooms.

Elective Work:

On reaching their third year, students of this College are required to elect one of the following groups of subjects: *(a)* Agriculture and Entomology; *(b)* Agriculture and Chemistry; *(c)* Botany and Entomology; *(d)* Horticulture and Botany; *(e)* Horticulture and Entomology; *(f)* Dairying and Chemistry; *(g)* Animal Husbandry and Veterinary Science; *(h)* English, French, or German. At least two hours each must be given to these electives during the four semesters of the third and fourth years, except when the heads of departments, by an exchange, arrange for the students to take all four hours of a subject in one semester. The students' other elective work may be chosen from the general list of electives offered in this College.

Thesis:

As a requisite for graduation, each candidate must present and acceptable thesis, based on the results of original research. The subject

must be announced to the Dean with the approval of the head of the department within which it lies not later than the beginning of the second semester of the senior year. The completed thesis must be submitted not later than the second Saturday before Commencement day.

IV. A TWO YEARS' GRADUATE COURSE.

This course is designed to give graduates of this College and of other Colleges of similar character such professional training as agriculturists, horticulturists, entomologists, agricultural chemists, as will fit them to teach one of these subjects in Agricultural Colleges, and do work along one of these lines in Experiment Stations.

Students who complete this course and comply with the requirements for Master's Degrees (see Index), will receive the degree of M. Agr.

Agriculture.

Professor MUMFORD.

The instruction in this department is thoroughly practical and is intended to give a knowledge of the application of the natural sciences to the complex operations of agriculture. Lectures and recitations are supplemented by practical demonstrations on the farm. In the class room the student becomes familiar with the best rations, and in the barns feeds the rations, and determines their practical value. The student in dairying goes through the whole process of making butter, repeating the work until he becomes familiar with it. The study of live-stock is based upon an examination of a large number of animals, so that the student begins the subject with a knowledge of the best types for various purposes.

1*a*. The Soil. *First semester, T. Th. S., at 9:30.* (First Year.)

A study of the origin, formation, distribution, and classification of soils with reference to their agricultural value; the conditions of fertility and the circumstances that influence it; indications of fertility; barren and exhausted soils; improvement of soils; physical properties of soils, including their relations to air, water and heat; capillarity, diffusion and solution, as related to soil texture; farm drainage, including methods of construction; irrigation, tillage, plowing, subsoiling, harrowing, etc.

2*b*. Principles of Manures and Manuring. *Second semester, T. Th. S., at 9:30.* (First Year.)

Constituents of Plants, sources and specific action of the various elements of plant food; crops and materials used as fertilizers; methods of farming in relation to the conservation of fertility.

Farm Crops.—Plant breeding; variation, selection, self and cross fertilization; practical methods for increasing the yield of crops; conditions of germination and plant growth; rotation of crops; planting, growing, harvesting and storing crops. The results of experiments at the Stations are used in discussing the best methods of culture. The Missouri Experiment Station offers excellent opportunities for the illustration of this work.

3*a*. Animal Husbandry. *First semester, M. W. F, at 8:30.* (Second Year.)

This work begins with a careful study of the types of domestic animals. The score card is the basis in judging beef and dairy cattle, draft and light horses, mutton and wool sheep, swine and poultry. After the student has become familiar with the most approved types, he studies the principles and methods of successful breeding, heredity, atavism, variation, selection, fecundity, influence of environment, in-breeding, cross-breeding, grading, influence of a previous impregnation, controlling sex, etc.

4*a*. Agricultural Engineering. *First Semester, T. Th. S., at 8:30.* (Fourth Year.)

Construction of barns, stables and other shelters; plans for building silos, fences, etc. Road building is considered with special reference to country roads. Some attention is given to the mechanics of farm implements and machines. For this purpose a new self-registering dynamometer has been provided. There is also a model of a horse arranged for determining by experiments, the influence on draft of direction of traces, weight of horses, strength of hock muscles, etc.; and also an appliance for measuring the resistance to tractive force of incline and obstruction.

5*b*. Stock Feeding. *Second semester, T. Th. S., at 8:30.* (Fourth Year.)

The Laws of animal nutrition; composition of the animal body; fodders the source of nutrients; digestion, resorption, circulation, respiration and excretion; formation of muscle, flesh and fat; composition and digestibility as determining the value of feeding stuffs; their preparation and use; feeding for fat, for milk, for wool, for work and for growth. A portion of the time is devoted to practicums, in which the student is required to compound rations and feed them, carefully recording results.

6*b*. Dairying. *Second semester.* (Elective.)

Breeding and improvement of the herd; management and and equipment of the farm dairy. One-half of the student's time is devoted to practical work in the College dairy, which is fully equipped.

7*b*. Experiments in Agriculture. *Second semester.* (Elective.)

The work consists of lectures on methods of Experiment Station work and critical studies of bulletins. The student is required to make abstracts of a sufficient number of bulletins, bearing on a selected line of work, to become familiar with their scope and aim. He is also required to plan and conduct an original experiment, using the results obtained as the basis for a thesis,

8*a*. Judging Live Stock. *First semester.* (Elective.)

Advanced work with the score card, and a study of breed characteristics. The college farm, well equipped with typical specimens of the leading breeds of live stock, offers excellent opportunities for this work.

Courses 1*a*, 2*b* and 3*a* are required for the certificate in Agriculture.

Courses 1*a*, 2*b*, 3*a*, 4*a* and 5*b* are required for B. Agr.

Courses 6*b*, 7*b* and 8*a* are offered as electives to Agricultural students in the Junior and Senior years.

Courses 1*a*, 2*b*, 3*a*, 4*a* and 5 *b* are open to Junior and Senior students in the Academic courses. (See page 28.)

Facilities for Instruction:

Libraries.—A fairly complete library of agricultural books, pamphlets and current periodicals, in the agricultural lecture room, is accessible at all times. During the current year the library has been increased by a nearly complete set of Experiment Station Bulletins, systematically arranged and fully indexed, and by the addition of over 75 volumes of reference works.

Files of the leading agricultural papers are accessible in the reading room. The general University Library contains many works of great interest to agricultural students.

The Agricultural Museum.—The value of a museum is mainly in furnishing illustrative material for study, and for this purpose the Agricultural Museum is well adapted. It contains a collection of wool fibers illustrating the influence of breeding and environment; a large assortment of cotton fibers and of fiber plants from various countries, and a systematic collection of the agricultural grasses of the United States. The forest woods of the State are represented by block specimens showing cross and transverse sections and bark characterestics, and by a collection of polished boards. Several hundred models of early patents of farm machines occupy a considerable portion of the museum. In live-stock there are skeletons of a horse, and hog, and two stuffed specimens of the wild white cattle of Great Britain.

The Farm.—The farm is fully equipped with improved agricultural machinery, a dairy building, hay and stock scales, sheep, cattle and horse barns and model swine pens. The farm and its equipment is used primarily for the instruction of students.

The Live Stock.—For the instruction of students in animal husbandry, the farm maintains typical specimens of the leading breeds of live stock. Among the breeds of cattle are a fine herd of Jerseys, and excellent specimens of Short-horns, Aberdeen Angus, and Herefords A herd of grade steers are fattened each season. There are specimens of the leading breeds of sheep, swine, and poultry, together with grade animals.

The Dairy.—The college has, during the current year, equipped a dairy with several Babcock milk testers, aerators, improved milk and cream vats, various styles of separators, churns and butter workers, and with a complete sterilizing outfit for pasteurizing milk and cream on a large scale.

The Experiment Station Field.—The field experiments of the Missouri Experiment Station offer exceptional opportunities for the study of comparative methods of cultivating and growing farm crops.

Horticulture.

Professor WHITTEN.

The following courses are offered:

1. Sixty lectures (for students in Short Winter Course).

Construction and management of hotbeds and cold frames; propagation of plants, including germination of seeds, making cuttings, budding, grafting and layering; pruning and cultivating orchards and small fruits, and spraying against fungous diseases; originating and improving varieties of fruits and vegetables by cross-fertilization, selection and cultivation.

2*b*. A course in methods of cultivation and management. *Second semester, M. W. F., at 8:30.* (Second Year.)

The work consists of lectures, supplemented by required readings in the library, and frequent practical exercises. The propagation, transplanting, cultivation, pruning, gathering and marketing of fruits and vegetables are the principal topics discussed. Each student is required to make cuttings and grafts, prepare composts, sow seeds, transplant, prune, etc., performing as many of the various horticultural operations as the time will permit.

3*a*. Horticulture. *First semester, T. Th. S., at 8:30.* (Third Year.)

Theory and science of Horticulture; principles underlying the various horticultural operations, cultivation, selection and management, behavior of plants under culture, and plant breeding. In this course the aim is to acquaint the student with the reasons for the various horticultural methods—how and under what conditions seeds germinate, cuttings root, grafts unite; how wounds heal; what environments cause variation in plants, and how these plants are brought to perfection from their wild types; how and why cultivation effects plants, and when and why certain methods are best. In short, the aim is correctly to apply science to practice.

4*b*. Forestry. *Second semester, T. Th., at 8:30.* (Third Year.)

This subject is taught by lectures, with required readings It includes the influence of forestry on climate, the management of forests, and the specific characteristics of the principal economic trees of America.

5*b*. Landscape Gardening. *Second semester, W. S., at 11:30.* (Third Year.)

The laying out and planting of ornamental grounds, the making of roads, lawns, flower and shrubbery borders, the consideration of trees, shrubs and flowering plants, are the principal topics of this course, taught by lectures and practical exercises.

6*a*. Horticulture. *First semester, M. W. F., at 8:30.* (Fourth Year Elective.)

Preceding courses are required. This course provides for carrying on independent lines of investigation—Variety study of fruits or vegetables on the grounds; propagation of plants under various conditions of heat, moisture, sunlight, etc., in the greenhouse and hotbeds; treatment of refractory seeds, and seed testing.

Courses 2*b* and 4*b* may be elected by Academic students in the Senior Year.

Facilities for Instruction:

The Horticultural grounds include 32 acres, containing a well-planted lawn, with shrubbery and flower borders, collections of various kinds of small fruits and grapes, and representative varieties of stone fruits, apples and pears. Over 500 varieties of orchard fruits are now growing on the grounds. Nut trees from selected stock are being put out, and our native wild fruits are being collected and planted. Many kinds of vegetables are grown every year. A class room, an herbarium and seed room, a photographic room, and a library have been equipped in a substantial brick building on the Horticultural grounds during the past year. A greenhouse, one of the finest in the State, has just been erected for practical work in Horticulture. This, together with a commodious propagating house and range of hotbeds, affords ample opportunity for teaching methods of propagating and forcing plants. The department has a Horticultural herbarium of moderate size. The Experimental orchards, vineyards, vegetable plots and nurseries afford excellent facilities for instruction in horticulture. The department has a file nearly complete of the Experiment Station literature of the country, the Experiment Station card-index to this literature, the reports and proceedings of various State horticultural societies, and the leading horticultural journals. During the past year the Horticultural library has been increased to more than six times its former size, and it now contains many valuable cultural and scientific treatises, which afford good opportunity for research in practical methods and in the sciences that underlie them. These works are systematically arranged, and are being indexed. The Experiment Station literature is systematically arranged in chronological order, in convenient filing cases. The department has also received about 700 jars of preserved fruits and vegetables exhibited at the World's Fair, and has a good collection of seeds and of horticultural products.

Entomology.

Professor STEDMAN.

The instruction in Entomology is given by lectures supplemented by laboratory and field work. As far as practicable the student collects and studies his own specimens. The collecting is done systematically in the fall while the insects are still alive; later the field work is entirely replaced by laboratory work. The collecting includes the work done by insects, as well as their eggs, larvæ, pupæ and adults, while their habits and economy receive due attention. The lectures cover the external and internal anatomy, life histories, habits, economy, and classification of insects; the characteristics of the orders, sub-orders and principal families, with special emphasis upon those of economic importance, and the best methods of combatting their ravages. The laboratory work embraces the study,

by means of actual specimens, of the internal and external anatomy, life histories, habits, economy, breeding, identification or determination of genera and species, and the classification of those insects found in our fauna; and also economic work and original investigation for advanced students.

The following courses are offered:

1*a*. General Entomology. (1) Lectures. Internal and external anatomy, life histories, habits, economy, characteristics, classification, methods of destruction, machines and insecticides, Apiculture. *First semester, W. F., at 8.30.* (2) Laboratory work, collecting, preserving, breeding, methods, habits, life histories, work, external anatomy, identification or determination of orders, families and genera, classification. *First semester, T., at 1:30.* (Fourth Year.)

2. Economic Entomology. (For students in the Short Winter course.) See special catalogue, to be issued in October, 1896.

3*b*. Advanced Entomology. Lectures and Laboratory work. Internal anatomy, histology, physiology, embryology, breeding, life histories, habits, economy, distribution, dimorphism, mimicry, determination of species, classification. *Second semester, at hours to be appointed.* (Fourth Year Elective.)

Must be preceded by Course 1*a*.

4. Graduate Work in Entomology. Laboratory work. Monographing a group (scientific), monographing a species (economic). *Both semesters, at hours to be appointed.*

Must be preceded by Course 3*b*.

All courses in Entomology are elective for Academic and other students. Agricultural students may elect Course 3*b* in the Senior year, and Course 4 in the Graduate years.

Facilities for Instruction and Research:

The Entomological Department occupies the second floor of the Horticultural Building. The laboratory contains an Entomological Cabinet illustrating the habits, work, and life histories of the more important injurious and beneficial insects; also, several thousand species of adult insects from all orders, correctly classified and labeled, and accessible to the student for reference and comparison, as well as for use in illustrating the lectures.

The general laboratory is supplied with a large microtome, paraffine bath, hot oven, large and small breeding cages and jars, aquaria, spraying machines of various kinds, insecticides, and reagents. The Department subscribes for and receives twelve current periodicals on the subject of Entomology. These are kept in the laboratory in connection with the department library, and are accessible to the students at all times.

Agricultural Chemistry.

Professor SCHWEITZER.

1*a*. Agricultural Chemistry. *First semester, T. Th. S., at 9:30.*

(Third Year.)

General introduction; functions of the plant, including production, conversion, transportation, disposition of organic matter; physiological structure of the cell; respiration; the green cell an apparatus for doing work dependent upon light and heat; nitrogenous constituents of the plant and their relation to free and combined nitrogen; mineral constituents; membraneous diffusion; assimilation; conditions of vegetation.

1*b*. Agricultural Chemistry. *Second semester, M. W. F., at 9:30.*

(Third Year.)

Soil,—its formation, composition, alteration by mechanical, chemical, biological agencies; its relation to light, heat and moisture. Soil physics in general. Manures, natural and artificial; their composition, application, value. Theory of rotation of crops; extensive and intensive cultivation; industrial agriculture in general. Farm sanitation: air, respiration, vitiated air and ventilation, infection, contagion, germ theory of disease. Water: potable water, hard and soft; impurities in it, and their effects upon health and life. Food, composition and general properties; preservation of food, and food adulterations.

Veterinary Science.

Drs. CONNAWAY, WHITE, and GRAHAM.

1*b*. The Anatomy, Physiology and Hygiene, of the domesticated animals. *Second semester, M. W. F., at 8:30.* Professor CONNAWAY.

(Second Year.)

This course is given by lectures, and laboratory work, the latter consisting of the complete dissection of one or more animals, and a comparative study of such organs as show variations in the different species; charts, models, and prepared specimens will also be available for illustrating this study. Practical demonstrations will be given in the Physiological laboratory of the more important functions of the animal body. The study of food stuffs and the action of the digestive fluids will receive special attention.

2*a*. Veterinary Medicine and Surgery. *First semester, M. W. F., at 8:30.* Professor CONNAWAY. (Third Year.)

The first half of the semester is devoted to the study of those diseases that affect the internal organs: as the lungs, stomach, intestines, urinary organs, etc.; the second half of the semester is given to the study of the diseases and conditions that require surgical treatment: as lameness, wounds, abcesses, tumors, etc. A clinic is held one afternoon of each week for the treatment of the diseases discussed in the classroom. In proper season instruction is given in castration, spraying, and caponizing.

3*b*. Contagious and Infectious Diseases, and Quarantine Regulations. *Second semester*. Dr. WHITE. (Third Year.)

A series of lectures by Dr. T. A. White, State Veterinarian, on Glanders, Anthrax, Black-leg, Tuberculosis, *maladie du coit*, Texas fever, etc., and the means by which these diseases are controlled.

4*a*. Bacteriology (Laboratory course.) A study of the pathogenic germs affecting man and the domesticated animals. *First semester, T. Th.* Dr. GRAHAM. (Fourth Year.)

4*b*. Bacteria of the Dairy and of Fermentation. *Second semester, T. Th.* Dr. GRAHAM. (Fourth Year.)

Mechanic Arts.

Professor MARX; Mr. VAN BLARCOM; Mr. PLACE.

The following courses are offered:

1. Wood-working and Pattern-making. *M. W. F., at 1:30.* (First Year.)

This course begins with a series of exercises in wood-working, each of which is intended to give the student familiarity with the use of some tool. The course, as a whole, is expected to enable the industrious student easily and exactly to perform any ordinary operation familiar to the carpenter, to the joiner, and the pattern-maker. Time permitting, these exercises are followed by practice in making parts of structures, joints, small complete structures, patterns, core-boxes, and other constructions in wood. Particular attention is paid to the details of pattern-making.

2. Forging, Molding and Foundry-work. *T. Th. S., at 1:30.* (Second Year.)

These courses are expected to give the student not only a knowledge of the methods of the blacksmith and the molder, but also that manual skill in the handling of tools which will enable him to enter the machine-shop, and there quickly to acquire familiarity and skill in the manipulation of the metals, and in the management of both hand and machine tools.

3. Machine-work (For Junior Engineering). *M. W. F., at 1:30.*

The instruction in the machine-shop, as in the foundry and at the forge, is carried on in substantially the same manner as in the wood-work. The course begins with a series of graded exercises, which give the student familiarity with the tools of the craft, and with the operations for which they are particularly designed, and ends with practice in the construction of parts of machinery, and, time permitting, in the building of complete machines.

Courses 1 and 2 are for students in the College of Agriculture and Mechanic Arts, and for Engineers. Course 3 is for Engineers only.

The course in drawing (Course 2, announced just below) is designed to give some practical knowledge of free-hand and mechanical drawing, so that the student may be able to make plans for the construction or repair of farm buildings and machinery, and plat the surveys of farms, fields, roads, and drains.

For statement and description of facilities of instruction, see announcement of the School of Mechanic Arts, pages 99–100.

Drawing.

Mr. PLACE, Instructor.

Three courses are offered: 1. For Students in the Normal Department; 2. For Students in the College of Agriculture and Mechanic Arts; 3. For Students in Engineering.

1. Normal Drawing. The object of this course is to show what kind of drawing should be taught in our district shools, and how to teach it.

2. Agricultural Drawing. The course is especially arranged to be of practical value to the farmer in designing buildings, machinery, and in planning repairs about the farm.

3. Engineering Drawing. This course is very complete, and it is expected that the student will be a thorough draughtsman when he has finished it. Briefly, it consisted of geometrical projections, round writting, lettering, free-hand drawing, problems in descriptive geometry, elements of machine drawing, colored and pen topography, tracing, blueprinting, and brush shading

Desks and lockers are provided by the University; all instruments, materials, supplies, etc., are to be furnished by the student.

Commercial Studies.

Miss PORTER.

The work in this course does not cover that provided by a full Business College Course, but is designed for those who wish to conduct and record the ordinary business transactions of every-day life in a business-like and systematic manner.

To this end instruction is given in correspondence, making out bills and statements, writing receipts, cheques, notes and drafts, together with the use of the various account books. An important part of the work will be a thorough drill in journalizing, concluding with the writing up of entire sets of books, that the student may make a practical application of his previous work in the various business forms.

This work is required in both semesters of the First Year.

Stenography.—A course in stenography is provided for those students who wish to carry on the study while prosecuting regular work in the University.

Three hours of class room work, supplemented by at least the same time of preparation, are required. The first semester will be devoted to thorough drill in the principles of the system adopted, and the second

semester to an application of these principles in reading and dictation exercises. These exercises will include correspondence, addresses, and court-reporting. At the end of the year it is expected that the student will have attained a speed of from sixty-five to ninety words a minute, according to his application to the work. During the first year more attention is given to accuracy in writing and *reading*, than to practice for speed.

Those wishing to make the study valuable will continue dictation exercises during the second year.

Military Science.

Lieut. THURSTON.

An officer of the regular army is detailed by the War department as Professor of Military Science and Tactics, to carry out the provisions of the act of Congress of 1862, which, in endowing this and similar institutions, stipulates that military tactics shall be taught.

Students taking this instruction are required to conform to the special rules and regulations prescribed for the Military department. These requirements are so adjusted as to harmonize with the regular class-work.

The instruction offered in this Department is open to all students of the University. Military drill is given at least three times a week, from 4 to 5. For information about cadetships, uniforms, cadet band, equipment in artillery and small arms, see announcement of the Department of Military Science and Tactics, pages 69-72.

English.

Assistant Professor PENN.

The course embraces the study of the language, of rhetoric, and of literature, arranged as follows:

1*a*. Essentials of English. *First semester, M. W. F., at 9:30.* (First Year.)
Longman's English Grammar, Hawthorne's Grandfather's Chair.

2*b*. Composition and Rhetoric. *Second semester, M. W. F., at 9:30.* (First Year.)
William's Rhetoric, Goldsmith's Deserted Village.

3*a*. English and American Literature. *First semester, T. Th. F. S., at 9:30.* (Second Year.)

The masterpieces announced for the English entrance examinations of the following session will, so far as convenient, constitute the work. See pages 17-18.

Political Economy.

Professor HICKS; Acting Assistant Professor HAMMOND.

The following courses are required:

1*a*. Theory of Economics. *First semester, M. W. F,, at 11:30.* (Fourth Year.)

2*b*. Theory of Finance. *Second semester, M. W. F., at 11:30.* (Fourth Year.)

Course 3*b* must be preceded by 1*a*.

Mathematics.

Mr. CAUTHORN.

The following courses are required:

1. Elementary Algebra. *T. Th. S., at 8:30.* (First Year.)
   Text: Chas. Smith's Elementary Algebra.

2. Plane Geometry. *W. F., at 8:30.* (First Year.)
   Text: Bowser's Plane Geometry.

3*a*. Elementary Algebra. *First semester, T. Th. S., at 10:30.* (Second Year.)
   Text: Same as in Course 1.

4*a*. Plane Geometry. *First semester, W. F., at 10:30.* (Second Year.)
   Text: Same as in Course 2.

5*b*. Trigonometry and Surveying. *Second semester, T. Th. S., at 10:30.* (Second Year.)
   Text: Davies' Surveying.

Candidates for admission to any of these courses must pass a satisfactory examination on Arithmetic.

Chemistry.

*Professor GIBSON; Acting Professor SCHWEITZER; Mr. DINSMOOR.

The following courses are required:

1*a*. Elementary Chemistry. *First semester:* Lectures, *M. W., at 9:30.* Laboratory, *T. W., at 1:30.* Acting Professor SCHWEITZER, and Mr. DINSMOOR. (Second Year.)

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*Died Oct. 18, 1895. His successor will be appointed June 1, 1896.

1*b*. Qualitative Analysis. *Second semester:* Lectures, *M. W., at 9:30.* Laboratory, *T. W., at 1:30.* Assistant Professor CALVERT, and Mr. DINSMOOR. (Second Year.)

The following courses are elective:

2*a*. Quantitative Analysis.

5*a*. The Carbon Compounds.

6. Quantitative Analysis (second course).

These courses are announced in detail on page 43.

3 Sanitary and Physiological Chemistry.

For details, see page 65.

Botany.

Professor AYERS.

1*b*. Vegetable Physiology. Lectures and laboratory. *Second semester, M. W. F., at 11:30.* (Second Year.)

2*a*. Vegetable Physiology. Lectures and laboratory. *First semester, T. Th. S., at 9:30.* (Third Year.)

Text-books for Courses 1*b* and 2*a*, Bergen's Elements of Botany and Vine's Physiology of Plants. These courses are intended to introduce the student into the elements of the structure and functions of plants *(first semester)*, and to give him special laboratory practice in the physiological problems of several species of important economic plants.

2*b*. Systematic Botany. Recitations, and identification of the local phanerogamic flora. *Second semester, M. W. F., at 9:30.* (Third Year.)

Text-book: Gray's Manual and Lessons in Botany. The main object of this course is to familiarize the student with the local flora, especial attention being devoted to the native useful and harmful plants.

Geology.

Professor BROADHEAD; Mr. MARBUT.

The following course is required;

4*b*. Economic Geology. *Second semester, T. W. F., at 10:30.* (Fourth Year.)

