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## General Catalogue 1895

Utah State University

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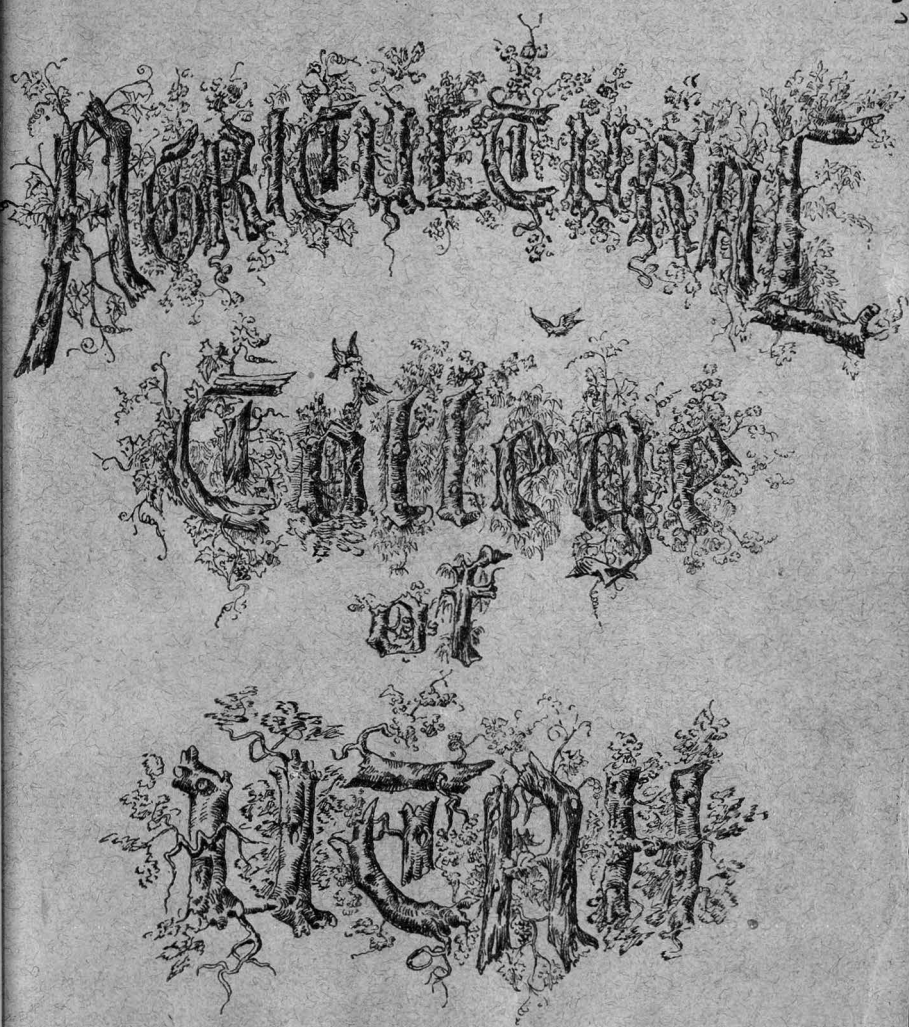
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1895-6.

## LOCATION OF THE COLLEGE.

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The college is located on a broad hill overlooking the town, one mile east of Main street, Logan City, commanding a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is unsurpassed, and perhaps unequaled by that of any other college in the country. A few hundred yards to the south is the Logan river, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley constitute a delightful and impressive panorama through the clear atmosphere. The city is noted for its freedom from vice, is quiet, orderly, clean, and generally attractive, with neat homes, fine public buildings, electric lights and water system; while the people are thrifty and progressive, with a preference for solid culture and high class entertainments. The city has about 6,000 people, and is the capital and commercial center of an agricultural county with about three times that population known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about sixty by twelve miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch mountains, and one of the most beautiful and healthful valleys in the western region.