This course deals with subjects from their economic aspect, such as water supply, mineral springs, fertilizers, the origin and relation of soils to the underlying rock structure, clays, cement, etc. Text-book: Tarr's Economic Geology.

Climatology.

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1*a*. Climatology. *First semester, M , at 10:30.* (Third Year.)

This course covers Elementary Meteorology; the laws of storms; weather forecasts, how made, and distributed, and the advantages to be derived from them; frosts, how they may be anticipated, and what measures may be taken to prevent damage therefrom; weather charts and their uses; the climate of Missouri; local climatic peculiarities, and their effects upon certain crops.

Physics.

Professor LIPSCOMB; Mr. GRIFFITH.

The following courses are required:

1*a*. Elementary Physics. *First semester, M. W. F., at 11:30.* (First Year.)

2*b*. Elementary Physics, and Laboratory. *Second semester, M. W. F., at 11:30.* (First Year.)

3*a*. Advanced Physics. *First semester, M. W. F., at 9:30.* (Third Year.)

For further information, see Physics, in Academic department, page 42.

THE AGRICULTURAL EXPERIMENT STATION.

This station was established by the act of Congress of 1887, and by the acts of the General Assembly of Missouri accepting its provisions. By the order of the Board of Curators of the University of the State of Missouri it is made a Department of the College of Agriculture.

The following are the essential sections of the act of Congress referred to, and define clearly the objects to be accomplished in the organization of these stations:

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and application of agricultural science, there shall be established, under direction of the college or colleges or agricultural department of colleges in each state or territory, established, or which may hereafter be established, in accordance with the provisions of an act approved July second, eighteen hundred and

*To be appointed shortly.

sixty-two, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "Agricultural Experiment Station."

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analyses of soils and waters; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; 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 or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories.

SEC. 3. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the states or territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

It will be noted that the act of Congress of 1862 was designed to promote Agricultural *education*, while that of 1887 provides for Agricultural *investigation*.

The Station uses such parts of the College farm and equipment as are needed for experiments.

The results of experiments are given to the public in a series of bulletins, which are furnished free of charge to any one applying for the same. These bulletins are numbered from 1 to 35 of the Farm series, and from 1 to 31 of the Station series, since its organization in 1888.

During the year seven Bulletins, aggregating 250 pages, reporting the results of careful scientific experiments in cattle and swine feeding; tests of different breeds of beef cattle; tests of varieties of wheat, fruits and vegetables; spraying orchards and vineyards, and dairy management,

were published. Ten thousand copies of each were distributed free to the newspapers of the State and to the agricultural press, the libraries of colleges and high schools of the State, and to the leading farmers of this and adjoining states.

The experimental work has been greatly expanded and made more exact and scientific, keeping constantly in view, however, its practical and economic phases.

In agriculture investigations are now under way covering questions of maintenance of soil fertility; the renovation of worn-out soils; the most efficacious rotation of crops; comparison of green manure crops, forage crops, varieties of grains, grasses, potatoes, etc.; best methods of tillage for corn; effect of subsoiling and tile drainage; feeding experiments designed to ascertain the cheapest foods for pork and beef productions, and the cheapest method of wintering cattle.

In Horticulture about 400 named varieties of apples, 108 of plums, 120 of grapes, 28 of peaches, 10 of pears, 160 of strawberries and other fruits, are growing and being tested upon the Horticultural grounds. In addition, several hundred varieties of seedling strawberries, one-half of them the result of careful cross breeding of known parents, have been originated and are giving promise of good results on the grounds. During the past year, seeds of hand, pollinated peaches and plums and selected seeds and plants of promising types of native nuts, persimmons, papaws and other wild fruits have been planted. A collection of figs, Japanese persimmons and other foreign fruits and nuts have been secured. The work of plant breeding will be continued with a view of obtaining varieties better adapted to our climatic conditions. The leading varieties of vegetables are tested as they come on the market.

Experiments in spraying with various mixtures for fungous diseases are carried on in a number of private orchards as well as on the Horticultural grounds. Experiments in pruning and grafting are in progress in the new orchards and in the vineyard.

The various orchard trees and vines are observed for their pollinating characteristics and to see whether self or cross fertilization occurs in each variety. Methods of protecting tender buds are being tried.

An experiment in breeding tomatoes is in progress.

During the past year a fine equipment in modern spraying apparatus, a number of hot-bed sash, pots, tools, grape trellis material, hundreds of varieties of plants, and nearly a complete set of Experiment Station literature, have been secured. The Experiment Station Library in Horticulture has been increased to more than six times its former size, and it now contains many valuable works, practical and scientific. Five weighing scales, a microscope table, seed and fungus cases and other laboratory appliances for accurate experimental work have been supplied.

The Entomological Department is conducting extensive experiments in the best methods of suppressing insects injurious to farm, garden, and orchard crops.

For further information concerning the College of Agriculture or the Experiment Station, address H. J. WATERS,
Dean and Director,
Columbia, Mo.

OFFICERS OF THE EXPERIMENT STATION.

BOARD OF CONTROL:

The Curators of the University of the State of Missouri.

ADVISORY COUNCIL:

The State Board of Agriculture.

STATION STAFF:

RICHARD HENRY JESSE, LL. D.....President
HENRY J. WATERS, B. A. S..... Director and Agriculturist
PAUL SCHWEITZER, Ph. D..... ..Chemist
JOHN C. WHITTEN, B. S ....Horticulturist
JOHN MOORE STEDMAN, B. Sc.....Entomologist
C. M. CONNER, B. Agr., B. S.....Assistant in Agriculture
*A. E. HACKETT.....Observer U. S. Weather Bureau, Assistant Director Missouri Weather Service.
IRVIN SWITZLER..... .....Secretary
ROBERT B. PRICE..... .....Treasurer

B. SCHOOL OF MECHANIC ARTS.

CHRISTIAN WILLIAM MARX, B. E.,
Superintendent.

HOWELL VAN BLARCUM,
Instructor in Mechanic Arts.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

The University has not developed the School of Mechanic Arts as separate on the one side from the School of Agriculture, and on the other side from that of Engineering. While the courses in Mechanic Arts are

*In the service of the State Board of Agriculture.

open to students of all departments, and are taken by some in every department, the great majority of the students taking this instruction belong to the School of Agriculture or to that of Engineering. Hence, they are taught in English, Modern Languages, Mathematics, the Sciences, and other studies, by a number of teachers, whose names are given in the Faculty of the School of Agriculture, or that of the School of Engineering. (See pages 78-80 and 101-102.)

Facilities for Instruction:

The building for Mechanic Arts, 108×117 feet, has two stories and a basement. It contains six work-shops 40×40 feet, an exhibit hall 25×40, two offices 16×18, one drawing-room 40×40, two class-rooms 18×22, besides store-rooms, an engine-room, lavatories, etc. The machinery is driven by a 60-horse power Corliss engine.

Four hundred students in classes of 24, each class occupying two hours and a half a day, can easily be taught. The carpenter and pattern shop has accommodations for four classes of 24 students each. Each student has for his exclusive use a lock-drawer and a set of tools, for the care and safety of which he is held responsible.

There are 25 speed lathes for wood turning, 25 sets of bench tools, 96 sets of edge tools, and as many lock-drawers.

The blacksmith-shop is equipped with 25 forges, 25 anvils, and 25 sets of anvil and forge tools.

The machine-shop is equipped with three screw-cutting engine lathes 14″ swing, 8′ bed; one screw-cutting engine lathe 18″ swing, 8′ bed; one polishing lathe 12″ swing, 6′ bed; one 26×26 Gray planer; one 18″ crank-shaper; one pipe-cutting and threading machine; one wet and dry emery grinder and surfacer; one 24″ drill-press; and with tool-room and ample bench outfit.

The blast for the forges is supplied by a power blower. A 48″ exhaust fan keeps the shops cool and free from smoke and gases, even when all fires are going in the forges.

Two large shops, each 40×45 feet, are as yet unfurnished, but will be equipped with benches and speed lathes or moulding outfit to suit the demands of the future.

The whole building is lighted by a 360-lamp dynamo, situated in the engine-room.

The teaching is by lectures. The instructor at the bench, machine, or anvil fully explains the principles to be used, and all work involving new principles is executed in the presence of the whole class. Free use is made of drawings and the black-board.

When every step has been explained, the class proceeds to the execution of the work, while the instructor superintends and gives help to such as need it.

A series of 25 or 30 graduated exercises is given in each shop. All the work is disciplinary; special trades are not taught, nor are articles manufactured for sale. The value lies in the educational result of each exercise, in training the mind and hand to act simultaneously—the hand at the will of the mind.

Courses:

The School of Mechanic Arts offers several elementary courses to students in the School of Agriculture, which are announced on page 91. A four-years' course is outlined in Mechanical Engineering (see page 109), which leads to a professional degree.

For information as to tuition fees and other expenses, see "Fees and Expenses," in Index.

C. SCHOOL OF ENGINEERING.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

HENRY JACKSON WATERS, B. A. S.,
Dean of the Faculty.

CHRISTIAN WILLIAM MARX, B. E.,
Professor of Mechanical Engineering, and Superintendent of Mechanic Arts.

WILLIAM SHRADER, B. S., Ph. D.,
Professor of Electrical Engineering.

HARRY THOMAS CORY, M. E., C. E.,
Professor of Civil Engineering, and Secretary to the Faculty.

WILLOUGHBY CORDELL TINDALL, A. M., M. S.,
Professor of Mathematics.

EDWARD ARCHIBALD ALLEN, Litt. D.,
Professor of English.

HENRY CAPLES PENN, A. M.,
Assistant Professor of English.

GARLAND CARR BROADHEAD, M. S.,
Professor of Geology and Mineralogy.

MILLARD LEWIS LIPSCOMB, A. M.,
Professor of Physics.

MILTON UPDEGRAFF, M. S., B. C. E.,
Professor of Astronomy, and Assistant Professor of Mathematics.

LUTHER MARION DEFOE, A. B.,
Assistant Professor of Mathematics.

*HOWARD BEERS GIBSON, A. B , Ph. D.,
Professor of Chemistry.

SIDNEY CALVERT, B. Sc., A. M.,
Assistant Professor of Chemistry.

BENJAMIN FRANKLIN HOFFMAN, M. L.,
Professor of Germanic Languages.

HENRY MARVIN BELDEN, B. A., Ph. D.,
Assistant Professor of English Language and Literature.

RAYMOND WEEKS, A. M.,
Professor of Romance Languages.

SILAS DINSMOOR, A. B.,
Instructor in Chemistry.

HOWELL VAN BLARCOM,
Instructor in Mechanic Arts.

ARTHUR HARRINGTON PLACE, C. E.,
Instructor in Drawing.

WILLIAM WALTER GRIFFITH, B. S.,
Instructor in Physics.

CURTIS FLETCHER MARBUT, B. S., A. M.,
Instructor in Mineralogy and Geology.

MINNA A. KIDWELL, A. B.,
Teaching Fellow in Romance Languages.

THOMAS JACKSON TAYLOR, A. B.,
Teaching Fellow in Germanic Languages.

Requirements for Admission:

The following are the requirements for admission to the Freshman Class for the session of 1896-97:

1. French or German—two years' work.

The two years' work in German means the ability to read at sight ordinary German prose, and to translate simple English sentences into German, and includes a correct pronunciation of the language. Two years'

*Died October 18, 1895. His successor will be appointed June 1, 1896.

work in French means a like ability in French. For the present the University provides instruction for such students as have not had the two years of French or German required for entrance, and are therefore conditioned thereon.

2. English. Same as for the Academic department. See page 17.

3. Mathematics. Algebra and Plane Geometry. The equivalent of Smith's Elementary Algebra, and of Wentworth's or Bowser's Plane Geometry is required.

4. Science. One year's work each, with laboratory practice, in any two of the following sciences. Biology (Botany and Zoology), Physics, Chemistry.

5. History—with special reference to Greece, Rome, and Modern Times.

No student deficient in Mathematics will be allowed to enter the Engineering department.

Advanced Requirements for 1897.—For the session of 1897-98 the requirement in History will be increased to two years' work for all courses in the Engineering Department. By History is meant that of Greece, Rome, and Modern times. See pages 18, 20 and 24, requirements in History for the Academic Department.

Courses:

The three courses offered below lead respectively to the degrees of Bachelor of Science in Civil Engineering, and Bachelor of Science in Electrical Engineering, and Bachelor of Science in Mechanical Engineering. A special course of one year in Civil Engineering for surveyors leads to a Certificate.

During the vacation following the Junior year, Engineering students are required to visit, and to write a report, with necessary drawings, of some engineering enterprise in their respective lines of work.

A course in Civil Engineering, and courses in Mining Engineering and in Chemistry and Metallurgy, are given in the School of Mines and Metallurgy at Rolla, which is a department of the University. See pages 113-118.

For general statement as to buildings and equipment, see Index.

For information as to tuition charges, fees, etc., see "Fees and Expenses;" in the Index.

Degrees:

The degrees of Civil Engineer (C. E.), Electrical Engineer (E. E.), and Mechanical Engineer (M. E.), will be conferred on candidates who, after receiving the first degree from this University or one of equivalent standing, have spent in the same course one year (at least ten hours a week) in graduate work in the University, or two years in professional practice and in graduate work *in absentia*.

The candidate must pass an examination on his graduate work and present a satisfactory thesis.

Civil Engineering.

Professor CORY.

The instruction is given by means of lectures and recitations, supplemented by draughting, field and laboratory work. The field work embraces the modern methods of land, railroad and mining surveying, while laboratory work is provided in Chemistry, Geology, Physics and Engineering. The course of instruction has been planned with a view to laying a substantial foundation for the general and technical knowledge needed by practical engineers.

There is a complete equipment of Transits, Compasses, Levels, Chains, Leveling-rods, Stadia rods, etc., and students have free access to museums and laboratories of all the other departments of the University. Cement, Hydraulic, and Testing laboratories are now fitted up.

COURSE IN CIVIL ENGINEERING.

Freshman Year.

First Semester.

Mathematics—Solid Geometry and Higher Algebra	5
English—Rhetoric, Composition and Literature	3
French or German—Grammar and Reader	3
Drawing—Free-hand shading, geometrical projections, lettering	4
Shop—Use of joiners' tools	3

Second Semester.

Mathematics—Trigonometry and Higher Algebra	5
English—Rhetoric, Composition and Literature	2
French or German—Reading	3
Descriptive Geometry—Orthographic projections, problems of points, lines and planes. Representations of surfaces, tangencies and intersections. Perspective and isometric	4
Drawing—Problems in Descriptive Geometry	2
Shop—Wood-turning and framing	2

Sophomore Year.

First Semester.

Chemistry—Elementary Laboratory	4
Drawing—Elements of machine drawing	2
Surveying—Use of instruments, the theory and practice of Land Surveying. Topography	4
Physics—Text: Barker's	3
Mathematics—Analytical Geometry	3
Shop—Forging	2

Second Semester.

Physics—Text: Barker's 5
Drawing—Tinting, tracing, blue printing and topographical 2
Chemistry 4
Mathematics—Calculus 3
Shop—Forging 2
Machine design 2

Junior Year.

First Semester.

Mechanics of Engineering 5
Calculus 3
Railroad Engineering—Economic theory of location, curves, field engineering, etc 5
Metals and Metallurgy—Materials for Engineering 2
Elective ..... 0—3

Second Semester.

Mechanics of Engineering 3
Calculus 3
Framed structures—Analytical and graphical analysis 3
Geology—Economic 3
Engineering laboratory 2
Surveying—Two weeks' field practice and one week's office work 1
Elective ..... 0—3

Senior Year.

First Semester.

Astronomy—Practical Astronomy, with night observations 5
Masonry and Foundations 3
Bridge Engineering—Design and details 3
Steam Engineering—Types of engines and boilers, details of construction, indicator, valve gears and valve adjustments 3
Engineering laboratory 2
Elective ..... 0—2

Second Semester.

Geodesy and Least Squares—Figure of the earth, U. S. Coast and Geodetic Surveys, etc 3
Hydraulic Engineering — Water collection and distribution, water-wheels, turbines 3
Right and Oblique Arches—Stereotomy and stone-cutting 3
City and Sanitary Engineering 3
Engineering laboratory 2
Geodetic Practice—Two weeks' field practice and one week's office work. 1
Elective ..... 0—3

COURSE IN SURVEYING.

A special course in Surveying is offered in addition to the regular four years' course. This is designed especially for those wishing to fit themselves for the position of County Surveyor or Government Land Surveyor. A certificate of proficiency is given to those who complete this course, which may be done in forty weeks. The requirements for entrance are the same as those required for the regular course, with a working knowledge of Trigonometry added.

For the Rollins scholarship, see Index.

Electrical Engineering.

Professor SHRADER.

This course fits students for the installation and management of electric light and power stations, the design and manufacture of electrical apparatus, and for all kinds of electrical expert work.

On account of the importance of Electrical Engineering, especial attention has been paid to the equipment. The instruments are mostly of new forms and of the finest make.

Among these may be mentioned Ayrton and Perry's Secohmmeter and Standard of Self-Induction; Ayrton and Perry's Ammeters and Voltmeters; Hot-wire Volt-meter; Portable D'Arsonval Galvanometer; Ballistic Galvanometer; Standard Tangent Galvanometer; Sir William Thomson's Reflecting Astatic Galvanometers; Wiedemann's Dead Beat Galvanometer; Standard Resistance Boxes and Wheatstone Bridges; Queen's New Portable Testing and Resistance Set; Kohlrausch-Kirchhoff Wheatstone Bridge; Electro-dynamometers; Sir William Thomson's Direct Reading Balances and Graded Potential Galvanometer; Voltameters, Electrometers and Magnetometers.

Among several important appliances are the following: A storage battery installation, a complete electrical light plant, consisting of a sixty-horse-power Corliss engine, a number of dynamos and motors of various sizes and types, series, shunt, and compound wound; and, in connection with these, for use in experiments, Brackett's Cradle Dynamometer, with registering apparatus, portable tachometers, speed counters, and measuring instruments of most approved forms.

Practice is given in the designing and construction of electrical apparatus and machinery, and in laying out installation.

COURSE IN ELECTRICAL ENGINEERING.

The Freshman and Sophomore years are identical with those of the Civil Engineering course (page 104).

Junior Year.

First Semester.

Mechanics of Engineering—Statics, dynamics 5
Physics—Heat and light, laboratory work 3
Physical Laboratory—Experiments in sound, heat and light 1
Calculus 3
Electrical Laboratory—Measurement of resistance, electromotive forces and currents 1
Shop—Machine and vise work on metals 2
Elective 0-3

Second Semester.

Mechanics of Engineering—Strength of materials 3
Mathematical Electricity and Magnetism—Fundamental units, potential theory, hysteresis, Ewing's theory, condensers, laws of the electric current, laws of electro-magnetic induction, electrical measurements, primary and secondary batteries 3
Electrical Laboratory—Measurement of electrostatic capacities, electrical power, intensity of magnetic fields, magnetic permeability, coefficients of induction 3
Calculus 3
Shop—Machine and vise work on metals 3
Elective 0-3

Senior Year.

First Semester.

Dynamo Electric Machinery—Magnetic circuits of dynamos, theory of continuous current machines, tests of dynamos, construction and design of continuous current machines, alternators, tests of alternators, design and construction, alternators with polyphase currents and transformers, theory, tests, design and construction 4
Steam Engineering (same as in Civil Engineering) 3
Chemical Laboratory 2
Technical Applications—Characteristics of series, shunt, and compound dynamos and motors with and without dynamometers, determination of leakage, adjustment and test of accumulators, study of self-induction and armature reaction 3

Theory of Alternate Currents—The theory of simple periodic currents, current growth in inductive circuits, instantaneous value of a simple periodic current, impedance of branch circuits, theory of the induction coil, magnetic screening, transmission of rapid alternating currents through conductors, dynamical theory of current induction, electrical oscillation, resonance, reflection and interference of electric waves, refraction 3

Elective.....0–3

Second Semester.

Electricity—Motors, direct current, synchronous, periodic and turning, inducing fields, transmission and distribution of mechanical energy, applications, electric traction, telegraphy, telephony, photometry, cost of electric lighting and design of installations, electrometallurgy 4

Machine Shop—Construction of electrical machinery 3

Electrical Laboratory—Calibration and study of errors of ammeters, voltameters, electrodynamometers, galvanometers, etc..... ... 2

Technical Applications—Curve of magnetization of alternating current generator, measurement of power, effect of frequency upon impedance transformer, tests, etc 3

Utilization of alternate currents, distribution of electrical energy by transformers, alternate current stations, electrical welding..... 3

Elective..... 0–3

Mechanical Engineering.

Professor MARX.

The practical and theoretical training given is intended to prepare young men for responsible positions. The practical work familiarizes them with the use of machine and hand tools; the theoretical acquaints them with the principles underlying all machine construction. Students thus become familiar with the conditions and problems that confront all designers, and all managers of machine shops.

In the study of prime movers, special attention is given to turbines and other water motors, and to the steam engine.

In machine construction, the theory of mechanism is thoroughly studied. It embraces the study of gearing, screws, cranks, and levers, together with the design of machines and the materials used in their construction.

In mill-work are fully treated ventilation, heating, lighting, fire protection, and the arrangement of shafting, belting, and machinery in manufacturing establishments, practical problems involving strength of shafting, belting, gearing, and the electrical transmission of power.

In steam engineering, attention is given to chimneys, furnaces, boilers, and the setting of boilers with reference to proper combustion of fuel, to securing the greatest efficiency in the production of steam, and to proportioning parts for strength, durability and accessibility to facilitate repairs and cleaning. The care and management of boilers, engines and entire steam plants is an essential part of the study.

While pursuing the foregoing studies, the student is required to make plans, working drawings, and estimates.

In the laboratory, tests are made of engineering materials with regard to tension, crushing, elongation and shearing; engine and boiler trials, as to efficiency; calorimeter trials as to quality of steam; valve setting by aid of indicator. The erection, alignment and setting of engines are especially considered.

COURSE IN MECHANICAL ENGINEERING.

The Freshman and Sophomore years are identical with those of the course in Civil Engineering, page 104.

Junior Year.

First Semester.

Mechanics of Engineering—Statics, dynamics..... 5
Physics—Heat and light. 3
Steam Engineering—Elements of steam engineering; description of types of boilers; engines, details of construction, dimensions for given power plant, use and study of steam engine; indicator, valve gears and valve adjustments 3
Mathematics—Calculus 3
Shop—Pattern-making 2
Elective.....0–2

Second Semester.

Mechanics of Engineering—Strength of material 3
Mathematical Electricity and Magnetism—Fundamental units, potential theory, hysteresis; work done in magnetization, Ewing's theory, condensers, laws of the electric current, laws of electro-magnetic induction, electrical measurements, primary and secondary batteries 3
Framed structures—Analytical and graphical treatment 3
Mathematics—Calculus..... 3
Mechanical Drawing—Construction of gearing; cam and valve motion. 2
Shop—Pattern-making.... 2
Elective. 0–2

Senior Year.

First Semester.

Steam Engines and Boilers—Detail study of different types, design and construction 4
Mechanical drawing—Design of engine and boiler 3
Framed Structures—Iron roof and building; construction, design and detail 3
Dynamo-electric Machinery—Magnetic circuit of dynamos, theory of continuous current machines, tests of dynamos and graphical representation of results, design and construction of alternators, alternators with polyphase currents, transformers, theory, tests, design and construction 4
Shop—Machine and vise work, mechanical laboratory 2
Elective 0–2

Second Semester.

Thermodyamics of steam and other heat engines 3
Mill Engineering—Mill and factory construction, ventilation, steam-heating, fire protection 2
Hydraulics and Hydraulic Motors—Water wheels, turbines and pumps. 3
Mechanical Drawing—Engine, details and estimates 2
Electrical Laboratory. 2
Mechanical Laboratory. 2
Shop—Machine and vise work 2
Elective 0–2

The students in Mechanical Engineering have the use of full sets of working drawings of standard modern engines, a small but well-equipped technical library, Indicators, Planimeters, Calorimeters, Tachometers, Thermometers, Crosby Steam-gauge Tester, Injectors, Absorption and Transmission Dynamometers, Engine models, etc. They have the advantage of the shops of the College of Agriculture and Mechanic Arts. In these shops they are trained in the use and care of wood and iron-working tools. The 12″×36″ Corliss engine and five boilers (one down draft and four tubular return) are used for experiment work. They aggregate 600-horse power.

The students in Mechanical Engineering have the use of the Testing, Hydraulic and Cement laboratories of the Civil Engineering department, and the Electrical laboratory, in such branches as are required by the M. E. course.

For description of shops, see "School of Mechanic Arts," page 100.

D. SCHOOL OF MINES AND METALLURGY

(AT ROLLA, MISSOURI.)

EXECUTIVE COMMITTEE.

R. B. OLIVER, Chairman ..... Jackson
M. E. BENTON ..... Neosho
C. M. WOODWARD ..... St. Louis
M. F. FAULKNER, Secretary. D. W. MALCOLM, Treasurer.

FACULTY.

RICHARD HENRY JESSE, LL. D.,
President.

WALTER BUCK RICHARDS, M. A.,
Director, and Professor of Mathematics.

ELMO GOLIGHTLY HARRIS, C. E.,
Professor of Engineering.

COURTENAY DEKALB,
Professor of Mining and Metallurgy.

ARTHUR HENRY TIMMERMAN, B. S., M. M. E ,
Professor of Physics.

EUGENE THOMAS ALLEN, A. B., Ph. D.,
Professor of Chemistry.

PAUL JULIUS WILKINS, B. S.,
Instructor in Academic Department.

THOMAS LEWIS RUBEY, A. M.,
Instructor in Academic Department, Librarian, and Secretary to the Faculty.

GEORGE EDWARD MILLER, B. S.,
Instructor in Shop-work and Drawing.

PAUL A. LARSH,
Assistant in Chemical Laboratory.

INTRODUCTORY STATEMENT.

Organization:

In 1870, the General Assembly in accepting the donation by the general government of lands for educational purposes established an Agricultural College and a School of Mines and Metallurgy, "the leading object of these Colleges" being "to teach such branches as are related to agriculture and the mechanic arts and mining, including military tactics, and without excluding other scientific and classical studies, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (R. S. 1889, Sec. 8739) The statutes fix the status of the School of Mines as a College of the State University. Its affairs are under the immediate supervision of an Executive Committee, consisting of three members of the Board of Curators of the University.

Location:

The School is located at Rolla, the county seat of Phelps county, on the St. Louis & San Francisco railroad, about midway between St. Louis and Springfield. Rolla is a town of about 2000 inhabitants; it has an altitude of 1140 feet above sea level, and enjoys an agreeable and notably healthful climate.

Courses:

The School of Mines offers three professional courses:

I. MINING ENGINEERING.

II. CIVIL ENGINEERING.*

III. CHEMISTRY AND METALLURGY.

Course I is a general course in Mining Engineering, suited to fit a man for the conduct of mining operations in all their variety, from the prospecting for the mine through its working and the treatment of its ores to the delivery of the finished product on the market.

Course II is a course in Engineering as applied to railways, highways and municipal works.

Course III is a course in which some of the higher Mathematics and Engineering of Course I are replaced by more detailed work in Chemistry and Metallurgy. It has in view especially processes subsequent to the delivery of the ore above the ground, and fits a man to work as assayer and chemist, or in other connection, with concentrating plants and smelters. In the Senior year an option is allowed the student, as he may prefer to specialize more upon the metallurgical or upon the chemical side.

Degrees:

For the completion of any of these courses the degree of Bachelor of Science (B. S.) is given. The further degree of Engineer of Mines (E. M.),

*A course in civil engineering is taught at Columbia, also. See page 104.

or Civil Engineer (C. E.), may be given either for an additional year's work in residence, selected with the approval of the Faculty from the graduate courses; or may be conferred on one who, since his graduation as B. S., has had experience in the actual practice of his profession, of such duration and value as in the judgment of the Faculty to warrant its bestowal.

SCHEME OF STUDIES.

In the scheme below, a brief outline of the courses is given, with the number of exercises a week in each subject. To each lecture and recitation an hour is allowed, while exercises in laboratories, drawing-room or field take from two to four hours each.

I. COURSE IN MINING ENGINEERING.

Freshman Year.

First Semester.

Higher Algebra—Radicals, quadratics, series, undetermined coefficients, permutations and combinations, binomial theorem, logarithms..... 5
Plane Geometry..... 4
Elementary Physics..... 3
English—English Literature and essays..... 3
Drawing—Free-hand exercises in lettering and in drawing from models and from descriptions..... 3
Shop—Wood work: Exercises in joining, carving and turning..... 2

Second Semester.

Solid Geometry..... 4
Elementary Mechanics—Statics and kinematics of solids..... 2
General Chemistry—Principles, important elements and compounds, formation and solution of chemical equations..... 3
Higher Algebra (4 weeks)—Theory of equations, determinants, and differentiation..... 5
Plane Trigonometry (14 weeks)—Fundamental definitions and formulæ, construction and use of Trigonometric tables, solution of triangles, computation of weights and measures..... 5
English—Study of certain authors, essays..... 3
Drawing—Scaled drawing in simple projection and in sections, shading and tinting with pen and brush..... 1
Shop Practice—Joinery, turning..... 2
Chemical Laboratory..... 1

Sophomore Year

First Semester.

Analytic Geometry (14 weeks)—Conic Sections and a few Higher Plane Curves, introduction to the Differential Calculus and its application to treatment of tangents and normals 5

Descriptive Geometry—Parallel and central projections as applied in draughting, with constant exercises in determining orthogonal and oblique projections of familiar objects..... 2

Surveying—Field instruments, dissected and studied in detail, as to theory, construction, adjustment, uses, capabilities 1

Chemistry, General Inorganic—More advanced theoretic and descriptive study, with regular exercises in Stoichiometry..... 3

French or German 3

Drawing and Field Work—Exercises in Descriptive Geometry; plats from field notes..... 3

Qualitative Analysis—Use of blow-pipe and wet tests for detection of metals, acids and bases occurring in alloys, minerals, rocks and waters 2

Second Semester.

Differential Calculus (14 weeks)—Method of limits, formulæ of differentiation, applications to evaluation of indeterminate forms, expansion of series, maxima and minima 3

Engineering Geodesy—General and practical methods of traversing, triangulating, direct and indirect leveling; land, city, topographical and hydrographical surveying; United States system of subdivision of land..... 2

Applied Chemistry—Chemistry and process of manufacture of cements, mortars, explosives, oils, varnishes, paints, fuels and other non-metallic materials employed in engineering; lectures 3

French or German..... 3

Drawing and Field-work—Topographical surveying and maps, drawin isometric, axonometric and perspective..... 1

Qualitative Analysis—Practical exercises of increasing difficulty 4

Physics..... 3

Junior Year.

First Semester.

Integral Calculus, and applications..... 3

Physics—Mass, heat, sound 3

Ore Dressing—Location of plant, hand-picking, cutting, crushing, comminution, classification, concentration; preparation of coal; special methods. Lectures 2

Mineralogy — Short course in crystallography, theory and practice; practical determination of minerals by their physical characteristics 2
* French 2
* German 3
Quantitative Analysis..... 3
Drawing and Field Work—Plats, profiles, sections from field notes; estimates of material and cost of simple engineering structures..... 1
Physical Laboratory 2

Second Semester.

Analytic Mechanics, German or French..... 2
Materials of Engineering and Masonry—Engineering materials, tunnels, quarrying, masonry, strength of stone and brick, cements, mortars, foundations, stability of masonry structures..... 2
Mining—Prospecting, tunneling, shaft-sinking, methods of extraction, timbering, lectures..... 2
Metallurgy—General Metallurgy, iron and steel..... 3
Mineralogy, Determinative—Blow-pipe, Determinative Lithology, (Williams' Lithology)..... 2
Chemical Laboratory..... 2
Physical Laboratory 1
Drawing and Field Work. Work of the first semester continued..... 2
Stereotomy..... 1

Senior Year.

First Semester.

Dynamic and Historic Geology..... 3
Metallurgy—Copper, lead, silver. Lectures..... 3
Hydraulics and Graphical Statics—Collection and measurement of water, conveyance through pipes and canals, designs of dams and pipe-lines; statics of engineering structures treated graphically and analytically 5
Electric Transmission 2
Mining—Drainage, ventilation, lighting, accidents, mining law, higiene. Lectures..... 3
Metallurgical Laboratory—Preliminary tests of ores, refractory materials, temperatures, tests of fuels, alloys..... 1
Mining Design—Projects in mining and metallurgy, designs and working drawings of mine-transportation and ventilation, plants, etc.; mine maps..... 3

*Either German or French, not both.

Second Semester.

Economic Geology, including Ore Deposits. Lectures 3
Metallurgy—Gold, mercury, zinc, tin, etc. Lectures..... 3
Prime Movers and Power Transmission—Hydraulic motors, steam engines and boilers, horse-power appliances, transmission of power by cable, compressed air, etc. Lectures 3
Mechanics of Engineering..... 2
Electrical Transmission—Telegraph, telephone, electric lighting and power plants..... 2
Physical Laboratory—Dynamo-testing and electro-metallurgy..... 2
Metallurgical Laboratory—Practical tests of ores of lead, zinc, copper, gold, silver, etc..... 1
Mining—Projects in mining and metallurgy, design of plants, detail drawing 1
Thesis .....

II. COURSE IN CIVIL ENGINEERING.

The Freshman and Sophomore years are the same as in Course I.

Junior Year.

First Semester.

Integral Calculus, and applications..... 3
Physics—Mass physics, heat, sound..... 3
*French..... 2
*German..... 3
Mineralogy—Short course in Crystallography, theory and practice; practical determination of minerals by their physical characters... 2
Drawing and Field work—Exercises in railway surveying and in staking out earth-work and masonry; map, profile and estimates upon field notes on portion of projected railway..... 3
Lines of Communication..... 2
Physical Laboratory..... 2

Second Semester.

Analytic Mechanics—Statics, center of mass, moment of inertia..... 3
Mechanics of Engineering and Masonry—Tunneling, masonry, quarrying; strength of stone and brick, cements, mortars; foundation, stability of masonry structures; engineering materials. 3
*French. 2
*German..... 3
Metallurgy—Iron and steel..... 3
Stereotomy 1
Drawing and Field Practice. 3
Physical Laboratory 3

*Either French or German, not both.

Senior Year.

First Semester.

Astronomy 2
Geology 3
Electric Transmission 2
Hydraulics and Graphical Statics—Collection and measurement of water, conveyance through pipes and canals, designs of dams and pipe-lines, statics of engineering structures treated graphically and analytically. 5
Drawing and Field Work—Exercises in graphical statics, supervision of field exercises 3

Second Semester.

Economic Geology—Lectures 3
Electric Transmission—Telegraph, telephone, electric lighting and power plants 2
Bridge and sanitary Engineering—Determination of loads, strains and dimensions for bridges, roofs and other framed structures (Johnson). 5
Mechanics of Engineering 2
Physical Laboratory—Dynamo testing, etc 2
Drawing and Designing—Bridge designing and detail drawing 3
Thesis ....

III. COURSE IN CHEMISTRY AND METALLURGY.

The Freshman year is the same as Courses I and II.

Sophomore Year.

Same as in Course I, with the omission of Surveying, Geodesy and Field-work, save that German is required, Drawing is 2 throughout the year, and Qualitative Analysis is 3 the first semester, 4 the second.

Junior Year.

First Semester.

Integral Calculus and applications 3
Theoretical Chemistry. History and development of Chemical theory. Physical and Chemical properties of atoms and molecules and their laws. Lectures 3
Physics. Mass physics, heat, sound 3
Ore Dressing. Location of plant, hand picking, cobbing, spalling, crushing, comminution, classification. Lectures 2
German 3

Mineralogy—Short course in Crystallography, theory and practice, practical determination of minerals by their physical characteristics 2
Quantitative Analysis..... 3
Physical Laboratory 2

Second Semester.

Theoretical Chemistry—Work of first semester continued..... 3
Stereotomy 1
Metallurgy—General Metallurgy, iron and steel. Lectures and assigned reading 3
German 2
Mineralogy—Determinative blow-pipe, lectures on Lithology, Determinative Lithology..... 2
Assaying and Technical Analysis—Assay by fire of lead, silver, gold, etc.; various technical analyses 3
Physical Laboratory 2
Materials of Engineering and Masonry Construction..... 2

Senior Year.

First Semester.

Dynamic and Historic Geology 3
Metallurgy—Copper, lead, silver. Lectures..... 3
Electric Transmission 2
Metallurgical Problems — Preliminary tests of ores, refractory materials, temperatures, tests of fuels, alloys..... 1
Metallurgical Design—Projects, designs of works, of furnaces, etc..... 1
Electro-Metallurgy..... 2
Chemical Laboratory..... 2

Second Semester.

(Option 1.) Economic Geology, including ore deposits 3
Metallurgy—Gold, mercury, zinc, tin, etc. Lectures 3
Metallurgical Problems—Study of practical problems..... 1
Electric Transmission—Telegraph, telephone, electric lighting and power plants..... 2
Physical Laboratory—Dynamo testing and electro-metallurgy..... 2
Metallurgical Laboratory—Practical tests on ores of lead, zinc, iron copper, etc 2
Metallurgical Design—Work of first semester continued..... 1
(Option 2.) For subjects above, after Metallurgy is substituted an equivalent amount of work in the Chemical laboratory.
Thesis..... .....

SPECIAL COURSES.

In addition to these four-year courses are briefer special courses in:

1. Assaying.
2. Surveying (Land and Mine).
3. Electricity.

For the completion of any of these a Certificate of Proficiency is awarded.

ACADEMIC COURSE.

In compliance with an act of the General Assembly of 1885 an Academic course is maintained, in which is embraced that fundamental general education which should in part precede and in part accompany the pursuit of specific technical knowledge. Below is a scheme of the course:

First Year.

First semester:		Second semester:	
Elementary Algebra	5	Elementary Algebra	5
English—Course I	5	English—Course I	5
Physical Geography	3	Physiology and Hygiene	3
General History	5	General History	5

Second Year.

First semester:		Second semester:	
Geometry	4	Geometry	4
German or French	3	Civil Government	5
English—Course II	3	German or French	3
Physics	3	English—Course II	3

Third Year.

First semester:		Second semester:	
Higher Algebra	5	Elementary Chemistry	3
Elements of Psychology	2	Logic	2
*German	3	*German	3
*French	2	*French	2
Zoology	5	Political Economy	5
English History	5	Book-keeping (optional)	2
		Plane Trigonometry	5

* Either French or German, not both.

VII. Courses of Graduate Instruction.

I. ACADEMIC DEPARTMENT.

Admission:

Graduates of this and of other reputable Colleges and Universities, and (in exceptional cases, by special permission of the Faculty) other persons of liberal education, are received as students with or without reference to the attainment of a graduate degree.

Teaching Fellowships:

Teaching Fellowships are annually established where such additional teaching force is required. Holders of these fellowships are required to teach five or six hours a week, and receive therefor $200; and they are exempt from the payment of all fees and deposits. For further details, see Index.

Graduate Club:

A club has been organized by the graduate students for the purpose of furthering their social and scholastic interests in the University, and of bringing themselves into touch with graduate student life elsewhere.

Degrees:

1. *The Master's Degree.*—Application for the Master's Degree in Arts, Letters, or Science, will be considered on the basis of one year's graduate study at the University This year's study is understood to mean at least eight (8) hours a week throughout the scholastic year, or the full equivalent thereof. All courses may be taken from one general subject, and at least half must be; and they shall be from such courses as are graduate in character.

A creditable thesis evincing capacity for original research and power of independent thought, in the line of the student's major subject, shall be submitted on or before May 1 of the given year.

The subject of the thesis and the courses chosen shall be laid before the Committee on Graduate Degrees on or before November 1 of each year.

At the close of the scholastic year the University Council may, on the report of this Committee, recommend to the Board of Curators for this degree such candidates as have satisfactorily fulfilled these conditions.

2. *The Doctor's Degree.*—The attainment of the Doctorate is not a matter of fidelity, nor of diligence, nor of duration of effort. No definite course is prescribed and no period of time is specified; but in general the

candidate will be expected to spend at least three years, or if he have a Master's Degree, at least two years, in graduate study under University direction; but with the consent of the Faculty, one of these years may in either case be spent *in absentia*.

The candidate must have a Bachelor's degree in Arts, Letters, Science, or Philosophy, from some reputable University or College, and must attain in graduate study at this University a high proficiency in one branch of learning, and a respectable proficiency in at least one other. He must submit a dissertation embodying the results of original investigation, and must pass examinations in his major and minor subjects.

Candidates who have satisfactorily met these conditions may be recommended for the Doctor's degree in the manner prescribed above for candidates for the Master's degree.

*GRADUATE STUDIES.

ASTRONOMY.

Professor Updegraff:

(a) Theoretical Astronomy. Orbit Determination. Three hours a week. (See page 41.)

BIOLOGY.

Professor Ayers:

(a) Seminary. Investigator's Course. Subject and hours to be determined. (See page 46.)

CLASSICAL ARCHÆOLOGY.

Professor Pickard:

(a) Archæological Seminar. Problems in Greek Art. Pausanias, Corinth, and Delphi. Two hours a week. (See page 35.)

CHEMISTRY.

Assistant Professor Calvert:

(a) History of Chemistry. First semester, three hours a week.

(b) Physical Chemistry. Second semester, three hours a week.

See page 44.

ENGLISH.

Professor Allen:

(a) Studies in Anglo-Saxon, based on Beowulf and the Wulker-Grein Bibliothek. At least one year of Anglo-Saxon is required. Three hours a week.

Assistant Professor Penn:

(b) Gothic, with special reference to English Philology. Three hours a week.

See page 32.

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*Other courses of study offered among the Academic Studies (pages 31-47) are accepted as graduate in rank. For details, see announcements there.

GEOLOGY.

Professor Broadhead:

(a) Petrography. Twice a week.

(b) Paleontology. Twice a week.

See page 44.

GERMANIC LANGUAGES.

Professor Hoffman:

(a) Middle High German. Paul's Mittelhochdeutsche Grammatik. Der arme Heinrich, Kudrun. Lectures. First semester, three times a week.

(b) Historical Grammar. Behaghel's Historical Grammar of the German Language. Chronology of the Germanic Dialects. Lectures. First semester, three hours a week.

NOTE.—For the present Course *(a)* or Course *(b)* will be given, not both.

(c) Old High German. Braune's Althochdeutsche Grammatik, and Althochdeutsches Lesebuch. Second semester, three hours a week.

(d) German Seminary. Second semester, one hour a week.

See page 37.

GREEK.

Professor Manly:

(a) Seminary for Advanced Study. The work varies each year according to the degree of preparation of the students and the object aimed at by them. Two hours a week. (See page 34.)

POLITICAL ECONOMY.

Professor Hicks.

(a) General Seminary in Political Science. (See pages 38-39.)

LATIN.

Professor Jones:

(a) Critical study of a Selected Author. Three hours a week.

(b) Historical Latin Grammar. Twice a week

Acting Professor Burnam:

(c) Roman Public Law. Lectures, recitations, readings, and reports. Text-book, Mommsen's Abriss des roemischen Staatsrecht. Three hours a week. (To be given in 1897-8.)

See page 33.

MATHEMATICS.

Professor Tindall or Assistant Professor Defoe:

(a) Higher Plane Curves. Text, Clebsch's Geometrie. Three hours a week.

(b) Modern Higher Algebra. Text, Weber's Lehrbuch der Algebra. Three hours a week.

Professor Tindall:

(c) Theory of Functions. Texts, Klein's Functionentheorie and Picard's Traite d'Analyse. Three hours a week.

(*d*) Theory of the Potential. Texts, Pierce's Theory of the Newtonian Potential and Picard's Traite d'Analyse.

See page 40.

PHILOSOPHY.

Professor Thilly:

(*a*) Ethical Seminary. Open to those that have taken Undergraduate Courses 1 and 3 (page 39). Two hours a week.

PHYSICS.

Professor Lipscomb:

(*a*) Laboratory. Advanced Measurements and Special Investigations. Open only to those that have had Undergraduate Courses 4, 7*a*, 8*b*, 9*a* and 10*b*, or an equivalent amount of work. Five times a week. (See page 43.)

ROMANCE LANGUAGES.

Professor Weeks:

(*a*) Old French. The Chrestomathie of Constans. Lectures on the phonetic changes of Latin in becoming Old French. The first half of Raoul de Cambrai will be read. Twice a week.

(*b*) Phonetics. A General Introduction to the Principles of Philology. Special attention will be given to the latest research in Experimental Phonetics. Tracings of the movements of the organs of speech as recorded by instruments will be shown and discussed. Second semester, two hours a week.

See page 36.

NORMAL DEPARTMENT.

Professor Blanton:

(*a*) Seminary. The Secondary Schools of Europe and America; their Organization, Curricula, Methods of Instruction, and Discipline. Three hours a week.

COLLEGE OF AGRICULTURE AND MECHANIC ARTS.

For the degree of M. Agr., graduates of the College with the degree B. Agr. are required to take the Two Years' graduate course announced on page 84. The details of this course are arranged to suit the previous training of the candidates.

DEPARTMENT OF LAW.

(*a*) One year of advanced work leading to the degree of LL. M.

This course is open to graduates of the Law department and of other law schools who have completed an equivalent course of study.

The object of the course is to provide the practitioner with a more extended and practical knowledge of important subjects embraced in modern law, than the limited time of the undergraduate course permits. It

is also intended to afford him assistance in prosecuting the study of any particular subject or branch of law which he expects to follow in his future practice.

The course of instruction embraces lectures, recitations and independent investigation on the following subjects:

Constitutional Law, Corporations, Insurance, Trusts, Patents, Copyrights, Law of Homicide, Theory of Jurisprudence.

The student is allowed to select any special subject in law for extended examination, to be prosecuted concurrently with the subjects embraced in the course. His investigations are directed by the Faculty, who advise him of the books and cases to consult, and afford him assistance and counsel.

It is believed that many licensed attorneys will find it to their advantage to take as special students such instruction.

The text-books recommended for the Graduate course are as follows:

Cooley on Constitutional Limitations; Lewin on Trusts; May on Insurance; Walker on Patents; Bishop on Criminal Law; Thompson on Corporations.

See page 58.

DEPARTMENT OF ENGINEERING.

Graduate work in Civil, Electrical, and Mechanical Engineering is offered at Columbia to those who have finished the undergraduate courses in these subjects with the Degree of Bachelor of Science. Students that entering under these conditions have completed a year of Graduate work and passed satisfactory examinations thereon, and presented a thesis of real merit, will receive, according to the course in which they have studied, the degree of Civil Engineer (C. E.), Electrical Engineer (E. E.), or Mechanical Engineering (M. E.) In the session of 1895-96 there were three graduate students in the Department of Engineering.

See page 103.

General Information.

Historical Statement:

The University was located at Columbia, Boone county, Mo., June 24, 1839. Courses of instruction in Academic work were begun in 1841. A Normal department was established in 1867. The College of Agriculture and Mechanic Arts and the School of Mines and Metallurgy were made departments of the University in 1870—the School of Mines and Metallurgy being located at Rolla. The Law department was opened in 1872; the Medical department in 1873; and the Engineering department in 1877. The Experiment station was established, under act of Congress, in 1888. The Missouri State Military School was created a department of the University in 1890. On January 9, 1892, the main building of the University at Columbia was destroyed by fire. In the following March the Legislature gave for building and equipment $236,577. In March, 1893, this fund was increased by a second appropriation of $264,000, and by $25,000 additional for a new building at Rolla.

For a more detailed statement about the College of Agriculture and Mechanic Arts, see pages 76-78.

A. THE DEPARTMENTS AT COLUMBIA, MISSOURI.

Organization and Government:

The University Council consists of the President, the Deans, Professors, and Assistant Professors, in all the Departments of the University. It is the highest organized body of the Faculty. Each Department of the University has its special Faculty, consisting of the Professors and other Teachers who give instruction in it.

The President is the executive head of the University, and is a member of all the Faculties.

Buildings and Equipment:

Location.—The University of the State of Missouri is located near the center of the State, in Columbia, a town of about 5,000 inhabitants, situated half way between St. Louis and Kansas City. The surrounding country is elevated, well drained and diversified. It is a limestone region, remarkable for its healthfulness. The University Campus includes 32 acres of undulating ground in the southern part of the town. The experiment farm lies one square south of the Campus, and comprises 768 acres. The Horticultural grounds (a part of the farm) are one square from the Campus, and include about 30 acres.

Buildings.—The University has the following buildings:

The Observatory, Medical building, three Club-houses, Agricultural Farm buildings, Experiment station, Greenhouse (new), Law building

(new), Chemical laboratory (new), President's house (1867), Museum (new), Agricultural College (1871), Engineering (new), Mechanic Arts (new), Power-house (new), Academic Hall (new).

We give a brief description of our *new* buildings:

The Law building, 68×114 feet, contains two stories and a basement. Its library is a model in light, comfort and equipment.

The Chemical laboratory, 132×90 feet, is equipped with a system of exhaust ventilation capable of effecting a change of air every ten minutes.

The Museum, 140×100 feet, contains in the center the Museum proper, 37×100 feet, two stories high, and entirely fire-proof. On the right is the department of Geology and Mineralogy, and on the left that of Botany and Zoology. These wings have six and eight rooms respectively, one of which is a large lecture hall, 28×40 feet.