ANNUAL CATALOGUE

OF THE

# Agricultural College of Utah

FOR THE YEAR 1894-5,

WITH

ANNOUNCEMENTS FOR THE YEAR

1895-6.

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SALT LAKE CITY, UTAH:  
MERCHANTS PRINTING COMPANY,  
1895.



## BOARD OF TRUSTEES.

William S. McCornick.....	Salt Lake City.
A. George Barber .....	Logan.
M. D. Lessinger, .....	Ogden.
William P. Nebeker .....	Salt Lake City.
Achilles Perrin .....	Ogden.
Aaron F. Farr, Jr., .....	Logan.
B. H. Roberts .....	Farmington.

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## OFFICERS OF THE BOARD.

William S. McCornick .....	President.
Joseph E. Hyde .....	Secretary.
H. E. Hatch .....	Treasurer.

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## EXPERIMENT STATION STAFF.

J. H. Paul .....	Director.
E. S. Richman.....	Horticulturist and Entomologist.
A. A. Mills .....	Agriculturist.
J. A. Widtsoe .....	Chemist.
R. W. Erwin.....	Assistant Chemist.
Paul Fischer .....	Consulting Veterinarian.
F. W. Brewer.....	Biologist.
S. Fortier .....	Hydraulic Engineer.
F. B. Linfield .....	Dairyman.
James Dryden .....	Clerk and Stenographer.
H. E. Hatch.....	Treasurer.
J. E. Hyde .....	Secretary.

## FACULTY.

Arranged in order of Seniority of Appointment.

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JOSHUA H. PAUL, Ph.B., President.

Professor of Philosophy, Political Science and Sociology.

EVERT S. RICHMAN, M.S.A.,

Professor of Horticulture and Entomology.

JOHN T. CAINE, JR., B.S.,

Principal Preparatory Department; Commercial Arithmetic,  
Geology, and Ethics.

ALONZO A. MILLS, B.Sc.,

Associate Professor of Agriculture.

JOSEPH E. SHEPARD, B.S.,

Professor of Commercial Law, Commercial Economics, and  
Bookkeeping.

MRS. SARAH W. EDDY, M.A.,

Professor of History.

JAMES DRYDEN,

Teacher of Typewriting and Stenography.

ELIAS J. MACEWAN, M.A.,

Professor of English and German.

F. W. BREWER, M.A., M.D.,

Professor of Biology and Sanitary Science.

MISS CLARE KENYON,

Teacher of Elocution and Physical Culture.

HENRY D. STYER, FIRST LIEUT, 13th INF, U. S. A.

Professor of Military Science and Mathematics.

SAMUEL FORTIER, B.Ap.Sc., Mem. Can Soc.C.E., M. Am.  
Soc., I.E.,

Professor of Civil Engineering.

F. B. LINFIELD, B.S.A.,  
Professor of Dairying and Animal Husbandry.

J. WALTER MAYO,  
Teacher of Drawing and Shop Work.

WILLARD S. LANGTON,  
Assistant Professor of Mathematics.

JOHN A. WIDTSOE, B.S.,  
Professor of Chemistry and Mineralogy. *Geology*

MRS. DALINDA COTEY,  
Professor of Domestic Arts.

MISS SARAH E. BOWEN,  
Teacher of Sewing, Dressmaking, and Millinery.

JOSEPH E. HYDE.  
Teacher of Penmanship and Vocal Music.

PAUL FISCHER, B.Agr., M.V.D.,  
Professor of Agriculture and Veterinary Science.

JOSEPH JENSEN.  
Professor of Physics and Mechanical Engineering.

W. FOGELBERG,  
Teacher of Instrumental Music.

KARL C. SCHAUB,  
Teacher of Drawing.

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CALENDAR FOR 1895 6.

First term begins Tuesday, Sept. 17, and ends Saturday,  
Dec. 21, 1895.

Second term, Jan. 7 to March 28, 1896.