The Engineering building, 145×78 feet, is arranged for Physics, and for Civil, Mechanical, and Electrical Engineering. It has 32 rooms, in addition to two lecture halls, 23×40 feet.

The Mechanic Arts building, 108×117 feet, has six shop-rooms, 40×40 feet; an exhibit hall, 25×40 feet; two offices, 16×18; one drawing room, 40×40; store-rooms, an engine-room, etc. The machinery is driven by a 60-horse power Corliss engine supplied with steam from the Power-house. The building is brilliantly lighted from our own dynamo.

The Power-house, 72×86 feet, contains a plant of five boilers aggregating 600-horse power. From this plant all the buildings are heated by a system of brick tunnels six and a half feet high by four broad. Through these tunnels are carried steam and water pipes and electric light wires.

The new Horticultural Laboratory consists of a central building 30×30 feet and two wings, each 22×30 feet. It is heated by steam, and is so arranged that each compartment maintains a different temperature. Thus it is possible to grow plants that require various degrees of heat. The boiler-house is a separate building, of such size and arrangement that additional steam may be put in for heating three or four times the present area under glass. The entire laboratory is constructed after approved modern methods. It has stone foundation below ground, pressed brick walls to a height of three feet, T iron frame filled in with white pine, grooved sash bars, and best American A glass. The glass walls of the main portion rise eight feet above the brick, and the roof slopes upward to twenty-seven feet above the ground floor in the center, giving room for tall tropical plants. The walks between the benches are of granitoid.

The new Academic Hall, 319 feet long, with a chapel in one wing and a library in the other, contains three stories, besides a basement seven feet above ground. It is provided with appliances for direct and indirect heating, with fans for ventilation, and with thermostats for the regulation of temperature. The auditorium, 74×113 feet, seats comfortably 1,500 people. The apartments (seven in number) for the exclusive use of young women contain everything conducive to study, comfort, and indoor exercise.

The principal buildings of the University are grouped around a quadrangle near the center of the Campus. The quadrangle is open toward the north, with department buildings on the sides, and the large Academic Hall closing the south end. The buildings are substantially built of red pressed brick, with stone trimmings. They have division walls of brick, roofs of slate, ceilings of cement laid on steel laths, and floors of tile or of polished maple. They are heated by steam, and lighted by gas and electricity; and are all supplied with water by the city water-works. The University has built at its own expense an admirable system of sewers.

Libraries.—The General University Library consists of about 20,000 volumes well selected, and 28,000 pamphlets. The best literary and scientific periodicals are taken, and a large number are given yearly (see Index, under "Gifts to the University"). The Law Library, of about 4,000 volumes, is in the Law building. The Medical Library receives regularly a number of medical periodicals. Moreover, each Chair has its special technical library.

Laboratories and Museums.—Facilities for practical instruction in the sciences are provided in the museums of Zoology, Geology, and Agriculture, and in various laboratories. The University has now in regular use nineteen laboratories of science and technology, and four drawing rooms, one general and three special. The laboratories are as follows:

CHEMISTRY: Four Laboratories—General Chemistry (1st year), Qualitative Analysis, Quantitative Analysis, Agricultural Chemistry and Experiment Station work.

PHYSICS: Three Laboratories—For work of different grades, besides small rooms for special work.

MINERALOGY AND GEOLOGY: Two Laboratories.

ASTRONOMY: A well equipped Observatory for practical instruction and observation on the part of the students. See page 41.

BIOLOGY: Two Laboratories—One for General Biology, and one for advanced work of various grades.

ENTOMOLOGY: One Laboratory.

PHYSIOLOGY: One Laboratory,

BACTERIOLOGY: One Laboratory.

HORTICULTURE: One Laboratory.

ENGINEERING: Three Laboratories—For Civil, Electrical, and Mechanical Engineering, besides smaller rooms for special work.

SHOPS: Four—One for bench work in wood, a forge room, a wood lathe room, and a machine shop. (See page 100.)

DRAWING ROOMS: One for general drawing, and three for special drawing in Civil, Electrical, and Mechanical Engineering, respectively.

Each of the Laboratories mentioned above occupies at least one room, and in some cases more.

Experiment Station.—The Agricultural Experiment Station is on the Horticultural grounds. Bulletins giving the results of experiments are issued at intervals. The Station is provided with an outfit of meteorological instruments, and daily observations are made by an officer of the U. S. Weather Bureau. See pages 96–99.

Club-houses.—The University has three club-houses which furnish 135 young men with rooms and board. One of these is a substantial brick building on the Campus, affording accommodations for 90 students. The other club-houses are wooden buildings, and have rooms for 45 students.

For information about the equipment of the School of Mines and Metallurgy at Rolla, see Index.

Lectures and Recitations:

Lectures and recitations in all departments, except that of Law, are held on six days in the week. By the new schedule of hours the student's work has not been increased, but has been more evenly distributed.

Religious Exercises:

Religious exercises are held every morning in the University Chapel. They consist of a hymn by the choir, readings from the Old and New Testaments, a brief prayer, and a closing hymn by the congregation.

These exercises are made as attractive and beneficial as possible During the present session, distinguished members of various churches have been invited to conduct them for one week, and to preach to the students and Faculty at some convenient time. A list of the ministers from a distance who have rendered this service during 1895 6 is given on page 13.

In Columbia there are churches of nearly all the prominent denominations. The University advises its students to attend regularly the services at the churches of their parents. The students maintain an efficient chapter of the Young Men's Christian Association, and also of the Young Women's Christian Association. (See "Societies" below.) The University has much of moral and religious influence, but is non-sectarian.

Provisions for Young Women:

All departments of the University are open to women. In the lecture-rooms they receive the same instruction and meet the same intellectual requirements as the young men. There are special waiting-rooms, furnished with admirable equipment for health and comfort, and presided over by a matron, who has charge of all the young ladies in attendance. One of these rooms is fitted up as a gymnasium, containing all the appliances necessary for physical culture. During lecture hours the young ladies, when not attending lectures, are expected to be in their waiting-rooms, or in the University library, or at their respective homes.

The University has no boarding department; but many of the families of Columbia take boarders, and students find no trouble in securing, at reasonable rates, the comforts and refinements of home life.

For information about the Young Women's Christian Association and the Philalethean Literary Society, which are composed of students of the University, see "Societies" below.

University Extension:

1. A Summer School of Science, intended especially for teachers, will be conducted during the summer of 1896. For particulars see Appendix I.

2. A twelve-weeks' course in Agriculture, intended for farmers, was given in the winter of 1896, and will be given again during the winter of 1897. See page 80.

3. During the winter of 1897 a twelve-weeks' course in Horticulture will be given for the benefit of the fruit growers of the State. An effort will be made to secure good instruction and good equipment. Besides the Professors of Horticulture and Entomology in the University, a number of fruit growers of much intelligence and of much experience will offer courses of lectures and will give practical demonstrations.

4. Special courses primarily for district school teachers are given in April and May of each year. See page 52.

5. During 1895-6 Professors Allen and Hicks of the University Faculty delivered courses of six lectures each before the Hannibal (Missouri) University Extension Club, on "Early English Literature," and "Early English History."

STUDENTS.

Discipline:

In the government of the University, the President and the Faculty rely chiefly upon the sense of duty of the student corps. The student is expected to pursue his studies with diligence, to attend classes regularly, and to live in the exercise of morality and good behavior. The removal of those who fail to meet these requirements is demanded in the interest of the University and the better class of students. Students are under the direct supervision of the University only when on the Campus, but they are responsible for their conduct wherever they may be.

Directions for New Students:

1. New students will first present themselves for examination. This should be done *before paying tuition fees*. For dates of examinations, see the Calendar, page iii.

2. After passing the entrance examinations, the student must pay to the Treasurer the amount required. See "Expenses," page 131-2.

3. The Treasurer's receipt should be at once presented to the Proctor, who will enroll the student's name and give to him his class-card, with instructions how to have it filled.

4. If assistance is needed in obtaining board, application should be made to the Proctor.

STUDIES.

Regulations in Regard to Studies:

No student in any department of the University may have more than 18 hours a week in the lecture-room, unless the course prescribed for the year requires a greater number of hours and he is following that course exactly.

Academic students are expected to spend not less than 15 nor more than 18 hours a week at lectures or recitations.

One hour in the lecture-room is considered equal to two and one-half in the laboratory, the drawing-room, the shop, and the commercial-room.

Class-cards must be properly filled, countersigned, and deposited with the Registrar, within three days after they have been issued. In the Academic department, cards are countersigned by the President; in a Professional department, by the Dean first and then by the President.

Studies in Other Departments:

Students registered in one department may take work in other departments for which in the judgment of the Professors concerned they are prepared; but only with the consent of the Dean or the Advisory Committee of the department in which the student is registered Students taking work in another department than that in which they are registered are subject as respects this work to the rules of the department in which the work belongs.

1. Academic students may take Anatomy and Physiology in the first year of the Medical Course, Drawing, Book-keeping, Shop Work, and any other work not below the Freshman grade, in the College of Agriculture and Mechanic Arts; and any instruction offered in the Normal department. None of this instruction, however, shall count toward any Academic degree unless it is allowed in the scheme of studies for such degree. See page 28.

2. Law students may take any instruction offered in other Departments of the University, but it shall not count toward any degree in Law.

3. Medical students in their first year may take any work offered in the Academic department, and the College of Agriculture and Mechanic Arts; and in their second and third years, any work offered in the University; but such work shall not count toward the degree of M. D., unless it is included in the regular Medical course.

4. Students in the College of Agriculture and Mechanic Arts may elect in the Junior and Senior years the courses in Physiology and Hygiene from the first year of the Medical course, and from the Academic or Normal department any subject for which they are prepared, and which is germane to the work of the College. Electives taken as indicated count toward the degree of B. Agr.

5. Engineering students may take in their Freshman and Sophomore years any instructions offered in the Academic department, the Normal department, in the College of Agriculture and Mechanic Arts, or Anatomy and Physiology in the first year of the Medical Course; and in their Junior and Senior years, they may take anything offered in the University; but such instruction shall not count toward a degree in Engineering.

6. No work shall count toward the Nomal diploma, except so far as it may conform to the requirements specified on page 51.

7. Instruction in Military Science and Tactics is open to students in all departments.

Graduate Studies:

A number of graduate courses are offered. For details see pages 120-124.

Examinations and Class Honors:

1. Examinations at the end of each semester close the studies pursued to that point. Re-examinations for change of grades are not allowed.

2. The honor of valedictorian is awarded in the various departments to that student who has the highest grade.

3. All special examinations and the acceptance of grades from other institutions are in the discretion of the Professors.

Reports:

From all departments, except those of Law and Medicine, reports of students are sent, at the close of each semester, to the parents or guardians, showing their standing in the subjects that they are pursuing.

EXPENSES.

Fees and Deposits:

Academic students pay an entrance fee of $10, and library and incidental fees amounting to $10.

Law students (regular or special) pay $50 a year. Students entering the Junior class late will not be entitled to any reduction in the amount of the fee, except as stated below. Books cost about $35 a year.

The Medical student pays $20 for the first year; for the second year, $50; for the third year, $50; this includes the demonstrator's ticket.

The Engineering student pays $20 for the Freshman, and the same for the Sophomore year; for the Junior and Senior years, he pays $50 each. If he takes one professional study or two studies of any kind from the Junior or Senior year, he must pay $50.

State cadets in the Academic department pay laboratory deposits upon entrance; in all other departments of the University they pay the regular

fees. If they take any professional study whatsoever, they must pay the full fees of that department.

Agricultural students pay upon entrance $20 in lieu of all other charges except laboratory deposits and the charges for certificates and diplomas.

In all departments, Special students pay the same fees as regular students.

Graduate students in any department pay an entrance fee of $10.

Students in any department that withdraw before the opening of the second semester, will have refunded to them, upon application, one-fourth (¼) of the fees for the whole session; but such students must, before the close of the first semester, file with the President written application addressed to the Board of Curators for the refunding of that part of the fees. Students that enter during the second semester will pay three-fourths (¾) of the fees for the entire session.

In all the laboratories, except the chemical, and in certain departments of the shop, a deposit of $5 for a session, or any part thereof, is required. This deposit, less deduction for loss arising from cost of material or from injury, is returned at the end of the laboratory course in any session. In the Chemical Laboratory the deposit is $9. Only Teaching Fellows are exempt from making these deposits.

The charge for a diploma is $3, and for a certificate $2.

Laboratory deposits and rent of rooms in the Club-houses must be paid to the Proctor; all other fees must be paid at the Boone County National Bank, to the Treasurer of the University. *All fees and deposits must be paid in advance.*

The student who has attained the highest rank in the graduating class of any "approved school" will be permitted to enter the Academic department of the University, or the College of Agriculture and Mechanic Arts, without the payment of the entrance and the library and incidental fees for the first year.

Graduate students in any department of the University pay fees amounting to $10 a year, and the usual laboratory deposits if they take laboratory work. If they take undergraduate work in any department, they must pay the full fees in that department. Graduates of colleges and other universities will not be classed as graduate students if they take undergraduate work.

Students that enter the University in the first semester are required to take out their cards again in the last week of that semester, and to return them to the Registrar duly filled and approved on or before Tuesday, the first day of the second semester. Students that fail to comply with this requirement must pay a second entrance fee of $10, unless specially excused. Excuses will not be granted except for grave reasons.

For statement of expenses in the School of Mines and Metallurgy (at Rolla, Missouri), see page 147.

Board:

Board in private families, with lodging, fuel and lights, may be obtained for from $3 to $4.50 a week.

The Club houses (see page 128) accommodate 135 students. In the large brick club building situated on the Campus—known as the University Boarding Club—room-rent for each student is from $20 to $25 a year, according to location of the room. This includes room-rent, the attention of servants, heat, water, and the aid of a matron, who supervises the housekeeping. It is payable on or before the first day of September. The cost of board, room-rent, fuel, lights and washing, to those who enter a club, is about $2 a week. Each room is furnished with a double bed-stead, a stove, a table and two chairs. The occupants are expected to furnish whatever else they deem necessary. The University club-house is furnished with a good system of steam heating and ventilation, and with new closets and bath-room of the best quality. The rooms are wired for electric lights.

The members of the club have their own officers—president, commissary, secretary, censors, etc. They levy and collect assessments, buy their own provisions, and thus regulate their own expenses. The Matron supervises the preparation and serving of the food and the cleaning of the building.

Students in the College of Agriculture and Mechanic Arts will have the preference of rooms in the Agricultural club-houses, provided application be made before the opening of the first semester, in September; but they will pay the same rent as other students. These two buildings accommodate 32 men. The rent of these rooms is $10 a session.

In any club building, only two students will be allowed in one room, except by consent specially given by the Executive Board; and when three thus occupy one room, each of the three must pay full room-rent.

Except by consent of the Executive Board, specially given, students that do not rent rooms in a club will not be permitted to take their meals at the club table. On no account will table board in a club be given to any person not duly matriculated in the University.

As the accommodations of the club-houses are limited, it is necessary for students who wish to engage rooms to make early application for them, as they are frequently all engaged before the opening of the college year. The rooms are assigned in the order of application, and requests for them must be made to the Proctor of the University

DEGREES AND CERTIFICATES.

Degrees Conferred:

The following degrees are now conferred by the Univerity:

In the Academic department, Bachelor of Arts (A. B.), Bachelor of Letters (B. L.), Bachelor of Science (B S.).

In the Normal department, Bachelor of Pedagogics (B. P.).

In the Agricultural College, Bachelor of Agriculture (B. Agr.), and Master of Agriculture (M. Agr.).

In the Law department, Bachelor of Laws (LL. B.), and Master of Laws (LL. M.)

In the Medical department, Doctor of Medicine (M. D.).

In the Engineering Department, Bachelor of Science (B. S.), in Civil Engineering, in Electrical Engineering, and in Mechanical Engineering, respectively. The degree of Civil Engineer (C. E.), Electrical Engineer (E. E.), and Mechanical Engineer (M. E.) are also given for graduate work. See School of Engineering, page 103.

The degree of B. S. in Mining Engineering, in Civil Engineering, and in Chemistry and Metallurgy, and the graduate degrees of Civil Engineer (C. E.), and Engineer of Mines (E. M.), are given in the School of Mines and Metallurgy, at Rolla, Missouri. (See pages 112-13.)

In addition to the above, the usual Master's degrees and the degree of Doctor of Philosophy (Ph. D.), are conferred upon the completion of sufficient graduate work.

Except that of Doctor of Laws (LL.D.), no degrees are conferred *honoris causa*.

For further information, see the respective departments.

Requirements for the Master's Degree:

The University offers graduate instruction in as many subjects as its facilities permit. For statement of courses, see the various departments.

Applications for the Master's degree will be considered on the basis of one year's graduate study at this University, in one or more subjects.

1. One year's study is understood to mean at least eight (8) hours a week throughout the scholastic year, or the full equivalent thereof.

2. All the courses may be taken in one general subject, and at least half must be.

3. The majority of the courses must be from those offered for graduate students. No course open to undergraduates below the Junior year shall be counted for this degree.

4. A creditable thesis, evincing capacity for original research and power of independent thought, in the line of the student's major subject, shall be submitted on or before May 1 of the given year.

5. There shall be appointed, annually, a Committee on Higher Degrees, before which all applications for such degrees, with the courses and thesis subject chosen, shall be laid for approval before November 1 of each year.

At the close of the scholastic year, on the report of this committee, the University Council may recommend for this degree to the Board of Curators such candidates as have satisfactorily met the above mentioned conditions. In the College of Agriculture and Mechanic Arts, the student is required to take in the University at least 15 hours a week for two years.

Requirements for the Doctor's Degree:

The requirements for the degree of Doctor of Philosophy or of Science are:

1. That the candidate shall have received a Bachelor's degree (in Arts, Letters, Sciences or Philosophy) from some reputable university or college.

2. That he shall have attained, in a current graduate study pursued at this University, a high proficiency in some one branch of learning and respectable proficiency in at least one other.

3. That he shall have submitted a dissertation embodying the results of original investigation.

The attainment of the doctorate is not a mere matter of fidelity nor of diligence, nor of duration of effort. No definite course can be prescribed and no period of time specified, but in general the candidate will be expected to spend three years, or if he have a Master's degree, two years, in graduate study under University direction; but with Faculty approval, one of these years may in either case be spent *in absentia*.

Certificates:

A certificate in surveying is granted by the School of Engineering (page 106); one in Pedagogics is given by the Normal department (page 50); one in the two-years' course in Agriculture (pages 81-2); and also one in Military Science and Tactics (page 71).

Three certificates (in Assaying, Surveying and Electricity) are given at the School of Mines and Metallurgy, Rolla. (See page 119.)

For further information, see these departments.

COMMENCEMENT EXERCISES.

Commencement Week:

The Commencement Exercises occupy the four days ending with the first Wednesday in June of each year. The Commencement of June, 1895, was marked by the dedication of Academic Hall. The Bacclaureate sermon was preached in the auditorium by Bishop Hugh Miller Thompson, of Mississippi, on Sunday, May 31. The Commencement address was delivered on Tuesday evening, June 2, by the Rev. Dr. Keane, of Washington. At the dedication of Academic Hall, Tuesday morning, June 2, the building was presented on the part of the State by Governor William J. Stone, and accepted on the part of the University by Dr. C. M. Woodward, President of the Board of Curators. The address of dedication was delivered by President James B. Angell, of the University of Michigan.

PRIZES.

Curators' Scholarships:

By order of the Board of Curators, the student who attains the highest rank in the graduating class of any approved school will be permitted to enter the Academic department of the University or the Agricultural and

Mechanical College, without the payment of the first year's entrance and incidental fees.

The student attaining the highest grade, or who shall be first in merit, taking the degree of A. B., B. S. or B. L., in the graduating class of any of the universities or colleges composing the Missouri College Union, will be admitted to the Law or to the Medical department of the University for the first year without payment of any tuition fees. The Missouri College Union is now composed of Washington University, Westminster College, William Jewell College, Drury College, Central College, Missouri Valley College, and the University of the State of Missouri.

Students who hold teaching fellowships (see page 138) are admitted to the University without the payment of entrance and library fees, or laboratory deposits.

Stephens Medal:

Founded by the Hon. James L. Stephens, of Columbia, and annually awarded for the best oration by a member of the Senior class.

The prize consists of a book in defense of the Christian religion, and a gold medal, for the purchase of which the annual interest on $500 is available.

The Laws Astronomical Medal:

For conditions of award, see Astronomy, page 41.

Dachsel Prize:

Ten dollars in money, by the late Charles Dachsel, engineer, of Jefferson City, Mo., is awarded for the best thesis on the steam engine.

McAnally Medal:

For the best English essay. See English, page 32.

Rollins Scholarships:

See page 137.

Medals offered by the Literary Societies:

The literary societies in the University offer medals to the winners in their inter-society contests in declamation, essay, oration, etc.

SOURCES OF AID TO STUDENTS.

1. The Rollins Aid Fund:

Anthony W. Rollins, M. D., an honored citizen of Boone county, father of the Hon. James S. Rollins, dying in 1845, left by his will the sum of $10,000 in trust for the purpose of educating such poor and indigent youths of Boone county, both male and female, as might be unable to educate themselves. Three-fourths of the annual interest on the fund, according to the directions of the donor, is to be devoted to the education of the youths of

Boone county, and the remaining fourth is to be added to the interest-bearing principal. The fund amounts now to about $40,000. The President of the University is required, at each annual Commencement, to invite the citizens, who may be present, to subscribe for the enlargement of this fund. The beneficiaries of this charity are annually selected by the President of the University from the indigent youths of Boone county, male and female. In compliance with the wishes of the donor, the selection is made with reference to the moral as well as the intellectual qualities of the youths inclined to avail themselves of the advantages of the fund, preference being given, in the selection of boys, to such as evince an inclination to preach the gospel.

Applications for aid from the Rollins Aid fund must hereafter be in writing; a blank form will be furnished by the Proctor, with whom it must be filed after it has been filled. The applicant must appear in person at the opening of the first semester, September 8, as no reservation will be made. No application should be made nor will be received, unless the applicant has passed the examinations for entrance and has been duly admitted to the University.

2. The James S. Rollins University Scholarships:

In 1889 the Hon. James S. Rollins left six thousand dollars ($6000) to endow six scholarships in the University—"the interest" on this $6000 "to be forever used and appropriated under the authority and by the direction of the Board of Curators of the University of the State of Missouri, for the following purposes, that is:

"To found scholarships to be awarded by the President and Faculty of the University—the vote in each case to be by ballot—as a reward for excellence and promise in—

"*First*—The College of Arts, for the degree of A. B., fifty dollars.

"*Second*—The College of Arts, for the degree of B. S., fifty dollars.

"*Third*—The College of Agriculture and Mechanic Arts, for the degree of B. Agr., fifty dollars.

"*Fourth*—The College of Law, for the degree of LL. B., fifty dollars.

"*Fifth*—The College of Medicine, for the degree of M. D., fifty dollars.

"*Sixth*—The College of Engineering, for the degree of C. E., fifty dollars.

"These scholarships are intended as a recognition of merit and character in the beneficiaries, and shall be payable on the first day of June of each year to that member of the *Junior class*, in each of the colleges designated, who shall be adjudged entitled to it by the President and Faculty; and the names of the persons receiving said scholarships shall be publicly announced on Commencement day by the President of the University.

"In according these scholarships, it is earnestly impressed upon the President and Faculty of the University, that in the mind of the donor, purely intellectual and literary ability are not alone to be considered, but

that the moral character of the contestants should be regarded as a factor of no small weight in coming to a decision.

"With the earnest hope that by the means here provided, worthy young men and women may in all coming time be helped and encouraged in their struggle toward a higher life and greater usefulness, this fund is committed to the honor and good faith of the State, whom the Board represents, and by whose authority the donation is made and accepted.

I am, very respectfully,

(Signed) JAMES S. ROLLINS."

3. Cadetships:

Each Senator and Representative of the General Assembly of Missouri may appoint a cadet from his district. For further information see report of the Department of Military Science and Tactics, page 71.

4. Yeater Scholarships:

Under the provisions of the Yeater Act passed by the 38th General Assembly of Missouri, one or more scholarships are to be established in every county whenever funds, under that act, accumulate. See Appendix II.

5. Curators' Scholarships:

See pages 135-6.

6. Teaching Fellowships:

Teaching Fellowships are annually established in any subject where such additional teaching force may be required. Students holding these are put down in the list of the Faculty as Teaching Fellows. They are appointed by the Board of Curators, are required to teach five or six hours a week, and receive for this service $200. They are required to devote the rest of the time to graduate work approved by the Professor whom they assist and by the President of the University. Only those who have completed the longest undergraduate course given in the University in any subject are eligible to the fellowships in that subject, and they must be recommended to the Board of Curators by the Professor of said subject. Students holding these fellowships are not required to pay entrance and library fees, nor to make laboratory deposits.

PHYSICAL CULTURE.

Gymnasium:

The Thirty-eighth General Assembly appropriated the sum of $7,500 for the equipment of a gymnasium, and $1,300 for the improvement of the athletic grounds. Rooms in the new Academic Hall have been set aside for the gymnasium proper, and fitted with baths, lockers, etc. A fine equipment has been put in, and an able director of the gymnasium and professor of physical culture has been appointed. The director is a graduate of the Medical Department of Harvard in the four years' course, and

served as an athlete under Dr. Sargent. There is a separate gymnasium, thoroughly equipped, for women, and supervised by a lady, expert in physical culture.

Athletic Grounds:

In addition to the gymnasium there are athletic grounds, with base-ball and foot-ball fields. These are enclosed, and a grand-stand has been erected, and a track constructed for bicycling and running. These, with the tennis courts, will provide ample means of exercise for every student in the University.

LECTURES AND SERMONS.

During the session the University invites a number of distinguished men to deliver public lectures to the students, and also a number of eminent ministers, who lead chapel exercises and preach in the Auditorium.

STUDENTS' PERIODICALS.

The students maintain and manage a number of periodicals of various kinds. These are the *Argus* (monthly), the *Independent* (bi-weekly), and the *Savitar* (annual).

SOCIETIES.

1. **Literary:**

There are connected with the University at Columbia, eight Literary Societies for students, the "Athenæan," the "Union Literary," the "Bliss Lyceum," the "Medical Society," the "Agricultural Society," the "Engineers' Society," and the "Missouri State University Debating Club," and the "Philalethean Society," (composed of young women only). These societies hold weekly meetings for improvement in debate, declamation, oratory and composition, and form an important means of culture, especially in speaking and writing.

For societies at the School of Mines, see page 147.

2. **Young Men's Christian Association:**

The object of this organization, which dates its existence in the University from January 18, 1890, is the same as in other institutions of learning: namely, to represent and in every way to promote practical Christianity, particularly among the students. The work has been rich in good results.

Devotional exercises are held every Sunday afternoon in the hall of the Association, with an average attendance of nearly 100. Classes hold weekly meetings for the study of the Bible, and special religious services are held from time to time.

A movement has been set on foot to erect a building to cost at least $40,000, for the Young Men's and Young Women's Christian Associations. For this purpose, the former has already pledged the sum of $6500, and any encouragement from sympathetic friends will be gratefully acknowledged.

It is intended that the building shall be complete in its appointments, containing commodious rooms for reading, lectures, Bible classes, University class organizations, meeting of the Alumni and of the Christian Associaons, as well as a gymnasium and bath-rooms.

A lot immediately in front of the University Campus has been purchased for the site of this building, at a cost of $2650.

At the beginning of each scholastic year a committee from the Y. M. C. A., to be recognized by their badges, meet students at the trains and freely render them valuable assistance in securing board by introducing them to friends and to officers of the University, and by various other acts of kindness. A letter sent in advance to the President of the Young Men's Christian Association will receive prompt and cheerful attention.

The Association also offers, annually, to the public, particularly to the students, at actual cost, a series of literary and musical entertainments of high order and excellence. During the session of 1895-96, the following lectures and concerts were thus given:

(1) Rev. A. A. Willetts, Lecture, "Sunshine;" (2) Frederick D. Losey, Impersonation of "Oliver Twist;" (3) Max O'Rell, Lecture, "Her Royal Highness, Woman;" (4) Mozart Symphony Club; (5) Leland T. Powers, Impersonation of "David Garrick."

3. Young Women's Christian Association:

The Association, which is similar in its aims and methods to the foregoing, was organized April 2, 1891. Its object is the prosecution of Christian work and the development of Christian character, particularly among the young women of the University. Its weekly meetings are held at 4 p. m. every Sunday, one of them every month being a union meeting in conjunction with the Y. M. C. A.

Both of these Associations have enjoyed the hearty encouragement of all the authorities of the University.

4. Musical:

There also exist among the students Glee, Mandolin, Guitar, and Banjo clubs, which form an attractive feature of University life.

5. Athletic Association:

For several years an Athletic Association has existed among the students. Under its direction and encouragement a Foot-ball Team and a Base-ball Team are each year organized; and in addition athletic exhibitions (indoor and outdoor) are given. The Spring Games on the fine new Athletic Field will soon, we hope, become Intercollegiate throughout the State.

6. Alumni:

The Alumni Association is composed of graduates of the University. It holds an annual meeting on Tuesday of Commencement week, and is

addressed in the University chapel by an orator previously selected from its own body.

The objects of this Society are the promotion of education, especially in the halls of the Alma Mater, the reunion of early friends and co-laborers in literary pursuits, and the revival of those pleasing associations which entwine themselves about university life.

The fee for membership is $2. This is added to the permanent fund, only the interest of which is used. It is hoped that all graduates of the University, whether academic or professional, will become members of the Association. The University Librarian solicits aid in securing facts for the next Triennial, and will be thankful for published notices of officers and graduates, and for books, pamphlets and articles published by them.

The officers of the Association are: Charles E. Yeater, Sedalia, President; John H. Duncan, St Louis, First Vice-president; Isidor Loeb, Columbia, Second Vice-president; N. T. Gentry, Columbia, Secretary; C. B. Rollins, Columbia, Treasurer.

A subscription fund of $3000 has been raised and placed at interest, which is used in defraying the expenses of the annual meeting at Commencement—a very enjoyable and also a very profitable occasion. The Alumni constitute, in fact, one of the largest elements in the life of the University, and, efficiently organized, may become the most powerful agent in her development and prosperity. No effort should be omitted, both to strengthen the central organization at Columbia and to extend its branches throughout the State.

Local Chapters of the Alumni Association.

Chillicothe:
T. F. Spencer, President.
Scott C. Miller, Secretary.

Clarksville:
Dr. C. W. Pharr, President.
————————, Secretary.

Denver, Colorado:
Judge G. W. Miller, President.
J. T. Bottom, Secretary.

Fort Smith, Arkansas:
J. B. Gass, President.
F. A. Youmans, Secretary.

Huntsville:
————————, President.
Wm. Palmer, Secretary.

Sweet Springs:
Hon. Robert W. Prigmore, Presid't.
Judge V. C. Yantis, Secretary.

Richmond:
Thomas N. Lavelock, President.
F. P. Divelbiss, Secretary.

Santa Fe, New Mexico:
————————, President.
Judge N. B. Laughlin, Secretary.

Sedalia:
Louis Hoffman, President.
Hon. Chas. E. Yeater, Secretary.

Silver City, New Mexico:
G. W. Miles, President.
R. H. Theilman, Secretary.

Jefferson City:
Henry W. Ewing, President.
Frank M. Brown, Secretary.

Kansas City:
Hon. W. S. Cowherd, President.
James Black, Secretary.

Macon City:
R. W. Barrow, President.
Dr. R. Gillaspy, Secretary.

Moberly:
Judge B. S. Head, President.
F. G. Ferris, Secretary.

Marshall:
Judge James Cooney, President.
William Murrell, Secretary.

Warsaw:
T. B. Weeler, President
Henry P. Lay, Secretary.

Springfield:
Hon. J. C. Cravens, President.
J. P. Bates, Secretary.

Slater:
J. B. Land, President.
Ulie Denny, Secretary.

St. Joseph:
Judge H. S. Kelley, President.
W. H. Utz, Secretary.

St. Louis:
H. B. Hilgeman, President.
H. Phillips, Secretary.

Baton Rouge, La.:
W. W. Clendenin, President.
W. R. Dodson, Secretary.

Deming, New Mexico:
J. H. Hatton, President.
————————, Secretary.

GIFTS TO THE UNIVERSITY.

Section 3820 of the Revised Statutes of Missouri, 1889, provides that whenever any moneys shall be paid into the State Treasury to be added to the "Seminary Fund" (which is but another name for the Endowment Fund of the University), and when the same shall amount to one thousand dollars, or more, a State Certificate of indebtedness shall be issued, due twenty years after date, and bearing interest at the rate of 5 per cent per annum, to be forever used and appropriated in accordance with law and the gift, grant or devise. Other sections of the University Act provide for the disposition of any other property, real or personal, which may be received by the University, and for its investment and preservation in accordance with the terms of the writing under which the grant, gift or devise is made. The State of Missouri is constituted the custodian and trustee of all funds so received, and is pledged for the safe-keeping, investment, and due application of the same, and all interest due thereon.

To the General Library:

	Vols.		Vols.
Col. S. W. Turner	91	Dr. P. Schweitzer	4
U. S. Government	77	Capt. J. H. Rollins	2
Mo. State Government	4	W. H. Judge	1
L. M. Defoe	4		

The following periodicals have been presented to the Library:

American Economist, Apostolic Guide, Boonville Democrat, Central Baptist, Colman's Rural World, Columbia Herald, Columbia Statesman, Hannibal Daily Journal, Kansas City Mail, Kansas City Live-stock Indicator, Linn County Bulletin, Marshall Democrat-News, Medical Mirror, Merck's Medical Bulletin, Mexico Intelligencer, Mid-Continent, M. S. U. Independent, National Economist, The Presbyterian, Plattsburg Leader, Post-Dispatch (daily), Saline County Progress, Salisbury Gazette, St. Joseph Herald, St. Joseph Gazette, University Argus.

To the Geological Department:

Director U. S. Geol. Survey: Set of Educational Maps.

U. S. Coast Survey: 1 Doz. Photographs; 4 Vols.

Hydraphic Office, U S. N.: 478 Charts, Atlantic Coast Pilot.

U. S. Weather Bureau: Set of Pilot Charts of North Atlantic.

N. J. Geol. Survey: Daily Weather Charts and Weather Observations; 10 Vols.

Ohio Geol. Survey: 17 Vols.

C. R. Keyes, Mo. Geol. Survey: Vols. 6, 7 and 8, Mo. Geol. Survey.

R. A. Blair: 10 Specimens.

Dr. Jno. H. Britts: 100 Shells; 66 Species (including 188 Specimens)

C. F. Marbut: 1 Map Alabama; 1 Map Ohio.

Bureau of Ethnology: 6 Vols., 24 Pamphlets.

Canadian Geol. Survey: 35 Pamphlets and Maps

Indiana Geol. Survey: 5 Vols.

Museum of Comp Zoology, Cambridge Mass.: 150 Fossils.

E. H. Lonsdale: 26 Species (including 95 Specimens of Fossils.)

G. C. Broadhead: Report Mo. Geol. Survey 1873-4; 10 Nos. Meteorological Journal (pamphlets); Bulletins Nos 1, 2, 4 and 5, Mo. Geol. Survey (pamphlets); 6 Annual Reports Mo. River Commission (pamphlets); 30 Fossils and Shells; 3 pictures of Scenery.

To the Medical Department:

Dr. J. H. Norton, Monroe City: 5 Vols. Journal of American Medical Association.

Dr. W. A. Norris, Columbia: 1 Anatomical Specimen (Fœtal Monstrosity.)

Dr. J. W. Alexander, Macon City: 1 Anatomical Specimen (Fœtal Spine Bifida.)

To the Agricultural College Library:

	Vols.		Vols.
Conn. State Board of Agr...	19	Minnesota Farmers' Institutes...	7
Michigan Board of Agriculture ..	8	Missouri Board of Agriculture....	2
Wisconsin Farmers' Institutes ..	1	Missouri Experiment Station....	2

U. S. Government	6	Holstein Friesian Association	3
American Shropshire Ass'n	1	American Hereford Association	1
American Clydesdale Ass'n.	1	American Galloway Herd Book	1
American Guernsey Cattle Club	1	Pennsylvania State College	1
American Aberdeen Angus.	1	Mo State Horticultural Society	
Journal of Agriculture	1		

To the Agricultural College Reading Rooms:

Farmer's Friend; Farmer's Home; Ornamental and Forest Tree Grower; The Southern States; The Progressive South; Chicago Produce; Farm and Fireside; Prairie Farmer; The Sanitary Inspector; The Elgin Dairy Report; Farm, Stock and Home; Wallace's Farmer and Dairyman; Breeder's Gazette; Practical Farmer; The Successful Farmer; Agricultural South; New Ideas; Sheep Breeder and Wool Grower; The Industrialist; Western Agriculturist and Live Stock Journal; Agricultural Epitomist; Farmer's Advocate; Dakota Farmer; The American Creamery; Nebraska Farmer; Sugar Beet; Indiana Farmer; Farmer's Review; The Agricultural Student; Kansas Farmer; The American Fertilizer; West Virginia Farm Reporter; Fruit Grower's Journal; Farm and Home; The Western Soil Culture; Ohio Farmer; Pacific Coast Dairyman; Holstein Friesian Register; Industrial American; Grange Visitor; American Agriculturist; Poultry Journal; Home, Farm and Factory; The Bee Keeper's Review; The American Farmer; Texas Farm and Ranch; American Bee Journal; Southern Planter; Oregon Horticulturist; Hoard's Dairyman; Farming; American Hog and Corn Journal; American Horticulturist; Farmer's Guide; Western Plowman; Weather and Crops; Western Soil Culture; Pacific Rural Press; California Cultivator; Northwest, Weather and Crops; Oregon Agriculturist; The Milk Reporter; Sun, Baltimore; Farmer's Magazine; The South West; American Horticulturist; Mirror and Farmer; The Homestead; Success with the Garden.

To the Agricultural Museum:

H. W. Leavitt: Dehorning Clippers.

Pilling & Son: Caponizing Tools.

T. Cadwallader: Poultry Marker.

L. F. Davis: Poultry Marker.

M. A. Bartlett: Poultry Marker.

H. W. Meyers: Stalk of corn.

A. H. Barber: Obstetric Forceps; Aluminum Stock Label.

Greenville Planter Co.: Potato Planter.

Mo. World's Fair Commission: 66 Polished Board specimens; 70 Block specimens.

Stock Fountain Co.: Stock Fountain.

Novelty Regulator Co.: Automatic Watering Device.

The fruits and vegetables collected, preserved in glass jars, and exhibited by the State Horticultural Society in co-operation with the World's Fair Commission, were by legislative enactment transferred to this College, and have been received (700 jars).

To the Horticultural Department:

W. Atlee Burpee & Co.: Seeds.
Frank M. Hammond: Selected nuts.
Jacob Rogers: Selected nuts.
Thos. F. Hickman: Selected nuts.
Arthur T. Erwin: Seeds.
A. N. Jones: Seeds.
Dep't of Agriculture: Seeds; Choice varieties of Apples; Japanese persimmons.
A. F. Rice: Grape Vine.
M. Crawford: New Strawberry Plants.
S. W. Gilbert: Two new varieties of Apples.
J. M. Wadlington: New Crab Apple.
Hon. N. F. Murray: Plum.
Storrs Harrison Co.: Gooseberry and Raspberry.
J. R. Johnson: Grape Vine.
W. O. Booth: Wild Plums.
Jas. B. Wild & Bros.: Nut Trees.
E. M. Buechly: Apple Trees.
J. C. Vaughan: Seeds.

To the Entomological Department:

J. M. Stedman: Entomological Collection (8000 specimens).

To the Experiment Station:

LIBRARY.

	Vols.		Vols.
U. S. Dept. Agriculture	3	Missouri Botanical Garden	4
Minnesota Dairymen's Ass'n	1	Maine, Vital Statistics Dept.	1
Michigan State Board of Agr.	1	Missouri State Board of Agr	1
Minnesota State Board Agr	1	Ontario (Canada) Board of Agr.	1
Penn. State Board of Agr.	10	Ohio State Board of Agriculture.	18
Maine State Board of Agr.	7	Virginia State Board of Agr	1
Georgia State Board Agr	2	Kansas State Board Agr.	2
Vermont State Board Agr.	6	Kansas State Hort. Society	1
Missouri State Hort. Society	12		

AGRICULTURAL DEPARTMENT.

The Z. Weeder Co.: 1 cultivator.
The Conn Butter Culture Co.: Conn's Bacilli (41).

B. THE SCHOOL OF MINES AND METALLURGY, AT ROLLA, MISSOURI.

Buildings and Equipment:

Main Building.—The buildings of the School of Mines are situated in the most elevated part of the town of Rolla. They are substantial brick structures, well ventilated and lighted. The main building and the mining laboratory are heated by steam. The main building contains the assembly-room, the library, lecture-rooms for the Professors of Engineering, Mathematics, Physics, and for Academic work, the Physical laboratory, offices of Executive Committee and Director, etc., and accommodates in

its basement (temporarily, it is hoped) the Shop. For the work in Engineering there is ample provision of field instruments, and a beginning has been made in the acquisition of testing apparatus.

Physical Laboratory.— The Physical laboratory has recently received several thousand dollars' worth of apparatus, and its equipment is being augmented from time to time. It is especially strong on the side of electricity, and comprises two dynamos, with which a small electric lighting plant is maintained.

Chemical Laboratory.—The Chemical laboratory is housed in a separate building, admirably adapted to its occupancy. This contains a lecture-room, qualitative laboratory, quantitative laboratory, Professor's laboratory, assay laboratory, weighing-room, evaporating-room, preparation-room, supply-room, and basement. Facilities for heat, light and ventilation, and for carrying off foul or noxious gases, are excellent. Gas and water are supplied to each table. The assay laboratory, which is on the first floor, is amply provided with the proper furnaces, ore-crusher, pulverizing plate, balances, etc., and throughout the whole building the arrangement and equipment are such as to leave little to be desired.

Mining and Metallurgical Laboratory.—The Mining and Metallurgical laboratory, for which the 37th Assembly made an appropriation of $25,000, is now completed. In addition to provision for instruction, both by lectures and by laboratory methods, in Mineralogy and in Geology, there is a special laboratory fitted with full-sized working machinery and the needed furnaces for practical illustration of the processes of ore-dressing and of metallurgy.

In the second story is a drawing-room of about 600 square feet of floor space, lighted from the top by sky-lights.

Gifts to the School of Mines.—The collections of the School of Mines have been increased by the addition of the Missouri exhibit in ores and mining at the Chicago World's Fair.

Library.—The library contains about 3,300 volumes. It is well provided with scientific and technical works designed to afford the student an opportunity of supplementing his class-work by collateral reading. There is also a respectable collection of works of general literature. On its reading-tables the leading scientific periodicals and others of general or literary interest are accessible. The library is open daily from 8 a. m. to 4 p. m.

Club-house.—The students' club-house or dormitory is a handsome three-story building, erected in 1890, and contains room enough for twenty-five or thirty lodgers. The dining-room and kitchen can supply board for sixty. No charge is made for room-rent, but each occupant of a room is required to make a deposit of $5 to pay for any damages for which he may be responsible—the unconsumed portion of this fund being returned to him at the end of the session. The cost of board, including lights and heat, is

at present $13 a month. Any one who may wish to engage a room should make an early application, accompanying it with the five-dollar deposit.

Expenses:

An entrance fee of $10 and a library fee of $2 each semester are the only general charges. Students in the Chemical laboratory pay for material consumed and apparatus broken, to provide for which emergencies a deposit of $10 is made at the beginning of the year, this sum being increased to $15 for those taking a "special" or "assay" course. The unused portion of this deposit is returned at the end of the year.

Board, fuel, lights, and washing, can be had for from $12 to $16 a month. The necessary expenses range from $140 to $200 a year.

Athletics:

Through the liberality of the Curators an athletic field has been enclosed and graded for the benefit of the students. It furnishes ample space for base-ball, foot-ball and lawn tennis. An athletic association exists among the students.

Students' Societies:

A society composed of both students and professors meets fortnightly to discuss topics of contemporary interest, scientific, literary, and historical. The advanced students in the Chemical Laboratory conduct a "Journal Club." The young ladies have a literary society called the "Alpha."

Examinations:

During the last week of each semester all students are required to stand written examinations on the studies pursued, and the results of these examinations, with the average monthly grades, determine their semester grades. A student, to pass, must attain at least 75 per cent.

Monthly Reports:

Regular monthly reports are sent to the parents or guardians of each student, showing the student's grade in scholarship for the month, and giving such other information in regard to his progress, attendance, etc., as may be thought to be of interest. The attention of parents and guardians is particularly called to these reports.

For more detailed information, the special catalogue issued by the College will be sent upon application.

List of Students.

Academic Department.

Students whose names are marked with a * have work below the class in which their names appear.

Name.	Course	Postoffice.	County.
GRADUATES.			
Adams, Jennie, A. M.		Shelbina	Shelby
Allen, Edward Thorpe, B. L.		Columbia	Boone
Barnett, Mary Jessie, A. B.		"	"
Beasley, Geo. Hamilton, B. S.		"	"
Conley, Wm. Thompson, B. S		"	"
Defoe, Cora Eitzen		"	"
Ficklin, Walter Herman, B. S.		"	"
Gerling, Henry Joseph, B. L.		"	"
Griffith, William Walter, B. S.		"	"
Hardesty, Irving		Wakefield, N. C.	
Harris, Herman Fermain, A. B		Columbia	Boone
Hicks, Verna Sheldon, A. B.		"	"
Johnson, Eva, A. M		"	"
Kidwell, Minna A., B. A		Kansas City	Jackson
Martin, Leonidas W., A. B		Columbia	Boone
Peeler, William Barney, B. S.		White's Store	Howard
Taylor, Thomas Jackson, A.B.		St. Louis City	
Tindall, Lucy Gentry, B. L.		Columbia	Boone
Turner, Edwin, B. S.		Wellsville	Montgomery
Wilkinson, John Walter, B. S.		Columbia	Boone
			—20
UNDERGRADUATES.			
SENIOR CLASS.			
Allee, Gail Darwin	B. S.	Olean	Miller.
Barnett, Bruce	B. L.	Sedalia	Pettis
*Byers, Charles Emmanuel	A. B.	St. Louis City	
*Cosgrove, James W	B. L.	Boonville	Cooper
Davis, George Thomas	"	Sheldon	Vernon
*Defoe, Cora Eitzen	B. S.	Columbia	Boone
*Detweiler, Andrew Jackson	A. B.	Washington	Franklin
Harrison, Grace	"	Bethany	Harrison
Herrnleben, Henry	B. L.	Jamestown	Moniteau
*Hinde, Annie Dillard	"	Columbia	Boone
Hinde, Hubbard Kavanaugh	A. B.	"	"
*Jones, William Thomas	B. L.	Humphrey's	Sullivan
*Kraemer, Hermann	A. B.	California	Moniteau
Loeb, Clarence	"	Columbia	Boone
McCutchan, Ella B.	B. L.	Bunker Hill	Lewis
McCutchan, Ignatius	A. B,	"	"
McCutchan, Joseph	"	"	"
Manring, John Franklin	B. L.	McFall	Gentry
Moore, Washington K.	"	Bunker Hill	Lewis
*Payne, Mary	"	High Point	Moniteau
Pollard, Janie Eleanora	"	Columbia	Boone
Porter, William Richard	A. B.	Lamar	Barton
Rutherford, Harry Holcomb	B. L.	Fort Smith, Ark.	