Third term, March 31 to June 13, 1896.

Commencement week, June 7 to 13.

HOLIDAYS.

Thanksgiving Day.

Christmas vacation, Dec. 22 to Jan. 6 inclusive.

Washington's Birthday, Feb. 22.

Decoration Day, May 30.

Summer vacation, June 14 to Sept. 15.

## ESTABLISHMENT OF THE COLLEGE.

An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of the recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in 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." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land will become available upon the admission of the Territory to statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere.

Sec. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural, and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field.

Sec. 10.—In the appointment of professors, instructors, and other officers and assistants of said college, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious.

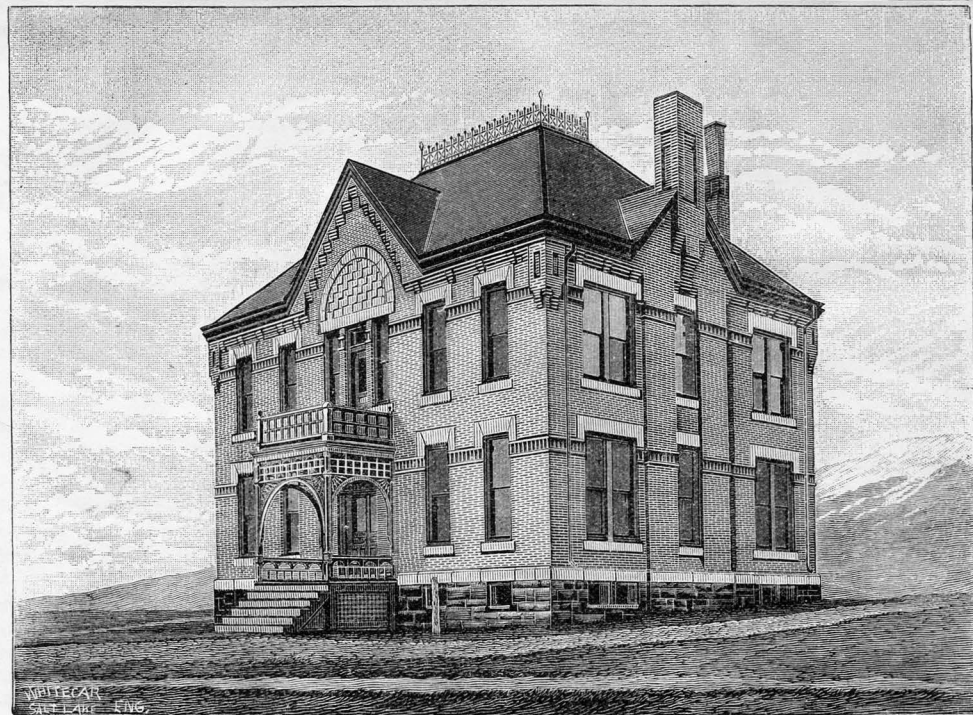
It is clear that the Agricultural College was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." The legislative founders of this institution sought to place within reach of the producing classes, an education that the older institutions had not, as a rule, made provisions for.

The instructional policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the five great vocations of the people of Utah: agriculture, the mechanic arts, commerce, and home work.

The act of 1862, says Senator Morrill, "proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with equal scraps of labor and of instruction, or something other than a college, they would not obey the national law."

Under an act of Congress, approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment station.

Under an act of Congress approved March 30, 1880, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The act provides that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$21,000.