Name.	Course.	Postoffice.	County.
Scott, John William	A. B.	Canton	Lewis.
Scott, Mary Pauline	"	"	"
Sutherland, Virginia	B. L.	West Plains.	Howell
Thompson, Frank F.	"	Stockton	Cedar
Turner, Edwin	"	Wellsville	Montgomery
Westlake, Nancy Pearl	"	Midway	Boone
Wood, Walter F.	A. B.	California	Moniteau
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JUNIOR CLASS.			
*Alexander, William Campbell	B. L.	St. Charles	St. Charles
*Alison, Milton	B. S.	Marshall	Saline
Baender, Charles Lewis	"	Moberly	Randolph
Banks, John Samuel	B. L.	Columbia	Boone
*Barnes, Charles Merline	"	New Madrid	New Madrid
Barth, Irvin Victor.	A. B.	Columbia	Boone
*Blackwell, Laura Craig	"	"	"
*Cochel, Wilbur Andrew	"	Tipton	Moniteau
Conran, James Francis	B. L.	High Hill	Montgomery
*Dungan, Harry McFarland	A. B.	Hopkins	Nodaway
*English, George Harrison	"	Kansas City	Jackson
*Fast, Judson Cooper	B L.	Sedalia	Pettis
Hitch, Arthur Martin	A. B.	Cuba	Crawford
*Hunker, George Henry	B. S.	Roanoke	Randolph
*McAlester, Andrew Walker	B. L	Columbia	Boone
McIntyre, Joe Shelby	"	"	"
*McFarland, Marion	"	Monroe City	Monroe
McGaugh, Elmer	"	Richmond	Ray
Moore, William Emmett.	"	Quincy, Ill	
*Munday, Bert	B. S.	Canton	Lewis
Myer, Max Washington	A. B.	Salisbury	Chariton
*Newman, Thomas Jefferson	B. L.	Columbia	Boone
*Organ, Minnie	"	Salem	Dent
Plowman, John Lawrence	"	Hannibal	Marion
*Price, Charles Sterling	"	Plattsburg	Clinton
Pringle, Edward Graves	A. B.	Foristell	St. Charles
Rautenstrauch, Irwin	"	Sedalia	Pettis
Rippey, John Dennis	"	Lawson	Ray
Rogers, Lalla Rookh	B. L.	Kingston	Caldwell
Sears, Phidelia	B. S.	Barnett	Morgan
*Strong, Charles Monroe	B. L.	Statebury	Vernon,
*Swearingen, Ethel Barton	A. B.	Nevada.	Nevada
*Switzler, Royall Hill	"	Columbia	Boone
*Turner, Charles Williams	B. L.	"	"
*Weatherly, Everett Pine	A. B.	"	"
*Weatherly, James Edward	B. S.	"	"
White, James Paul	A. B.	"	"
Wilkerson, George R.	B. L.	Sedalia	Pettis
*Zwick, Gallus Lawton	"	Bucklin	Linn
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SOPHOMORE CLASS.			
Alexander, Susan	B. L.	Kingston	Caldwell
Alexander Emmet Gerald	"	Blackburn	Saline
*Ammermann, Gertrude	A. B.	Columbia	Boone
*Bennett, William Hall	"	Mound City	Holt
*Bogard, Margaret Ethel	B. L.	Mendon	Chariton
*Bush, Aubrey Charles	"	Centralia	Boone
Cannell, Edward	"	Hatton	Callaway
*Carroll, Stephen Samuel	A. B.	Vandalia	Audrain
*Cash, William Shotwell.	B. L.	Ashley	Pike
*Conley, Dudley Steele	"	Columbia	Boone
Crowley, George Washington.	A. B.	Lawson	Ray
Orowley, Claude Cuthbert	"	"	"
Devin, Charles Earnest	"	Columbia	Boone
*Dewey, Charles Edward	"	Jefferson City	Cole
*Dowdall, Guy Grigsby	B. L.	Norborne	Carroll.
*Durham, Lisbon Elwood	"	Elston	Cole.

Name.	Course.	Postoffice.	County.
Edwards. Granville Dennis	A. B.	Columbia	Boone
Ferrill, Hattie	B. L.	Dearborn	Platte
*Freudenberger, Norman	A. B.	Clarksburg	Moniteau
*Geiger, Harley Valter	B. L.	Rich Hill	Bates
Gerig, John Lawrence	A. B.	Columbia	Boone
*Graham, Fowler	B. L.	Richmond	Ray
Gray, Felix Zollie	A. B.	Santa Fe	Monroe
Guffey, Don Carlos	B. S.	Unionville	Putnam
*Hansen, Karl Henry	"	Harlem	Clay
*Harnage, Jesse Lee	A. B.	Tahlequah, I. T.	
*Harrison, Cora	"	Bethany	Harrison
*Hatton, Claudia May	B. S.	Columbia	Boone
Hegnauer, Leonard	B. L.	Prairie City	Bates
*Henderson, Cicero Adolphus.	"	Strother	Monroe
Hock, William Casper	"	Buckner	Jackson
Huggins, Gurry	"	Lamar	Barton
Jackson, Clarence Martin	B. S.	Martinstown	Putnam
Kitt, Paul Duane	B. L.	Chillicothe	Livingston
*Knepper, Myrtee	"	Guy	Atchison
McFarland, Roy	A. B.	Monroe City	Monroe
*McMahan, William T	B. L.	Seymour	Webster
*Major, John Wm. McGarvey.	A. B.	Blackburn	Saline
Marbut, Thomas Bluton	B. S.	McDowell	Barry
Miller, Camillia Maud	A. B.	St. Joseph	Buchanan
Patton, Henry Kissinger.	B L.	Paynesville	Pike
*Perkins, Madison Love	"	Mountain Grove.	Wright
Perry, Thomas Benton	B. S.	Carthage	Jasper
*Phillips, Murry	A. B.	New Madrid	New Madrid
*Potter, Mary Basset	B. L.	St. Joseph	Buchanan
*Powell, Bessie	"	Columbia	Boone
Rickey, Elenore	"	Cedar City	Callaway
Rodgers, Della	"	Columbia	Boone
*Rothrock, Frank Blake	"	Richmond	Ray
Russell, Antoine Edward	"	Savannah	Andrew
Scott, Owen Thomas	"	Ashland	Boone
Snyder, Robert McClure	"	Kansas City	Jackson
*Strange, Pliny Robinson	"	Ashland, Oregon	
*Strickler, Katharine	"	Columbia	Boone
Vaughn, Earnest Van Court	"	Clarence	Shelby
*Wade, William	"	Bolchow	Andrew
Walker, Nellie	A. B.	St. Joseph	Buchanan
Williams, Horace Beckley	"	Dallas, Texas	
Witherspoon, Baxter Hugh	B. L.	Gaines	Henry
Woodson, Warren Rice	"	Temple, Arizona	

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FRESHMAN CLASS.

Adams, George Paul	B.L.	King City	Gentry
*Alexander, Ralph Lee	"	Blackburn	Saline
Appleman, Clapton Doyle	"	Maitland	Holt
Armstrong	A. B.	St. Joseph	Buchanan
*Arnett, Elsie Amanda	B. L.	Columbia	Boone
Ashley, Charles Leonard	B. S.	Greenfield	Dade
*Bagby, John Ward	"	Roanoke	Howard
*Banks, Samuel Griffin	A. B.	Hodge	Lafayette
Bass, Andrew Jackson	B. L.	Columbia	Boone
Beedy, John Goldsbury	B. S.	Kansas City	Jackson
Bell, Charles Thomas	A. B.	Barnard	Nodaway
Berkebile, Lewis B	B. L.	Columbia	Boone
*Berry, James Addison	A. B.	Platte City	Platte
Bodenheimer, Hannah	B. L.	Jefferson City	Cole
Booher, Lloyd Webster	"	Savannah	Andrew
Botts, McDowell	B. S.	Kansas City	Jackson
*Bowen, Charles Ray	"	Powersville	Putnam
*Brandenberger, Jacobina	"	Linneus	Linn
Brandt, Albert Upp	"	Nevada	Vernon
Buchanan, Claude	B. L.	New London	Rolla
*Burruss, Will Bledsoe	"	Columbia	Boone
Cahoon, Benjamin Benson	"	Fredericktown	Madison

Name.	Course.	Postoffice.	County.
Campbell, Laura Belle	A. B.	Columbia	Boone
Campbell, Philip Leonidas	B. L.	"	"
Cleary, Charles Frederic	A. B.	Chillicothe	Livingstone
Crafton, Earl Soper	B. L.	Plattsburg	Clinton
Crump, Rosa Delcena	"	Lancaster	Schuyler
Dickinson, William Boyd	"	Independence	Jackson
Dimmitt, Philip Vaughn	"	Shelbyville	Shelby
Dix, Blanche	"	Jefferson City	Cole
Edmonds, Raymond Sanfley	"	Miami	Saline
Edwards, John Crockett	"	Centralia	Boone
*Emerson, Guy La Verne	"	Siloam Springs	Howell
Fewsmith, Stella	A. B.	Columbia	Boone
*Ficklin, Arthur Graham	"	King City	Gentry
*Ficklin, Charles Lee	B. L.	"	"
Frank, Rena Myra	"	St. Joseph	Buchanan
*French, Wilbur Maynard	"	Lancaster	Schuyler
*Freudenberger, Henry	"	Clarksburg	Moniteau
*Frost, Frank James	"	Grubville	Jefferson
*Galloway, William Elijah	A. B.	Vandalia	Andrew
*Gladney, Franklin Young	"	Troy	Lincoln
Goodson, Repps B	B. S.	Carrollton	Carroll
*Gordon, Daisy Lenore	"	Columbia	Boone
*Gray, Mary	B. L.	"	"
Gray, Mrs. Clara Bartholomew	B. S.	Nevada	Vernon
*Greer, Bertha Alice	A. B.	Joplin	Jasper
Hall, Judson Holmes	B. S.	Sedalia	Pettis
Hall, John Chappelear	"	Springfield	Greene
*Harrison, James Samuel	B. S.	Benton City	Audrain
*Harshe, Robert B	B. L.	Columbia	Boone
*Hastain, Ed	"	Appleton City	St. Clair
Hawkins, Richmond Laurin	A. B.	Columbia	Boone
Herndon, Charles Wilson	B. L.	Prescott, Ariz	
Hickerson, John Cook	"	Moberly	Randolph
*Highley, Anadeo Frederic	B. S.	Farmington	St. Francois
Hill, Adam	B. L.	Independence	Jackson
Hockaday, Carl Vincent	B. S.	Columbia	Boone
Houck, Gibbony	A. B.	Cape Girardeau	Cape Girardeau
House, Ralph Emerson	B. L.	Columbia	Boone
Houston, James Montgomery	"	Raymore	Cass
Howard, Thomas Perry	A. B.	Carthage	Jasper
*Howard, Ida Elizabeth	B. L.	Columbia	Boone
*Huffman, Carl	"	Caruthersville	Pemiscot
*Jacobs, George Rixmer	"	Columbia	Boone
Jamison, Carson Ephraim	"	Amado	Pike
Johnson, Elinora	B. S.	Maitland	Holt
*Kline, Mary	B. L.	Bismarck	St. Francois
*Labsap, Viola	"	Hannibal	Marion
Latshaw, Frank Jay	B. S.	Springfield	Greene
Laughlin, Wilson Monroe	B. L.	Foster	Bates
*Leavenworth, George	B. S.	Ste. Genevieve	Ste. Genevieve
*Lindsay, Benjamin Charles	B. L.	Carrollton	Carroll
Lowen, Archer Hamilton	B. S.	Trenton	Grundy
*Lucas, William Cordwell	A. B.	Kansas City	Jackson
*March, Allen Wright	B. L.	Hallsville	Boone
*McFarland, Byron	A. B.	Monroe City	Monroe
McNown, Roy Allen	"	Macon	Macon
*Miller, Herman Benjamin	B. S.	Canton	Lewis
Miller, Harriet Neeley	A. B.	St. Joseph	Buchanan
Montgomery, Albert	B. L.	Exeter	Barry
*Moore, Ida May	"	Perry	Ralls
*Moore, Ada Desher	"	Bunker Hill	Lewis
Naylor, George Washington	"	Maud	Shelby
Newby, Charles Byron	B. S.	Plattsburg	Clinton
*Newman, Roy Ficklin	A. B.	Columbia	Boone
Nowell, Pearl Ellenore	B. L.	"	"
*Offield, Gentry	A. B.	Sedalia	Pettis
Olvis, James Edward	"	Beverly	Platte
*Packard, John Erastus	"	Columbia	Boone

Name.	Course.	Postoffice.	County.
Parkhurst, Charles Leonard	B. S.	Sweet Springs	Saline
*Potter, Peter	"	Springfield	Greene
Pierce, Perry Riley	B. L.	Plattsburg	Clinton
*Revelle, Charles Gilbert	"	Lutesville	Bollinger
*Riggs, Lena May	B. S.	Farmer	Pike
Riley, Lottie Marie	B. L.	Columbia	Boone
*Robertson, George Gordon	A. B.	St. Louis City	
*Rodgers, James Leigh	B. S.	Columbia	Boone
Salmon, Merritt Kimbrough	A. B.	Clinton	Henry
Schwab, Rose	B. L.	St. Joseph	Buchanan
*See, Edward Everett	B. S.	Montgomery City	Montgomery
Seward, William	A. B.	Oak Ridge	Cape Girardeau.
Sexton, Floyd	B. L	Columbia	Boone
Shafer, Frederic Charles	"	Lancaster	Schuyler
Shipley, Sylvanus Carl	B. S.	Columbia	Boone
*Shipley, Edith	A. B.	"	"
*Shope, Charles Franklin	B. L.	Mile's Point	Carroll
Sinclair, Elizabeth May	"	Columbia	Boone
Smith, George Alexander	"	"	"
*Spare, Willis Clarence	"	Clarence	Shelby
Stone, Frank Powell	"	Macon	Macon
Stratton, Bertha Florence	"	Lancaster	Schuyler
Utley, Lee	"	Miami	Saline
Wade, Benjamin Robert	A. B.	Butler	Bates
Walmsey, John Fletcher	"	Sedalia	Pettis
Watson, Sallie Elliott	"	Webster Groves	St Louis.
*Wilcoxen, Thomas Huxley	B. L.	Ashley	Pike
*Wilkinson, Robert Edgar	"	Dundee	Franklin
*Williams, Clyde	"	Grubville	Jefferson
Wilson, William Frank	A. B.	Cape Girardeau	Cape Girardeau.
Wulfert, Margaret Anne	B. L.	Jefferson City	Cole
Young, William Wilson	A. B.	Lexington	Lafayette
Young, Samuel Alexander	"	Mound City	Holt
*Young, John Calvin	B. L.	High Point	Moniteau
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SPECIAL STUDENTS.			
Bailey, Frank Meeker		Warrensburg	Johnson
Brigham, Francis Henry		Barre, Mass	
Byram, William Milton		Richmond	Ray
Cauthorn, Louisa Leah		Columbia	Boone
Dinsmoor, Laura Bulkley		"	"
Dulaney, William Henry		Hannibal	Marion
Evans, Claude Thompson		Perry	Ralls
Garth, Lucy		Columbia	Boone
Griffith, Augie		"	"
Holland, Alice Elizabeth		"	"
Isbell, Alice Maude		Washington	Franklin
Jewett, Carrie May		Lancaster	Schuyler
Jones, Abner		Unionville	Putnam
Long, Laura Virginia		Columbia	Boone
Marx, Mrs. C. W		"	"
Montgomery, Finis		Exeter	Barry
Quest, Edgar		Kansas City	Jackson
Rippey, Jennie Maud		Columbia	Boone
Schaefer, Ada		"	"
Skilling, Frank Herbert		Greenwood	Jackson
Spoher, Frank Otto		Fredericksburg	Gasconade
Sproul, Nettie G		Mexico	Audrain
Walker, Helen		Columbia	Boone
Walters, William Wade		"	"
Willhite, Joseph Vance		Oxford	Worth
Willoughby, Claude Leake		Columbia	Boone
Wood, David Perry		Platte City	Platte
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Normal Department.

Name.	Postoffice.	County.
Alison, Milton	Marshall	Saline
Arnett, Elsie Amanda	Columbia	Boone
Bodenheimer, Hannah	Jefferson City	Cole
Cash, William Shotwell	Ashley	Pike
Cochel, Wilbur Andrew	Tipton	Moniteau
Cosgrove, James W	Boonville	Cooper
Crafton, Earl Soper	Plattsburg	Clinton
Crump, Rosa D	Lancaster	Schuyler
Davis, George Thomas	Sheldon	Vernon
Devin, Charles Earnest	Columbia	Boone
Dickinson, William Boyd	Independence	Jackson
Dix, Blanche	Jefferson City	Cole
Dungan, Harry McFarland	Hopkins	Nodaway
Edwards, John Crockett	Centralia	Boone
Evans, Claude Thompson	Perry	Ralls
Fast, Judson Cooper	Sedalia	Pettis
Fewsmith, Stella	Columbia	Boone
Frank, Rena Myra	St. Joseph	Buchanan
Freudenberger, Norman	Clarksburg	Moniteau
Gray, Mrs. Clara Bartholomew	Nevada	Vernon
Herrnleben, Henry	Jamestown	Moniteau
Hinde, Hubbard Kavanaugh	Columbia	Boone
Hitch, Arthur Martin	Cuba	Crawford
Hockaday, Carl Vincent	Columbia	Boone
Jackson, Clarence Martin	Martinstown	Putnam
Jewett, Carrie May	Lancaster	Schuyler
Kraemer, Hermann	California	Moniteau
Labsap, Viola	Hannibal	Marion
McCutchan, Ella B	Bunker Hill	Lewis
McFarland, Marion	Monroe City	Monroe
McIntyre, Joe Shelby	Columbia	Boone
Montgomery, Albert	Exeter	Barry
Montgomery, Finis	"	"
Newby, Charles Byron	Plattsburg	Clinton
Powell, Bessie	Columbia	Boone
Price, Charles Sterling	Plattsburg	Clinton
Pringle, Edward Graves	Foristell	St. Charles
Rickey, Elenore	Cedar City	Callaway
Rogers, Lalla Rookh	Kingston	Caldwell
Schwab, Rose	St. Joseph	Buchanan
Sears, Phildelia	Barnett	Morgan
Sexton, Floyd	Columbia	Boone
Sproul, Nettie G	Mexico	Audrain
Stratton, Bertha Florence	Lancaster	Schuyler
Strickler, Katharine	Columbia	Boone
Strong, Charles Monroe	Statesbury	Vernon
Sutherland, Virginia	West Plains	Howell
Thompson, Frank F	Stockton	Cedar
Turner, Charles William	Columbia	Boone
Wood, Walter F	California	Moniteau
Woodson, Warren Rice	Tempe, Arizona	
Wulfert, Margaret Anne	Columbia	Boone

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TEACHERS' COURSE.

Adams, William Benjamin	Shotwell	Franklin
Alspaw, Stella	Columbia	Boone
Barton, Mary Margaret	"	"
Bell, Celsus Price	Monroe City	Monroe
Bradley, Bessie Boon	Mayview	Lafayette
Broaddus, Lycurgus	Nevada	Vernon
Burney, Robert H	Peculiar	Cass
Chenoweth, Walter Winfred	Jamesport	Daviess
Coil, James Hubert	Perry	Ralls
Cofer, James Louis	Robertsville	Franklin

Name,	Postoffice.	County.
Cruse, Albert Henry	Josephville	St. Charles
Davault, Samuel Morris	Cuba	Crawford
Evarts, Minnie	St Louis City	
Green, Robert Augustine	Foristell	St. Charles
Hawkins, Mrs. Mildred	Irondale	Washington
Heidker, Alice	Elston	Cole
Hicklin, Fannie Crosthwait	New London	Ralls
Hininger, Ella	Pawnee	Harrison
Keller, George John Samuel	Union	Franklin
Keller, John Christian	"	"
Kinkade, Mary	Bethany	Harrison
Leporin, Alice Mary	Washington	Franklin
McNeal, Lydia Stile	Otterville	Cooper
McNeal, Jennie	"	"
Mann, Hugh Ballard	Craig	Holt
Miller, Anbrey J.	Greenton	Lafayette
Moore, Joseph Rockefeller	Union	Franklin
Moore, G. P.	New Palestine	Cooper
Moore, Henry B	"	"
Norwood, Electra Minnie	Columbia	Boone
Pyne, James Madison	Zenith, W. Va.	
Reed, Guy	Powersville	Putnam
Richardson, Benjamin Pettit	Canaan	Gasconade
Richardson, Walter Perry	Owensville	"
Riske, John Henry Theodore	Watson	St. Charles
Rodes, Sallie Laudon	Maud	Shelby
Ruth, Ernest Given	Pittsville	Johnson
Steele, Mary H.	Quivre	Audrain
Thomas, Willie Ann	Miami Station	Carroll
Thompson, George Edward	Columbia	Boone
Tillman, Hermann	Loose Creek	Osage
Walker, Minnie Boyd	Wentzville	St. Charles
Williams, David Edgar	Conway	Laclede
Wulfert, Amelia Pauline	Columbia	Boone

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Law Department.

GRADUATE.		
Thomas, Benjamin Lee, LL. B.	Pendleton	Warren
SENIOR CLASS.		
Berry, Richard Prigmore	Sweet Springs	Saline
Bucholz, William	Westport	Jackson
Campbell, Edward Eugene	Troy	Lincoln
Campbell, William Sherman	Garden City	Cass
Carlon, William James	Brookfield	Linn
Carroll, Carly Mamie	Independence	Jackson
Clements, William Thomas	Platte City	Platte
Culbertson, Jerry	Rich Hill	Bates
Davis, Paul Robert	Kansas City	Jackson
Eldred, Kent Leonard	Canon City, Col.	
Eppes, Thomas Jefferson	Columbia	Boone
Fulkerson, Frederick Debrow	Edinburg	Grundy
Gentry, William Richard, B. L. (Mo. Univ.)	Columbia	Boone
Gottschalk, Max Welton	St. Louis City	
Gow, Bernard Archer	Liberty	Clay
Gray, William L.	Stanberry	Gentry
Hammett, Aubrey Rutherford	Huntsville	Randolph
Hamner, Harry Chambers	Kansas City	Jackson
Harris, Homer Allison	Tibbetts	Callaway
Hunter, Robert Harry	Platte City	Platte
King, Melville Sinclair	Columbia	Boone

Name.	Postoffice.	County.
La Follet, Walter Tazewell	Butler	Bates
Lay, James Hardin	Jefferson City	Cole
Manring, John Franklin	McFall	Gentry
March, Joseph Boyce	Butler	Bates
McCandless, William Robertson	Moberly	Randolph
Meador, Alexander McHenry	El Reno, Oklahoma	
O'Connor, Michael Henry	Arkoe	Nodaway
Park, Guy Brasfield	Platte City	Platte
Price, Stuart R	Plattsburg	Clinton
Prowell, Charles Edgar	El Dorado Springs	Cedar
Robinson, Henry Cleveland	Luystown	Osage
Shaner, James Calvin	Bonne Terre	St. Francois
Snell, Charles Parson	Myrtle Creek	Oregon
Sparks, Theodore Clifton	Linden	Clay
Stampfli, George Joseph	Jefferson City	Cole
St. John, Ray Robert	Carthage	Jasper
Taylor, Wilson Allen	California	Moniteau
Taylor, Earl Miller	Salem	Dent
Turner, Kirk Baxter	Columbia	Boone
Watson, Edwin Moss	"	"
Westerhouse, Ernest Jackson	Concordia	Lafayette
Wilkinson, William	Kansas City	Jackson
Young, Frederick	Columbia	Boone
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JUNIOR CLASS.		
Adams, Arthur Nottingham	Buckner	Jackson
Asbury, Ai Edgar	Higginsville	Lafayette
Barnett, George Harlen	Columbia	Boone
Bell, Fleetwood	"	"
Benton, Forrest	Sweet Springs	Saline
Bohnenkamp, William Louis	St. Louis City	
Bond, Reford	Minio, I. T.	
Booth, George Frederick	DeSoto	Jefferson
Bryan, William Alexander	Brookfield	Linn
Buren, John William	Festus	Jefferson
Clay, Marion Lloyd	Kahoka	Clark
Covert, Charles Elmer	Houston	Texas
Crews, Arch Aaron	Craig	Holt
Crowley, George Washington	Lawson	Ray
DeArmond, James Archibald	Butler	Bates
Dora, Robert Sinton	Charleston, Ill	
Duley, Elsus Enoch	Ashland	Boone
Eastin, George W	Kearney	Clay
Elam, Oscar Barton	Aurora	Lawrence
Evans, George Albert	Carthage	Jasper
Ferguson, Frederic Kirkwood	Stanberry	Gentry
Fowler, Fred D	Polo	Caldwell
Gatewood, William Orien	St. Louis City	
Gideon, Thomas Harrison	Springfield	Greene
Gordon, James Allen	Plattsburg	Clinton
Gordon, Miles Fleetwood	Columbia	Boone
Graves, Charles Herbert	Nevada	Vernon
Gwinn, Arthur	Sprague	Bates
Hall, Charles Ripley	Harrisonville	Cass
Hanger, Rob Roy	Clarence	Shelby
Hastain, Ed	Appleton City	St. Clair
Hawkins, William Carroll	Brumley	Miller
Henkins, Joseph Adam	Kingston	Caldwell
Hiekerbanner, William August	St. Louis City	
Holman, Harley E	Stockton	Cedar
House, Jesse Eugene	Columbia	Boone
Irvin, Thomas Franklin	Brown's Station	"
Jennings, George Washington	Lee's Summit	Jackson
Johnson, Robert Miller	Minco, I. T.	
Jones, Selbert Granberry	Southwest City	McDonald
Key, Wm. Casey	Walker	Vernon
Lindsay, Benjamin C	Carrolton	Carroll
Livingston, John Alexander	Cameron	Clinton

Name.	Postoffice.	County.
McAlester, James Burney	McAlester, I. T.	
McCurtain, David Cornelius	Oak Lodge, I. T.	
McNeely, John Dowd	St. Joseph	Buchanan
Michelson, Lionel Anselm	"	"
Moore, Otho Clay	Clarksburg	Monlteau
Murry, Harvey Dennie	Stephens' Store	Callaway
Ostergard, Martin Jackson	Kansas City	Jackson
Owen, Theodore Clarence	Mount View	Benton
Palmer, Judson Lee	Youngers	Boone
Patterson, Roscoe Conkling	Springfield	Greene
Pauley, John George	Columbia	Boone
Peers, Edward Porter	Warrenton	Warren
Pemberton, Morton Hord, B. L (Westminster College)	Fulton	Callaway
Potter, James Louis	Clifton City	Cooper
Price, Thomas Lawson	Jefferson City	Cole
Questa, Con Ditt	Brookfield	Linn
Rieger, James Edward	Kirksville	Adair
Robinson, Edward Nelson	Appleton City	St. Clair
Ryker, Saul Jeptha	Greenfield	Dade
St. John, Claude E	Camden Point	Platte
Scales, Roy Edward	Wetumka, I. T.	
Sedgwick, Frank Lee	Lamar	Barton
Sinnett, Harold Blanchard	Sedalia	Pettis
Steltemeier, Fred Casper	St. Louis City	
Steel, Thomas Groff	Excelsior	Morgan
Swearingen, Orson Hansford	Kansas City	Jackson
Swink, Robert Augustus	Festus	Jefferson
Taylor, Jesse Hayden	Omaha, Neb	
Timmonds, Harry Whitney	Lamar	Cooper
Tompkins, Will Eugene	Boonville	Barton
Walton, Warren David	Watkins	Harrison
Wheeler, Sidney Johnson	Miami	Saline
Wilkinson, Robert E	Dundee	Franklin
Williams, William Detmer	Pattonsburg	Daviess
Wills, John William	Centralia	Boone
Wood, Stuart Monroe	Macon	Macon
Woods, Frank Tipton	Woodland	Monroe
Woods, Richard Harry	Versailles	Morgan
Wrong, Walter Eugene	Sedalia	Pettis
		—82
SPECIAL STUDENTS.		
Kyles, James Jesse	Dillia	Ozark
Lafferty, Walter	New Hartford	Pike
Tener, Hymen Osten	Darlington	Gentry
Tener, Raymond Wilson	"	"
		—4

Medical Department

Allee, Gail Darwin	Olean	Miller
Allen, Frank Withers	Barryville	Macon
Ballenger, John Walter	Columbia	Boone
Barnett, James Sanford	"	"
Butman, Winthrop Warren	Macon	Macon
Calbreath, Claude Bernard	Cleopatra	Mercer
Cooper, Harry Bryant	Carrollton	Carroll
Conley, William Thompson	Columbia	Boone
Conley, Abram Harrison	"	"
Davis, Charles Underwood	Patterson	Wayne
Duggins, Micajah Clarence	Slater	Saline
Durrett, John Roberts	Arrow Rock	"
Evans, Edwin Elgin	Columbia	Boone
Evans, Walter Emmett	Meadville	Linn
Faris, James White	Caruthersville	Pemiscot

Name.	Postoffice.	County.
Fisher, James Montgomery	Columbia	Boone
Gillaspie, William Augustus	"	"
Gordon, Reverdy Johnson	"	"
Hale, Byron Leford	Gooch's Mill	Cooper
Harrison, John Frank	Benton City	Audrain
Hart, Elijah Frank	Warsaw	Benton
Hinde, William Henry	Columbia	Boone
Holman, Jurney Hubert	Hartford	Putnam
Hunt, James Robert	Macon	Macon
Hunter, Owen Arvel	Fairfax	Atchison
Johnson, Hans Christian	Meadville	Linn
Kurtz, Frank Allen	Columbia	Boone
Lane, Hallie Hiram	Harrisonville	Cass
Lee, Harry Chapman	Carrollton	Carroll
Lillard, Alonzo Conduit	Columbia	Boone
Lipscomb, Hallard Abell	West Point, Va	
McClane, Jean Edward	Columbia	Boone
McDonald, Howard A	Sedalia	Pettis
McFarland, William Edwin	Bismarck	St. Francois
Marshall, Archie M	Columbia	Boone
Martin, John	Ohio	St. Clair
Moberly, Charles Meryl Crutcher	Humphreys	Sullivan
Norwood, Frank Henderson	Columbia	Boone
Parmer, Charles Chandler	"	"
Powers, William Alexander	Henaker	Franklin
Reid, Robert Lee	Columbia	Boone
Reynolds, William Hamilton	Vermont	Cooper
Roehl, Arthur Bennett	Cape Girardeau	Cape Girardeau
Schwab, John Ben	Ironton	Iron
Scrivener, Douglas Scott	Columbia	Boone
Smith, George Hollis	"	"
Smith, August	Hermann	Gasconade
Taylor, Arthur George	Prairie Pome	Cooper
Thompson, Allen Milo	Excelsior Springs	Clay
Tilley, Robert Bruce	Waynesville	Pulaski
Turley, Otto	Farmington	St. Francois

—51

College of Agriculture and Mechanic Arts.

A. SCHOOL OF AGRICULTURE.

GRADUATE STUDENTS.		
Conover, Charles Clinton, B. Agr.	Peculiar	Cass
May, David William, B. Agr.	Gower	Clinton

—2

FOURTH YEAR.		
Booth, Nathaniel Ogden	Columbia	Boone
Mairs, Thomas Isaih	Browning	Sullivan

—2

THIRD YEAR.		
Adams, Charles Frederic	Atherton	Jackson
Gibson, James William	Frazier	Buchanan
Hickman, Thomas Harvey	Columbia	Boone
Norton, John Henry	Greensburgh	Knox
Reid, Frank Turner	Eight Mile	Cass
Sears, Alonzo James	Barnett	Morgan

—6

SECOND YEAR.		
Davison, Charles William	Jefferson City	Cole
Lewelling, Walter Williams	High Hill	Montgomery
McCormick, John Thomas	Sumner	Chariton
McDermott, Joseph Lewis	Buckner	Jackson
Rollins, Samuel Tilden	Bellefonte	Pulaski
Shawhan, Thomas Redmon	Lone Jack	Jackson

—6

Name.	Postoffice.	County.
FIRST YEAR.		
Barlow, James Walthall	St. Louis City	
Bauer, Milton John	St. Joseph.	Buchanan
Baumgartner, Georgia	Columbia	Boone
Beardslee, John Madison	Commerce	Scott
Brown, Frank	Stockton	Cedar
Bruce, John Oliver	Brunswick	Chariton
Coleman, Walter William	Foristell	St. Charles
Evans, Walter Emmett	Meadville	Linn
Evans, William Bolts	"	
Evans, Seth Deluna	"	
Jones, Edward DeWitt	LaBelle	Lewis
Jones, Ellis Anderson	Roanoke	Randolph
Kline, George Renwick	Bismarck	St. Francois
Lancaster, Henry Vest	St. Louis City	
Maloney, John	Cretcher	Saline
Oliver, William Isaac	Brown's Station	Boone
Powell, William Edward	Columbia	"
Roberts, Guy Alexander	St. Joseph	Buchanan
Rouse, Birdie Laforce	Brown's Station	Boone
Scott, Benjamin Turner	Mt. Pleasant	New Madrid
Singleton, John Morgan	Salisbury	Chariton
Tilley, Woodford Lee	Waynesville	Pulaski
Von Arx, Jacob Charles	Swiss	Gasconade
Welch, James William	Peace Valley	Howell
Wilcoxen, Thomas Hurley	Ashley	Pike
Wilson, James Newton	Molino	Audrain
Wilson, Lonnie James	Columbia	Boone
		—27
SPECIAL.		
Drescher, William Nesmith	Hannibal	Marion
Harrison, Albert Yater	Williamsburg	Callaway
Schofield, Tom R	Hannibal	Marion
Wade, Benjamin Robert	Butler	Bates
Wheeler, Edgar Louis	Warsaw	Benton
		—5
SHORT WINTER COURSE.		
Bargar, William Hayes	Middleton	Linn
Benedict, Lorenzo Dow	Dripping Springs.	Boone
Borrow, Lee Hedden	Rich Hill	Bates
Boydston, Vincil Van	Edgerton	Platte
Cox, Benjamin Franklin	Dover	Lafayette
Culver, Paul Middleton	Grayson	Clinton
Dow, Augustus	Georgetown	Pettis
Goist, Earl	Golden City	Barton
Gordan, Marshall	Columbia	Boone
Krumm, Andrew George	Pleasant Green	Cooper
Laughlin, Harvey N	Foster	Bates
Lea, Jim Willie	Huntsville	Randolph
McGinnis, Francis Kamp	Terrell, Tex	
Mackler, John Frank	Lamine	Cooper
Middleton, Ira Arthur	Dudenville	Dade
Morse, Harvey Edgar	Charleston	Mississippi
Rhoades, Eugene	Fairfax	Atchison
Robinson, Willard E	Fairport	DeKalb
Schlax, John Sebastian	Maryville, Kas	
Shawhan, John Daniel	Lone Jack	Jackson
Sterrett, George Washington	Florida	Monroe
Stone, Walter King	Columbia	Boone
Tucker, Henry Temple	Gooch's Mill	Cooper
Williams, Claud Daniel	Overton	"
		—24

C. SCHOOL OF ENGINEERING.

Name.	Course.	Postoffice.	County.
GRADUATE STUDENTS.			
Cauthorn, Edward Beauford	B. S.	Columbia	Boone
Fyfer, John Kirkbride	B. E. E.	"	"
Shipman, Robert Lee		Holden	Johnson
			—3
SENIOR CLASS.			
Balthis, Frank Spencer	C. E.	Huntsville	Randolph
Fowler, Thomas Robert	E. E.	Sedalia	Pettis
Garrett, Robert Peel	C. E.	Mound City	Holt
Highley, Lee	"	Farmington	St. Francois
Hill, Curtis	"	Independence	Jackson
Hinde, James Curde	E. E.	Columbia	Boone
Mason, Elliott Jeffries	M. E.	Mexico	Audrain
Shipman, Robert Lee	E. E.	Holden	Johnson
Skelley, James William	C. E	Mexico	Audrain
Young, Charles Everett	E. E.	Mound City	Holt
			—10
JUNIOR CLASS.			
Burkhart, Lewis Hiawatha	M. E.	Columbia	Boone
Dunlop, Arthur Hoyt	C. E.	Miami	Saline
Griggs, Arthur B	"	Hedge City	Knox
Jackson, Nathaniel Dodd	E. E.	Independence	Jackson
Johnson, Robert Edward	"	Rich Hill	Bates
Lotter, Henry Howell	E. E.	Moberly	Randolph
Leach, Frank Sayre	E. E.	Sedalia	Pettis
McMeekin, William Graves	C. E.	Higginsville	Randolph
Miller, William Alvan	"	Columbia	Boone
O'Keefe, John Eugene	E. E.	Carthage	Jasper
Rogers, Eybert Irwin	C. E.	Cameron	Clinton
Rodhouse, Thomas Jacob	"	Mexico	Audrain
Stalkoff, George R	E. E.	Columbia	Boone
Wenkley, Floyd Lee	M. E.	Gower	Clinton
			—14
SOPHOMORE CLASS.			
Broadhead, Garland Carr	C. E.	Columbia	Boone
Brown, Robert William	"	Carrollton	Carroll
Cope, Walter Smalley	E. E.	Kingston	Caldwell
Cox, Ezra Allison	C. E.	Rutledge	Scotland
Doty, Augustus Henry	"	Jamesport	Daviess
Dunham, Albert	"	New Cambria	Macon
Hogan, Charles William	E. E.	St. Louis City	
Jeans, Arthur Howard	"	Clarksville	Pike
Jones, Edward Horace	C. E.	Parnell	Nodaway
Langford, Chatham Ewing	"	Lexington	Lafayette
Lacoff, Florian Leo	"	Nevada	Vernon
Lewis, Lloyd	E. E.	Oregon	Holt
Maughmer, Carl	C. E.	Kearney	Clay
Moore, Frank Lawrence	"	Carthage	Jasper
Morse, Henry Simmons	E. E.	Warrenton	Warren
Turner, William Henry	C. E.	Centralia	Boone
			—16
FRESHMAN CLASS.			
Blackwell, Paul Alexander	C. E.	Columbia	Boone
Bowen, Wilks	E. E.	Mt. Washington,	Md
Corrigan, George Washington	C. E.	Harrisonville	Cass
Crenshaw, Smith S	"	Springfield	Greene
Drescher, William Nesmith	E. E.	Hannibal	Marion
Freudenberger, Wm. Kaiser	"	Clarksburg	Moniteau
Franz, Walter Godfrey	M. E.	St. Louis City	
Garrett, Richard Montgomery	C. E.	Sedalia	Pettis

Name.	Course.	Postoffice.	County.
Heck, Walter Gerald.	M. E.	Columbia	Boone..... .....
Irvine, George Andrew.....	E E.	Marshall	Saline.....
Keith, Charles Whiteside.....	C. E.	St. Louis City....	
Lewy, Pasha Benjamin	M. E.	Harrisonville....	Cass .....
McGann, Peter Joseph.....	C. E.	St. Louis City....	
Mattland, George Forrest	"	Richmond	Ray .....
Morris, James Washington....	"	"	" ... .
Neville, Colonel Will Jackson.	"	Marshall	Saline .....
Orr, Alfred William.....	E. E.	Mt. Vernon, ...	Lawrence .. ..
Peper, Elmer Carl....	E. E	St. Louis City....	.....
Ragland, John Kelley.	M. E.	Boonville	Cooper .....
Robinson, Ralph Waldo	E. E,	Kahoka..... ...	Clark .....
Sawyer, Samuel.....	C. E.	Lexington	Lafayette ....
Schofield, Tom R	E. E.	Hannibal	Marion .....
Sinclair, Albert Kent.....	C. E.	Pierce City.....	Lawrence .....
Terrell, Adolphus Curtimus ...	"	Macon	Macon .....
Worley, John Stephen	"	Odessa	Lafayette .....
			—25
SPECIAL STUDENTS			
Forman, James Edwin....	E. E.	Hannibal.....	Marion. .....
Kenney, John Melvin.	"	California.....	Moniteau.....
Peeler, Charles Fisher.....	"	White's Store....	Howard .....
Perrine, Leroy Levi.....	"	Lamar..... ..	Barton .....
Pinkley, Roy Henry.	"	Chillicothe.....	Livingston.....
Turner, Orville Hume	"	Hallsville	Boone .....
			—6

D. SCHOOL OF MINES.

Name.	Postoffice.	County.
SENIOR.		
Martin, Walter Guy	Muscatine, Ia.....	....
Weissgerber, Otto.....	Lebanon	Laclede.....
		—2
JUNIOR.		
Anderson, Perry Barton.....	Neosho	Newton.....
Cameron, John Simpson.....	Krebs, I. T.	.....
Dean, George Walter.....	Elk Prairie.....	Phelps.....
Donnelly, Arthur Thomas.....	Rolla.....	" ... .
Kersting, Felix	St. Louis City	....
Lacey, Ford Schell.....	Neosho.....	Newton .....
Larsh, Paul Armstrong	Nebraska City, Neb	.....
Torrence, Evart Carl.....	Pocahontas	Cape Girardeau ...
		—8
SOPHOMORE.		
Barker, Ralph.....	Chicago, Ill.....	....
Beyer, Frank Bean	Philadelphia, Pa..	.....
Gottschalk, Victor Hugo.....	St. Louis City.....	....
Groves, Virgil Pitzer.....	Springfield.....	Greene .....
Hanley, John Alexander.....	Clayton.....	St. Louis .....
Hendricks, James Otto.....	Bolivar.....	Polk ....
Kerr, William Christian	St. Louis City.....	....
Knapp, Theron Lorenzo	Rolla	Phelps .....
Lockridge, George William.....	Jamesport.....	Daviess .....
Schofield, John Farrar.....	Bolivar	Polk .....
Soest, Walter Ernest.....	Rolla.....	Phelps.....
Terrell, Arthur Davis..... ...	Holden	Johnson . .....
		—12

Name.	Postoffice.	County.
FRESHMAN.		
Bowman, Wade Walbridge	Lebanon	Laclede
Chamberlain, Santiago	Monterey, Mex.	
Fernandez, Abraham	" "	
Graeser, Henry Jacob	Stratmann	St. Louis
Illinski, Alexis	East St. Louis, Ill.	
Jamison, Claud Egan	Rolla	Phelps
Knapp, Harlana Burr,	"	"
Lund, Albert Edward	White Oaks, N. M.	
Lund, Robert Ranous	" "	
Phariss, Bertie Lewis	Rolla	Phelps
Regel, Ferdinand Hermann	St. Louis City.	
Rogers, Herbert Fordyce	Holden	Johnson
Rolufs, Rudolf Theodore	Vest	Phelps
Sample, Charles William	Pocahantas	Cape Girardeau
Tayman, Francis Joseph	Lebanon	Laclede
Thomas, Paul Munson	Rolla	Phelps
		—16
SPECIAL.		
Cox, John Charles (Eng.)*	Aspen, Col.	
Cox, William Rowland (Eng.)	"	
Dorman, David McAnally (El.)	Corydon, Ia	
Donnally, Sophia Mary (C.)	Rolla	Phelps
Flynn, Frank Nicholas (C. & Met.)	Aspen, Col.	
Fort, Edward Long (C.)	Rolla	Phelps
Green, Albert. Edgar (A.)	Chicago, Ill.	
Hahn, Edgar Louis (A.)	Muscatine, Ia	
Lazarus, Harry (A.)	Durango, Col.	
Mason, Alfred D. (A.)	Gunnison, Col.	
Rebstock, Edward (Min.)	Gwelo, Matabeleland, S. Africa	
Richards, Thomas Hanson (A.)	Riverton, Va.	
Shinin, Edward Wheeler (A.)	Springfield	Greene
Wood, Arthur Edwards (C)	Rolla	Phelps
		—14
ACADEMIC.		
Baxter, Clarence Gorden	Canaan	Gasconade
Baughman, Claude	Rolla	Phelps
Burgher, Sylvia	"	"
Elizonds, Julian	Monterey, Mex.	
Frazier, Isaac Peter	Rolla	Phelps
Heller, Miriam	"	"
Hunt, James William	Lenox	"
Kissock, William Silas	Maples, Tex.	
Kline, Florence Irene	Rolla	Phelps
McQueen, Phœbe Maud	"	"
Millard, Anna Reed	"	"
Millard, Linna	"	"
O'Melia, Joseph	Lebanon	Laclede
Powell, Walbridge Henry	Rolla	Phelps
Richardson, Grace Serepta	"	"
Via, Jessie Miller	"	"
Walker, Robert Franklin	"	"
Watson, John Adolph	Safe	Maries
Westcott, Edith May	Westcott	Phelps
Wilkins, Elinor Matilda	Rolla	"
		—20

*Eng.—Engineering. El.—Electricity. C.—Chemistry. A.—Assaying. Min.—Mineralogy. Met.—Metallurgy.

Summer School of Science.

(B=Biology, C=Chemistry, P=Physics.)

Name.	Studies	Postoffice.	County.
Arnett, Elsie A	P	Columbia	Boone
Arthur, Irvin	B&C	Alma	Lafayette
Coons, J H	B	Columbia	Boone
Crowe, Esther	B	Kansas City	Jackson
Crutcher, George T.	B&P	Nevada	Vernon
Dinsmoor, Silas	P	Columbia	Boone
Flood, Sallie R	B	"	"
Frazier, N. F	B&P	Fayette	Howard
Graves, Lula	B&P	Columbia	Boone
Hinde, W. H.	B&P	"	"
Holland, Alice E	P	Quivve	Audrain
Jones, Belinda N	P		Lincoln
Kelly, Anna H	B&C	Winsor	Jefferson
Laughlin, W. R	B	Kirksville	Adair
Livingston, Joel T	B	Joplin	Jasper
McFadden, J. M	B	New Haven	Franklin
O'Hallaran, Kathryn	B&C	St. Louis City	
Palmer, W. L. C	B&P	Independence	Jackson
Patterson, Edwin Scott	B	Young's Creek	Audrain
Richmond, H. C	B&P	Lathrop	Clinton
Scrivener, Douglas	B	Santa Fe	Audrain
Shaefer, Jean Augusta.	B&P	Columbia	Boone
Sheny, S. Toledo	C	Walker	Vernon
Smith, Clyn	B	Rich Hill	Bates
Snell, Charles P	C	Myrtle Cr'k, Ore	
Stumberg, Charles H	P	Troy	Lincoln
Walters, W. W	B&C	Salem	Dent
Watson, Sophia	B	Westport	Jackson
Wauchope, Joseph A	B&P	Mexico	Audrain
Withers, John T	B&P	Poplar Bluff	Butler

—30

SUMMARIES.

I. Enrollment in Academic Studies.

(a) Columbia:

English	304	Philosophy	66
Latin	159	Mathematics	257
Greek	74	Astronomy	15
Classical Archæology	26	Physics	115
Romance Languages	157	Chemistry	182
Germanic Languages	188	Geology and Mineralogy	75
History and Political Economy	143	Biology	122

(b) Rolla:

Mathematics	65	English	38
Chemistry	46	Modern Languages	26
Physics	39		

II. Enrollment in Technical Studies.

(a) Columbia:

Drawing	112	Entomology	28
Shop-work	103	Book-keeping and Stenography	55
Veterinary Science	27	Horticulture	10
Agriculture	72		

(b) Rolla:

Mining Engineering	17	Chemistry and Metallurgy	5
Civil Engineering	16	Specials (Assaying, Surveying, Chemistry, etc.)	14

III. Enrollment in Departments.

I. ACADEMIC:		VI. A. & M. COLLEGE:	
Graduates	20	*(a) Agriculture:*	
Seniors	30	Graduates	2
Juniors	39	Fourth Year	2
Sophmores	60	Third Year	6
Freshmen	124	Second Year	6
Specials	27	First Year	27
Total	300	Specials	5
Names counted twice	2	Short Course	24
Number of individual students	298	Total	72
II. NORMAL:		*(b) Mechanic Arts*	103
Regular	52	*(c) Engineering:*	
Teachers	43	Graduates	3
Total	95	Seniors	10
III. LAW:		Juniors	14
Graduates	1	Sophomores	16
Seniors	44	Freshmen	25
Juniors	82	Specials	6
Specials	4	Total	74
Total	131	*(d) School of Mines (Rolla):*	
IV. MEDICAL	51	Seniors	2
V. MILITARY SCIENCE & TACTICS.	147	Juniors	8
		Sophomores	12
		Freshmen	15
		Specials	14
		Academics	20
		Total	72

IV Enrollment in Academic Courses

	A. B.	B. L.	B. S.
Seniors	12	16	2
Juniors	14	19	6
Sophomores	19	35	6
Freshmen	32	65	27
Totals	77	135	41

V. Enrollment in Engineering Courses.

(a) Columbia:		*(b) Rolla:*	
Civil Engineering	37	Mining Engineering	17
Mechanical Engineering	7	Civil Engineering	16
Electrical Engineering	30	Chemistry and Metallurgy	5
		Special	14

VI. Students Working in Gymnasium.

Young Men	205	Young Women	18

VII. Young Men and Young Women.

(a) Columbia:			
Regular Session:		Summer School of Science:	
Young Men	569	Young Men	20
Young Women	97	Young Women	10
(b) Rolla:			
Young Men	60	Young Women	12
Total, Young Men	640	Total, Young women	118

Grand total	759
Names counted twice	6
Number of Individual Students	753

VIII. Total Enrollment.

Academic		298
Law		131
Medical		51
Normal		95
A. & M. College: 1. Agriculture	73	
2. Engineering	74	
3. School of Mines	72	218
Summer School of Science		30
Total		823
Names counted twice		70
Total number of individual students		753
Total number at Columbia	681	
Total number at Rolla	72	

IX. Counties Represented in the University.

Adair	2	Linn	10
Andrew	3	Livingston	3
Atchison	3	McDonald	1
Audrain	12	Macon	8
Barry	3	Madison	1
Barton	7	Maries	1
Bates	12	Marion	7
Benton	3	Mercer	1
Bollinger	1	Miller	2
Boone	145	Mississippi	1
Buchanan	12	Moniteau	12
Butler	1	Monroe	8
Caldwell	5	Montgomery	4
Callaway	6	Morgan	4
Cape Girardeau	6	New Madrid	3
Carroll	8	Newton	2
Cass	10	Nodaway	4
Cedar	4	Osage	2
Chariton	5	Ozark	1
Clark	2	Pemiscot	2
Clay	6	Pettis	14
Clinton	11	Phelps	26
Cole	10	Pike	7
Cooper	15	Platte	8
Crawford	2	Polk	2
Dade	3	Pulaski	3
Daviess	4	Putnam	6
DeKalb	1	Ralls	5
Dent	2	Randolph	9
Franklin	11	Ray	9
Gasconade	6	St. Charles	7
Gentry	6	St. Clair	3
Greene	8	Ste Genevieve	1
Grundy	2	St. Francois	7
Harrison	5	St. Louis	3
Henry	2	St. Louis City	20
Holt	9	Saline	15
Howard	4	Schuyler	5
Howell	3	Scotland	2
Iron	1	Scott	1
Jackson	28	Shelby	7
Jasper	8	Sullivan	3
Jefferson	6	Texas	2
Johnson	5	Vernon	11
Knox	3	Warren	3
Laclede	6	Washington	1
Lafayette	12	Wayne	1
Lawrence	2	Webster	1
Lewis	10	Worth	1
Lincoln	4	Wright	1

No. counties represented, 100.