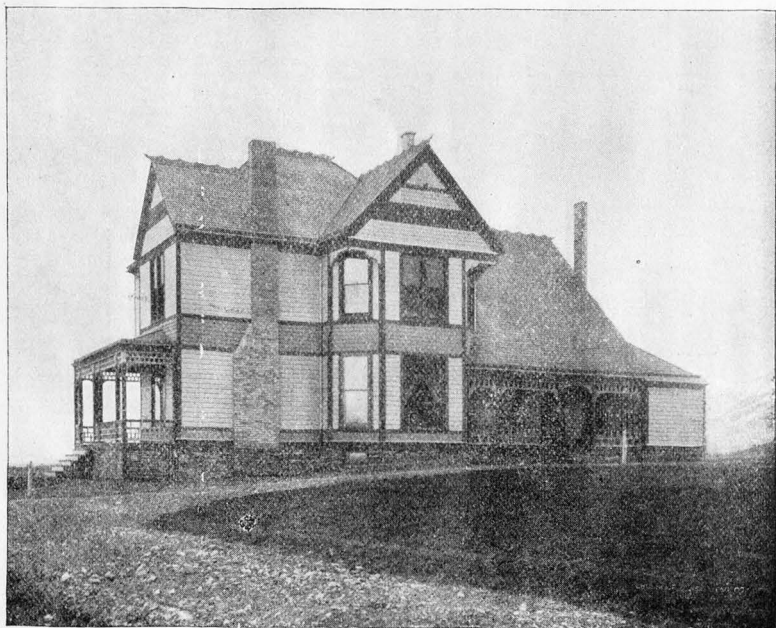
**Experiment Station.** On the Farm proper there are over three hundred and thirty plats laid out for investigations. These cover time for irrigation, amount of water to use, sub-irrigation, night vs. day irrigation, method of fitting ground for irrigation, trials of varieties of wheat, corn, barley and forage crops; mulching; drilling vs. broadcasting; methods of tillage, time and depth of tillage, methods of plowing, depth and distance of planting, time to sow and harvest, fertilizers and methods of applying, varieties of grass for hay and pasture—tested by actual grazing trials; crop rotations, soil, other studies.



The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborers' cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, for two houses, for apparatus, and for salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, for a veterinary laboratory, and for the employment of teachers. The territorial auditor reports the value of the College property now in possession at the conservative figure of \$211,947.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

Sec. 4.—The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights, immunities, franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively.



**Farm House. Residence of the President.**

## REQUIREMENTS FOR ADMISSION.

1. Graduates of the Eighth grade of the district schools are permitted to enter the Sub-Freshman year without examination.
2. To enter the Freshman year the student cannot be under fifteen years of age, and must pass a satisfactory examination in the following subjects, using the texts named or their equivalents:
  1. Reading and spelling.
  2. Geography—Appleton's Higher.
  3. Either Physical Geography, Maury's or Houston's, or United States History, Barnes'.
  4. Grammar—Maxwell's Higher.
  5. Arithmetic—Harper's Second Book.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above.

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## DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term. Irregular students are examined when they enter. The studies to be taken are assigned by the examiners and approved by the President.

The entrance fee (\$5) is then paid at the Secretary's office; and the class card naming the studies to be pursued is countersigned by the President and the Secretary. This card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the Secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the Faculty.

When students enter for the second and third terms, the cards are secured from the secretary of the Faculty, the studies assigned by the President, the cards signed by the professors and returned to the Secretary, as before.

## COURSES OF STUDY.

### 1.—THE FIRST TWO YEARS.

The first two years of all the four year courses (see next page) are the same.

The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

1.—Lady students in either course in Domestic Arts take sewing and dressmaking in the freshman year, in the place of shop work in wood and iron, as indicated by the footnote on page 22. In the sophomore year, second term, lady students take lectures on cooking and laboratory practice in cooking in the place of trigonometry and electricity and magnetism; and in the third term, the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

2.—In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students

The studies of the first two years are planned to meet the requirements of our most numerous class of students, the majority whom attend for two years or less after completing the studies of the district schools. These two years, as now planned in our schedule, provide as broad a culture in a general way, and as thorough a preparation for the special courses which follow, as we are at present able to offer. Whatever college course, profession, or occupation the student may afterwards undertake, the first two years as planned represent the best preliminary training the College affords. We cannot assume, therefore, to vary the courses further than is indicated above, and students must pursue the studies, or as many of them as they are able to pursue, as here laid down.

The figures denote the number of recitations or the hours of laboratory practice per week.

# FRESHMAN YEAR.

| FIRST TERM.                                                                | SECOND TERM.                                                            | THIRD TERM.                                                    |
|----------------------------------------------------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------|
| HIGHER ENGLISH GRAMMAR. 5<br>(Whitney's Essentials.)                       | RHETORIC. 5<br>(Invention, Figures of Speech and Forms of Composition.) | LITERATURE. 5<br>(Study of Masterpieces.)                      |
| PLANE GEOMETRY. 5<br>(Five books, Wentworth.)                              | ALGEBRA. 5<br>(Elementary, Wentworth.)                                  | ALGEBRA. 5<br>(To Quadratics, Wentworth.)                      |
| ELEMENTARY PHYSICS. 3<br>(Avery's First Principles of Natural Philosophy.) | ELEMENTARY PHYSICS. 3<br>(Experiments & Recitations.)                   | BOTANY. 3<br>(Analysis of Flowers & Collection of Herbarium.)  |
| ANCIENT HISTORY. 2<br>(Eastern Nations and Greece.)                        | ANCIENT HISTORY. 2<br>(Rome.)                                           | MEDIAEVAL HISTORY. 2<br>(European History of the Middle Ages.) |

## AFTERNOON WORK.

|                                            |                                                |                                                 |
|--------------------------------------------|------------------------------------------------|-------------------------------------------------|
| SHOPWORK. 10<br>Joinery and Wood-turning.) | SHOPWORK. 10<br>(Forgework in Iron and Steel.) | SHOPWORK. 6<br>Cabinet-making and Wood-carving. |
|--------------------------------------------|------------------------------------------------|-------------------------------------------------|

Declamations bi-weekly throughout the year.

# SOPHOMORE YEAR.

| FIRST TERM.                                                                   | SECOND TERM.                                                                                        | THIRD TERM.                                                                             |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| CHEMISTRY. 3<br>(Non-Metals; Lectures Illustrated by Experiments.)            | CHEMISTRY. 3<br>(The Metals.)                                                                       | CHEMISTRY. 3<br>Metals—Chemical Philosophy.                                             |
| BOTANY. 2<br>(Compositae, Grasses & Microscopic Work.)                        | RHETORIC. 2<br>(Written Arguments & Debates.)                                                       | SANITARY SCIENCE. 3<br>(Buildings and Foods in Relation to Health.)                     |
| ARGUMENTATIVE RHETORIC 2<br>(Principles, Kinds, and Arrangement of Argument.) | TRIGONOMETRY. 5<br>(Wentworth's.)                                                                   | SURVEYING. 2<br>(Measurement of Areas, Chain Surveys, and Ordinary Surveying.)          |
| SOLID GEOMETRY. 3<br>(Wentworth's Solid & Spherical.)                         | POLITICAL ECONOMY. 3<br>(Lectures and Textbook Recitations from Lav-eleye's Political Economy.)     | MECHANICS. 5<br>(Force and Energy and the Laws of Gases, Liquids, and Simple Machines.) |
| HIGHER ALGEBRA. 2<br>(Quadratics & Series.)                                   | CIVIL GOVERNMENT. 2<br>(Origin and Present Forms of City, Township, County, and State Governments.) | CIVIL GOVERNMENT. 2<br>(The National Constitution.)                                     |

## LABORATORY WORK—AFTERNOONS:

|                                                    |                                                          |                                           |
|----------------------------------------------------|----------------------------------------------------------|-------------------------------------------|
| CHEMICAL EXPERIMENTS. 6                            | QUALITATIVE CHEMICAL ANALYSIS. 6                         | MECHANICS OF SOLIDS, LIQUIDS AND GASES. 2 |
| PHYSICAL MEASUREMENTS. 4<br>(Heat, Sound & Light.) | PHYSICAL MEASUREMENTS. 4<br>(Electricity and Magnetism.) | SURVEYING. 4<br>(Field Work.)             |
|                                                    |                                                          | QUALITATIVE CHEMICAL ANALYSIS. 4          |