X. States, Territories and Foreign Countries.

Africa	1	Nebraska	1
Arizona	2	New Mexico	2
Arkansas	1	North Carolina	1
Colorado	6	Ohio	2
Illinois	5	Oregon	2
Indian Territory	7	Pennsylvania	1
Iowa	4	South Dakota	1
Kansas	1	Texas	2
Kentucky	1	Virginia	2
Maryland	1	West Virginia	1
Massachusetts	1		
Mexico	3	Total represented, 23.	
Missouri	705		

GRADUATES OF 1895.

(a) COLUMBIA, MISSOURI.

I. CERTIFICATES.

Department of Military Science and Tactics.

Arthur Perry Beazley.
Wilber Andrew Cochel.
William James Carlon.
Arthur Hoyt Dunlap.
James White Faris.
Charles Milford Gordon, Jr.
Hubbard Kavanaugh Hinde, Jr.
Ocella Otto Hargett.
Arthur Martin Hitch.
Thomas Holman.
Edward Horace Jones.
Daniel Webster Boone Kurtz, Jr.
Bert Munday.
Robert Akeman May.
Edward Graves Pringle.
Ralph John Ramer.
Robert McClure Snyder.
Alfred Lewis Shortridge.
William Henry Turner.
Herman Edward Trampe.
Floyd Lee Weakley.
Fred. Young.

Department of Engineering.

Elza Allison Cox (in Surveying).
Walter Smalley Cope (in Electrical Engineering).

College of Agriculture and Mechanic Arts

Charles Frederick Adams.
Alonzo James Sears.
John Henry Norton.
Eleanor Sears.
Herman Edward Trampe.

Normal Department.

Mary Alice Cochel.
Hattie Harris Gordon.
Marion Hackedorn.
Jesse Lee Harnage.
Mary Reamer Kenepp.
Martha Jewett.
Francis Alexander Lee.
George Benjamin Martin.
Della Rodgers.
Lalla Rookh Rogers.
Asa George Steele.
Hendrix Hollis Thurston.

II. DEGREES.

Department of Engineering.

1. *Degree of Bachelor of Science in Civil Engineering (B. S.).*

Alonzo Warner Lawrence.

2. *Degree of Bachelor of Science in Electrical Engineering (B. S.).*

Robert Walter Hodge.
George Edward Miller.

Department of Medicine.

Degree of Doctor of Medicine (M. D.).

Charles Ferdinand Briegleb.
Daniel Webster Boone Kurtz, Jr.
Samuel Watson Truitt.
James Ernest Jordan.
Morris Spencer McGuire.

Department of Law.

1. *Degree of Bachelor of Laws (LL. B.)*

Dorman Eldred Adams, *cum laude.*
John Samuel Banks, *cum laude.*
John Benjamin Christensen, *cum laude.*
John Patrick O'Shaughnessy, *cum laude.*
Howard Lee Bickley.
Leander Garnett Blair.
William Clement Boverie.
James Noah Coil.
Charles Walter Crooks.
Alexander Scott Cumming.
Jacob Ellsworth Haymes,
William Walter Henderson.
Samuel William Hilt.
Frank Prosser Hutchison.
Samuel Martin Hutchison.
Lee Kugel.
Loomis Charles Johnson.
Charles Roy Macfarlane.
Alfred H. Mansfield.
Robert Akeman May.
Wellington Harlan Meigs.
James William Miller.
William Deronda Miller.
Homer Rawlins Mitchell.
Stuart Lee Penn.
John William Pumphrey.
Ralph John Ramer.
Frank Mathews Roberts
Floyd Emmet Schooley.
Alfred Lewis Shortridge.
Joel Harvey Smith.
Zimbri Carter Smith.
Benjamin Lee Thompson.
Thomas Waddy Thompson.
Robert Emmet Ward.
John William Draper Wilson.

2. *Degree of Master of Laws (LL. M.).*

Jerre Herbert Murry, LL. B., Univ. of Mo., '93.

College of Agriculture and Mechanic Arts.

Degree of Bachelor of Agriculture (B. Agr.).

Charles Clinton Conover.

Normal Department.

1. *Degree of Bachelor of Pedagogics (B. P.).*

Herman Benjamin Almstedt, *cum laude.*
Hamilton Miller Dawes.
Elmer Eugene Wettack.
David Edgar Williams.

2. *Normal Diploma.*

Jennie Lorena Hall.
William Barney Peeler.

Academic Department.

1. *Degree of Bachelor of Arts (A. B.).*

Miriam Jessie Barnett.
Hamilton Miller Dawes.
Frank Oliver Gudgell.
Elmer Eugene Wettack.

2. *Degree of Bachelor of Science (B. S).*

Norman Colman Riggs, *cum laude.*
Robert Hickman Burney.
Walter Homan Ficklin.
Jennie Lorena Hall.
William Barney Peeler.
William Edwin Turner.

3. *Degree of Bachelor of Letters (B. L.).*

Hermann Benj. Almstedt, *cum laude.*
Richard Franklin Bryan, *cum laude.*
John Sidney Boyer.
Kimbrough Stone,
David Edgar Williams.
John Helper Wood.

4. *Degree of Master of Arts (A. M.).*

Jennie Adams.
Ida Gerig,
Eva Johnston.
Charels Roy Macfarlane.

5. *Degree of Master of Science (M. S.).*

Norman Colman Riggs.
Ruby Moss Westlake.
John Betram Smith.

6. *Degree of Master of Letters (M.L.).*

J. Ottillie Kahn.
Albert Johnston McCulloch.
Inez Rriggs.

III. PRIZES, MEDALS AND SCHOLARSHIPS.

The Dachsel Prize in the Department of Engineering .....(Not awarded)
The Prize Essays in the Department of Law—Possession, Actual and Constructive, at Law and in Equity:
First.....Dorman Eldred Adams
Second.....John Benjamin Christensen
The Prize Essay in the Normal Department—The Practical in Modern Education.....Jennie Lorena Hall

The Laws Astronomical Medal.. .....(Not awarded)
The McAnally Medal ....Hermann Benjamin Almstedt
The Stephens Medal for Oratory—The Logic of Discontent..... .....
....Homer Rawlins Mitchell
The Military Medal..... .....Raymond Sanfley Edmonds
The Military Cup.....Cadet Company C, Capt. C. M. Barnes
The James S. Rollins Scholarship, Department of Engineering,.....
.. ..Robert Peel Garrett
The James S. Rollins Scholarship, Department of Medicine..... .....
.....Ferdinand Schreimann
The James S. Rollins Scholarship, Department of Law..... .....
....William Sherman Campbell
The James S. Rollins Scholarship, College of Agriculture ....
....Thomas Isaiah Hairs
The James S. Rollins Scholarship, Academic Department, A. B.....
....,Clarence Loeb
The James S. Rollins Scholarship, Academic Department, B. S.....
.... Gail Darwin Allee
Final Honors in Biology.... .....Walter Homan Ficklin, *cum laude*

(b) ROLLA, MISSOURI.

DIPLOMA OF GRADUATIGN (ACADEMIC COURSE.)

Anna Gill Godwin. Margaret Barron Southgate.

DEGREES.

(1) Bachelor of Science (in Chemistry and Metallurgy).

Evans Walker Buskett. Edward Dwyer.

(2) Bachelor of Science (in Civil Engineering).

Herman Cyril Cowen. Philip Florreich, Jr.

(3) Bachelor of Science (in Mining Engineering).

Temple Dyer, B. S. in C. E,, Samuel James Gormly.

APPENDIX I.

SUMMER SCHOOLS.

A SUMMER SCHOOL OF SCIENCE—SECOND YEAR.

STAFF OF INSTRUCTORS.

M. L. LIPSCOMB, of the University,
Principal.

GEORGE W. KRALL, of the Manual Training School, St. Louis,
Teacher of Physics.

HOWARD AYERS, of the University,
Teacher of Biology.

N. A. HARVEY, of the Kansas City High School,
Teacher of Biology.

JOHN W. CONNOWAY, M. D., of the University,
Teacher of Physiology.

C. F. MARBUT, of the University,
Teacher of Physical Geography,

*_____,
Teacher of Chemistry.

There will be maintained by the University of the State of Missouri, at Columbia, during the summer of 1896, a School of Science, in which laboratory courses of six weeks each will be given in Physiology, Physical Geography, Biology, Physics, and, if there is sufficient demand, in Chemistry.

*To be appointed if there is demand.

These courses will be strictly for the benefit of those who are, or who expect to be, teachers. None of the work will be recognized as leading to any degree in the University. This is an excellent opportunity for teachers to prepare themselves to fill the positions which will be created in considerable number by the requirement of the University of laboratory instruction in the sciences for admission to the freshman class The teachers of the District Schools and of Private Schools also are cordially invited to come, but we specially recommend that the teachers of High Schools promptly seize this opportunity.

The age demands laboratory methods, and no teacher is competent to conduct laboratory exercises who has not himself previously done the work successfully. The introduction of this method in the teaching of science is perhaps the greatest contribution to sound pedagogy that has been made in the last half of the century. The spirit of the method is entering with highly beneficial results into the teaching of all subjects. It greatly improves the general teaching in a High School to introduce, under a thoroughly competent teacher, a good laboratory of science. The result is quickly felt in the teaching of other subjects.

Special attention will be directed to the practical details of laboratory equipment, the purchase of supplies, the care of apparatus, and to showing how to do the work with simple and inexpensive appliances. Accordingly much care will be given to the following things—in Biology, to the collection and preservation of the necessary material, both animals and plants; in Physics, to the construction of simple but useful pieces of home-made apparatus; in Chemistry, to the equipment of laboratories where gas and running water are not available; in Physiology and Physical Geography, to the problems of substituting at reasonable cost laboratory work for recitations from text-books. We shall try to show *just how with suitable equipment from twenty to twenty-five pupils can best be carried forward together through a year's good work in the elements of these sciences.*

That this may be properly shown, all persons will be graded as *beginners*, without regard to their experience in teaching or their attainments in science. The object is not so much to teach the facts of science as to show *how science should be taught.* In Physics it will be assumed that the students have some knowledge of Algebra and Plane Geometry. The apparatus employed will be precisely that which we advise High Schools to buy, and an effort will be made to show that with a comparatively inexpensive equipment excellent teaching may be done, provided that the teacher be thoroughly qualified.

No student will be allowed to take work in more than one laboratory at a time. But those who finish first the course in Biology, or Physical Geography, may afterwards take that in Physics, Physiology, or Chemistry. The minimum time required in each laboratory will be five hours a day—thirty hours a week.

Certificates will be given only to those who devote the whole term of six weeks to the laboratory selected and pass a satisfactory examination on the subject-matter as well as on the methods.

Unlike other schools this is not dependent upon fees, but is supported by an appropriation from the State. Out of this appropriation all of the instructors are paid and the students are not allowed to contribute anything except their time and their willingness to learn. Text-books are recommended and the students are referred to them sometimes for fuller statements; but the only work done in the university buildings is laboratory work. Where the apparatus which we use in the regular session is different from what we should recommend to the High Schools, it is carefully locked up and we buy for these summer courses precisely the instruments, materials, and furniture that we should recommend to the High Schools, even though we have in our cases far better equipment for our regular university classes. The students are required in Pysics, for example, as a part of the course, to make out lists of the apparatus, materials, and furniture necessary for the equipment of a good school laboratory. Where it is better to have the apparatus made at home the exact specifications for its manufacture are copied by every student. Our courses are not given to help our young instructors to eke out better salaries, but are supported by the commonwealth of Missouri for the good of its teachers. We employ the instructors that, in our opinion, are best for this instruction, not confining ourselves to the university corps A teacher may be admirable for a university, but not suited to this teaching.

FEES AND BOARD.

There is no charge for instruction or for use of laboratories and materials.

Good board, including room and service, may be had in private families in Columbia at from $3 to $4.50 a week. Washing may be had at from 25 cents to 35 cents a week. If the students choose to organize themselves into a club, the expense of living may be greatly reduced. The University in that event would place at their disposal rent free, its club-houses, which accommodate about one hundred and forty persons. Each room is furnished with a plain bedstead, table, and two chairs. If two persons occupy one room the other furniture absolutely necessary may be bought or rented for the summer for $10 or $12. Table board in these clubs can easily be brought within $2 a week.

Missouri is so far north that teachers from the south would find in the climate here a decided change; while people in our large cities would get here all the comforts of the country. Columbia is a delightful town of about five thousand inhabitants. Its people are distinguished for their hospitality, culture, and refinement. Teachers in the Summer School will

have access, during certain hours of the day, to the Library of the University, and it may be possible to give them the use of the Gymnasium and bath rooms also.

TIME OF OPENING.

The courses in Biology and Physical Geography will begin Monday, June 1, 1896, and continue six weeks, ending Saturday, July 11. On the following Monday, July 13, the courses in Physics and in Physiology, and (if there should be sufficient demand) in Chemistry, will begin and continue six weeks, ending August 22, 1896.

Teachers that intend to come are earnestly requested to present themselves on the opening day of the course which they expect to attend, and to continue without intermission to the end of that course. Those who are not willing to follow this advice will fail to reap the advantages of these courses.

The State Superintendent of Public Instruction, Hon. John R. Kirk, says: "We have long needed such a school. It will be of incalculable service to the State. So-called science taught (?) from a text-book must go; there is no excuse for it. The Summer School makes actual science teaching a possibility in every High School in the State. Many of our strongest High School teachers are arranging to attend. I hope the number will be five hundred at least. I believe it to be the best-planned and best-operated Science School for High School teachers on this Continent.

"If there are teachers in any county who desire to attend this school in lieu of the County Institute, I recommend that they be released from attendance upon the County Institute and be given a special examination by the County Commissioner."

For further particulars, address

PROF. M. L. LIPSCOMB, Columbia, Mo.

B. SUMMER SCHOOL IN LANGUAGES.

During the summer of 1896, courses of instruction will be offered in English, Latin, and French.

These summer courses are private enterprises, and in that respect differ from those offered in the Summer School of Science. They are intended (1) to aid University students in making up work in which they have failed or been conditioned, or in which they are behind in their regular Academic courses; (2) to prepare students to meet the higher entrance requirements announced for the fall of 1896 and following years (see pages 17-20); and (3) to afford teachers in district and secondary schools the opportunity of reviewing subjects that they teach, and of gaining suggestions for new methods

If a student desires credit on the University records for grades made in one or more of these summer courses, he must observe the following rules:

1. The course must be approved by the Professor of the subject that it treats.

2. If it be work that the student has not gone over in some regular University course, he may not, in one summer, make a grade on more than the equivalent of four (4) hours a week for one semester of lecture-room work, or six hours a week of laboratory work, or from four to six hours (at the discretion of the Committee on Summer Work) of work that is in part lecture-room and in part laboratory.

3. If the work be wholly or in part that in which the student has been conditioned or has failed, he may make up, in amount, whatever is approved by the Professor of the subject undertaken and by the Committee on Summer Work.

The amount of the tuition fees is determined in each case by the instructor. If University supplies are used, they must be paid for at the same rate as in the regular session.

Board, with lodging, may be obtained for from $3.50 to $4 a week.

ENGLISH.

1. English Composition, and Literature. Theme-writing twice a week; Reading and Interpretation of Master-pieces (with some Grammatical Analysis), three times a week. *One hour daily (except Monday), June 15 to July 25.* Assistant Professor PENN.

   Text-books: Williams' Composition; English and American Literature (the works announced on pages 17-18, as required readings for 1896 entrance examination.)

   Those who do satisfactory work in this course will be admitted in English to the Freshman class in any Academic course (page 29) without examination.

2. Advanced Composition and Rhetoric. Themes three times a week; American Literature twice a week. *One to two hours daily (except Monday), June 15 to July 25.* Assistant Professor PENN.

   Text-books: Hill's Foundations of Rhetoric; Lowell's Poems (Household Edition).

   The work will be accepted as equivalent to Freshman English in A. B. and B.S., and to same in B. L. for students who have failed in Freshman English, but have made a grade of at least 50.

Fee, $10 for each course; $15 for both. If classes number under ten, the fee will be higher; over ten, lower. Courses will not be given to fewer than six.

Students who take these subjects for the first time, can not, to receive credit, do the work of more than one course; but teachers, and others who desire it, may take both.

LATIN.

1. Catullus and the Elegiac Poets. Adopted, as an elective, for those who have completed the Sophomore Latin of the regular Academic A. B. course. *June 8 to July 28.* Mr. PAXTON.

   Texts: Merril's Catullus, and Schulze's Roemische Elegiker.

2 and 3. The regular Freshman and Sophomore work (see pages 32-33). *June 8 to July 28.* Mr. PAXTON.

4. Elementary courses in Latin, preparing for entrance examination. *June 8 to July 28.* Mr. PAXTON.

   Texts: Kelsey's Cæsar and Cicero, and Collar and Daniel's First Latin Book (revised edition).

A fee of $10, due within ten days after entrance, will admit to any one or to all courses. If a course is organized for *one* person, however, special rates will be charged. The University will credit (of work done during one summer) the amount of four hours (of class room work) for a single semester. See pages 28 and 174.

This will be a good opportunity to make up deficiencies or entrance requirements. Students who wish to make University credits in Latin are strongly advised to concentrate upon the work in that subject.

FRENCH.

1. Elementary Course. *Five weeks, beginning June 8.* Professor WEEKS.
2. Advanced Course. *Five weeks, beginning June 8.* Professor WEEKS.

Fee for each course, $10.

APPENDIX II.

ENDOWMENT AND FREE SCHOLARSHIPS.

(Introduced by Senator Charles E. Yeater, and enacted by the 38th General Assembly.)

AN ACT providing for the endowment of the State University, and for the establishment and endowment of free scholarships of merit therein in each county.

Be it enacted by the General Assembly of the State of Missouri, as follows:

SECTION 1. All property conveyed by will, or by the death of an intestate, or by deed, grant, bargain, sale or gift, made or intended to take effect in possession or enjoyment after the death of the grantor, or bargainer, or any person or persons, either directly or in trust, or otherwise, whereby a beneficial interest shall be created in possession or expectancy to any property or the income thereof, to any person other than the father, mother, husband, wife or direct lineal descendant of the testator, intestate, grantor, or bargainer, except property conveyed for some educational, charitable or religious purpose exclusively, shall be subject to the payment of a collateral succession tax of five dollars for each and every one hundred dollars of the clear market value of such property, where the money or property affected shall be ten thousand dollars or less in value, and where the money or property affected exceeds ten thousand dollars in value, the same shall be subject to a tax of five dollars for each and every one hundred dollars of the clear market value thereof, up to and including ten thousand dollars in value, and a tax of seven and one-half dollars in addition, for every such one hundred dollars in value in excess of ten thousand dollars; and for the enforcement and collection of such tax there is hereby created against the property affected thereby a first lien in favor

of the State of Missouri, upon which a civil action may be prosecuted in any court having competent jurisdiction; and when collected, such tax shall be paid into the county treasury of the county where the testator, intestate, grantor or bargainer resided, or in the case where there is no such residence in the State, then such tax shall be paid into the county treasury of the county where such property exists or is situate. All taxes provided by this section, which shall not be paid within one year after the death of the person rendering such property subject to taxation, shall bear interest at the same rate, from the date of the death of such person, as is now provided by law for delinquent taxes, and suits therefor may be prosecuted by the same person provided by law for the purpose of instituting suits for delinquent taxes, unless the county court shall make an order requiring the prosecuting attorney to institute suits for the recovery of such collateral succession taxes.

SEC. 2. In addition to the fees now provided by law, no corporation or association, other than those formed for benevolent, religious, scientific, fraternal-beneficial or educational purposes, shall be created or organized under the laws of this State, and no foreign corporation shall do business in this State, unless the persons named as corporators or the corporation shall, at or before the filing of the articles of association or incorporation, pay to the State treasurer, in trust for the State of Missouri, to be disposed of as hereinafter provided in this act, the sum of twenty-five hundredths of a dollar for every thousand dollars of the capital stock of such corporation or association.

SEC. 3. Every manufacturer of medicines or remedies commonly known as patent medicines shall pay a license tax of twenty-five dollars, and every traveling vender of such medicines or remedies shall pay a license as now provided by law; and every such traveling vender shall take out a license in every county in which he vends such articles. Every manufacturer or traveling vender failing to pay the license tax provided by this section shall be guilty of a misdemeanor, and upon conviction be punished by a fine not to exceed one hundred dollars; and all such fines shall be paid into the fund hereinafter provided.

SEC 4. All moneys which may hereafter escheat to the State, after all claimants are barred by the statute of limitations, shall be distributed in the manner provided by this act to the "seminary fund" and the "State University scholarship fund" of the county from which in each instance such moneys escheated.

SEC. 5. All taxes or fees or moneys collected or received under the provisions of this act during each month by any county official, and for the purpose of this act the city of St. Louis shall be affected through its corresponding officers as if it were a county, shall be paid during the first week of the following month to the county treasurer, who shall thereupon credit three-fourths of the moneys so received to a fund hereby created,

to be known as "the State University Scholarship fund," and remit the remaining one-fourth to the state treasurer; and from all taxes and fees received from corporations, and all escheats received under the provisions of this act, the state treasurer shall monthly, in the same manner, reserve one-fourth, and remit the remaining three-fourths in each instance to the county treasurer of the county in which the corporation is located or from which the escheat came, to be credited to "the State University scholarship fund" of such county.

SEC. 6. All moneys received by the state treasurer to be retained by him under the provisions of this act shall be deposited in the state treasury to the credit of the "seminary fund," as provided by section eight thousand eight hundred and twenty (8820) of the Revised Statutes of 1889; and upon the issue of a certificate or certificates under the provisions of such section and other sections of chapter one hundred and sixty-seven (167) of the Revised Statutes of 1889, such moneys shall be paid in amounts corresponding thereto into the state interest fund, and the proper entries in accordance therewith, shall be made by the state treasurer on the books of the treasury.

SEC. 7. All moneys received by the county treasurer of each county to be credited to "the State University scholarship fund," shall be forever kept and preserved as a sacred permanent fund; and it is hereby made the duty of the several county courts of this state, and of the mayor, auditor and treasurer in the city of St. Louis, to invest and loan said moneys in the manner provided by law for the loan of county school funds, or to invest such moneys in the bonds of the United States, the state of Missouri, or the bonds of any county or municipal corporation in the state, which the governor, attorney-general and state treasurer shall, in writing, on a request from any county court, pronounce in their opinion to be legal and valid and proper investment securities.

SEC. 8. The income of the moneys in "the state University scholarship fund" shall be collected annually, and one-fourth of the same added to the principal, and the remaining three-fourths shall be faithfully appropriated for establishing and maintaining free scholarships in the State University, the amounts and terms of which shall be fixed and changed from time to time, as may be necessary, on the written order and resolution of the board of curators of the State University.

SEC. 9. On the first week in August of each year, beginning with the first Monday after due notice thereof, as prescribed by the county court, in two newspapers in each county, representing different political parties where such newspapers exist, there shall be held at the court-house, in the county seat, an examination of all applicants qualified under the law to be students of the University. Such applicants shall be actual residents of the county, and such examination shall be conducted by three examiners, one of whom shall first be appointed by written notice to the county clerk

by the president of the board of curatorsof the University during the month of July, and one selected thereafter by the county court, of another political faith, and the third selected by the agreement of the two so chosen, with power in the county court, or the presiding judge thereof in vacation, to fill all vacancies in the position of examiner; and such examinations shall be written; and shall meet the requirements for entrance in the academic department of the University: Provided, that the duties imposed on county courts or the judges thereof, by this section, shall be discharged in the city of St. Louis by the mayor.

SEC. 10. Those applicants passing the best and most meritorious examinations, to the number of scholarships established in each respective county, shall be awarded such scholarships, and be entitled thereon to enter free of matriculation fees any department, school or college of the university, and have paid to them in equal monthly installments while attending the university, the sum provided by the scholarship so awarded, for defraying the expenses of such attendance: Provided, that no applicant shall be qualified to receive such scholarship unless such examiners shall be satisfied that the applicant is dependent upon his own exertions for his education, and financially unable to otherwise obtain the same.

SEC. 11. The cost of publishing the notices of examination, and a reasonable compensation to the examiners, to be fixed by the county court, shall be paid out of the annual income of "the State University scholarship fund," but no other expense of any nature whatsoever shall ever be paid out [of] such annual income.

SEC. 12. All statutes, acts or part5 of acts inconsistent with this act are hereby repealed.

Approved April 1, 1895.

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