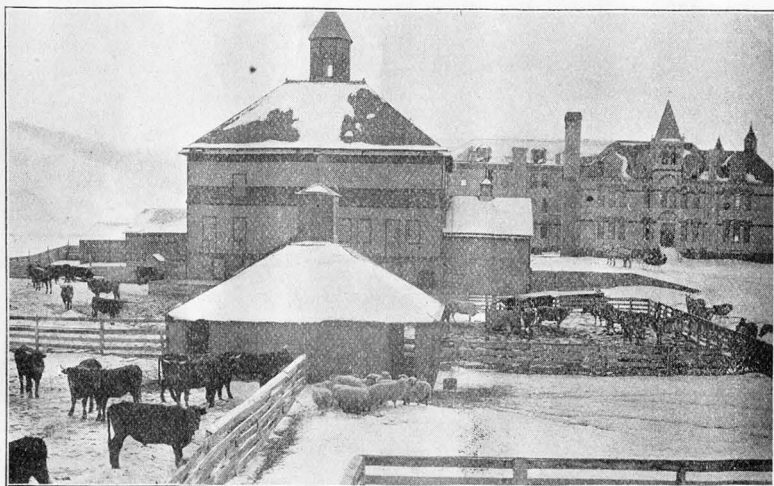
## COURSE IN AGRICULTURE.

The student of agriculture unceasingly deals with nature, and is thereby brought into daily contact with life and the sciences relating to life. In the management of soils and in the use of tools he comes in contact with physical and mechanical laws, and in the markets, with commercial and political laws. Agriculture deals with more of the sciences than does any other industry; a thorough agricultural education has become more nearly a liberal education, than that necessary to any other industry or profession; and a well educated farmer is also liberally educated as a citizen.

In the course of instruction in agriculture, few studies are involved that are not essential to the most successful farmer. It may be termed a course in the applied sciences.

Heretofore agriculture has been without guiding laws. It is now rapidly becoming the most learned of the industries or professions. The fascination of its living forms and the certainty of its laws may fairly be expected to attract the highest talent. It is one of the best fields for industrial enterprise and for the development of the highest order of intellectual and physical manhood.

The principal and most profitable industry of the valleys of Utah and adjacent States, for many years to come, will probably be that of farming. We therefore recommend to students generally the agricultural course, which has been especially planned to form practical, well-educated, and broad-minded agriculturists.



**Stock Yard.** Twenty-six feeding experiments with cattle, sheep, horses, and hogs are in progress, some with highly bred and model animals others with average sets.

# COURSE IN AGRICULTURE.

**FRESHMAN YEAR.** (See Page 11.)

**SOPHOMORE YEAR.** (See Page 11.)

## JUNIOR YEAR.

| FIRST TERM.          |   | SECOND TERM.         |   | THIRD TERM.   |   |
|----------------------|---|----------------------|---|---------------|---|
| Agricultural Chemis- |   | Agricultural Chem. 2 |   | Horticulture. | 2 |
| try.                 | 3 | Anatomy and Physi-   |   | Physiology.   | 3 |
| Horticulture.        | 2 | ology,               | 4 | Geology.      | 5 |
| Literature.          | 3 | Zoology.             | 2 | Agriculture.  | 3 |
| Psychology.          | 3 | Logic.               | 3 | German.       | 3 |
| Agriculture.         | 3 | Agriculture.         | 3 |               |   |
| German.              | 3 | German.              | 3 |               |   |

## Laboratory Work (Afternoons.)

|                    |   |                    |   |                     |   |
|--------------------|---|--------------------|---|---------------------|---|
| Bacteriology.      | 6 | Anatomy.           | 2 | Anatomy.            | 6 |
| Agricultural Prac- |   | Horticulture.      | 2 | Agriculture.        | 2 |
| tice               | 2 | Blow-pipe Analysis |   | Field Work in Geol- |   |
|                    |   | and Lithology.     | 6 | ogy.                | 2 |

## SENIOR YEAR.

| FIRST TERM.         |   | SECOND TERM.        |   | THIRD TERM.         |   |
|---------------------|---|---------------------|---|---------------------|---|
| Dairying.           | 3 | Agriculture.        | 3 | Agriculture.        | 3 |
| Economic Botany.    | 3 | Entomology.         | 3 | Literature.         | 5 |
| German.             | 3 | German.             | 3 | Biology.            | 2 |
| Veterinary Science. | 4 | Veterinary Science. | 4 | German.             | 3 |
| Either              |   | Advanced Economics  | 4 | Veterinary Science. | 2 |
| Dairying.           | 2 | Either              |   | Ethics.             | 2 |
| or                  |   | Dairying,           |   | Elective and        |   |
| Horticulture.       | 2 | or                  |   | Optional.           |   |
| or                  |   | Horticulture.       | 2 | Dairying.           | 2 |
| Veterinary Science. | 2 | or                  |   | Horticulture.       | 2 |
| or                  |   | Vet. Science.       | 2 | or                  |   |
| Sociology.          | 2 |                     |   | Vet. Science.       | 2 |

## Laboratory Work (Afternoons.)

|                     |   |                     |   |                     |   |
|---------------------|---|---------------------|---|---------------------|---|
| Cheese-making       |   | Agricult. Practice. | 2 | Agricult. Practice. | 4 |
| (Mondays.)          |   | Veterinary Science. | 4 | Veterinary Science. | 4 |
| Butter-making.      | 2 | Elective.           | 2 | Optional.           | 2 |
| Veterinary Science. | 4 |                     |   |                     |   |
| Botany.             | 2 |                     |   |                     |   |
| Elective.           | 2 |                     |   |                     |   |



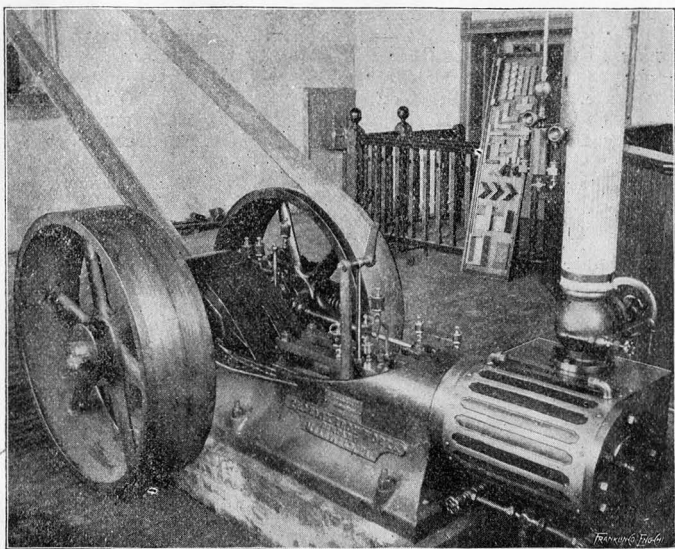
## COURSE IN MECHANICAL ENGINEERING.

The course in mechanical engineering aims to equip the student with the special training in pure and applied mathematics that shall qualify him to deal with the engineering problems of his profession. He is made acquainted with engineering practice and thus given a proper groundwork for a professional career.

A thorough course in physics supplements the training in pure and applied mathematics; the subjects of heat, steam engine, steam boilers, electricity, etc., added to the two years of elementary physics, are thought to constitute a good scientific basis for the study of engineering.

The shopwork of the course includes carpentry, pattern-making, forging, chipping, filing and machine-tool work.

The work in drawing comprises the solution of problems involving geometric principles and the principles of projection; sketches of machines and accurate drawings of them; shading, tinting and descriptive geometry.



**Engine Room.** An 8 x 10 cylinder, automatic cut-off, high speed engine drives the machinery, and is used for experimental work in engineering. Each week a student is detailed to clean, oil, run and regulate the engine.

# COURSE IN MECHANICAL ENGINEERING.

**FRESHMAN YEAR.** (See Page 11.)

**SOPHOMORE YEAR.** (See Page 11.)

## JUNIOR YEAR.

| FIRST TERM.                 | SECOND TERM.           | THIRD TERM.                     |
|-----------------------------|------------------------|---------------------------------|
| Calculus. 5                 | Hydraulics. 5          | Elemt. of Mechanism 4           |
| Literature. 3               | Calculus. 2            | Calculus. 5                     |
| German. 3                   | German. 3              | German. 3                       |
| Desc. Geometry. 2           | Desc. Geometry. 2      | Metallurgy of Iron and Steel. 3 |
| Pattern-making Theory of. 1 | Analytical Geometry. 5 | Mechanical Drawing. 6           |
| Mechanical Drawing. 6       | Mechanical Drawing. 5  |                                 |

### Laboratory Work (Afternoons.)

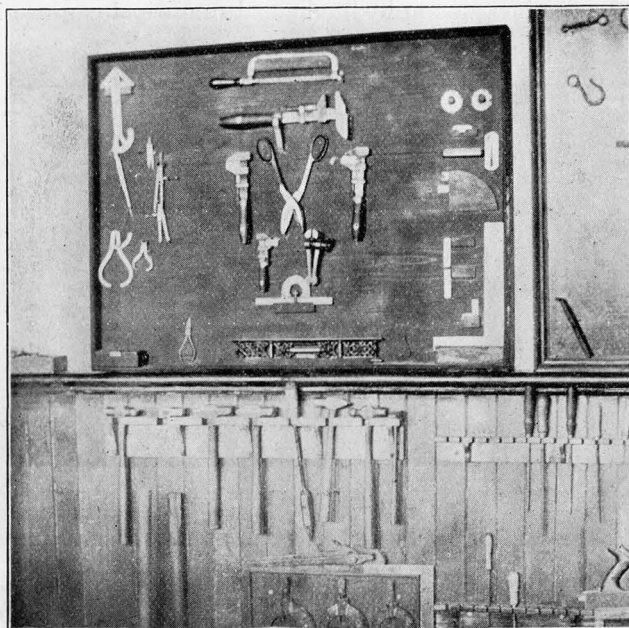
|                    |                          |                          |
|--------------------|--------------------------|--------------------------|
| Pattern-making. 10 | Machine Work in Iron. 10 | Machine Work in Iron. 10 |
|--------------------|--------------------------|--------------------------|

## SENIOR YEAR.

| FIRST TERM.           | SECOND TERM.                            | THIRD TERM.            |
|-----------------------|-----------------------------------------|------------------------|
| Applied Mechanics. 5  | Power, Measurement, and Transmission. 3 | Machine Design. 3      |
| Steam Engine. 5       | Machine Design. 2                       | Applied Electricity. 5 |
| Munic. Engineering. 3 | Municipal Engineer. 3                   | Steam Boilers. 5       |
| German. 3             | German. 3                               | German. 3              |
|                       | Graphical Statics—Roofs & Bridges. 5    |                        |

### Laboratory Work (Afternoons.)

|                                 |                                 |                                 |
|---------------------------------|---------------------------------|---------------------------------|
| Drawing & Experimental Work. 10 | Drawing & Experimental Work. 10 | Drawing & Experimental Work. 10 |
|---------------------------------|---------------------------------|---------------------------------|



Section of Tool Room.

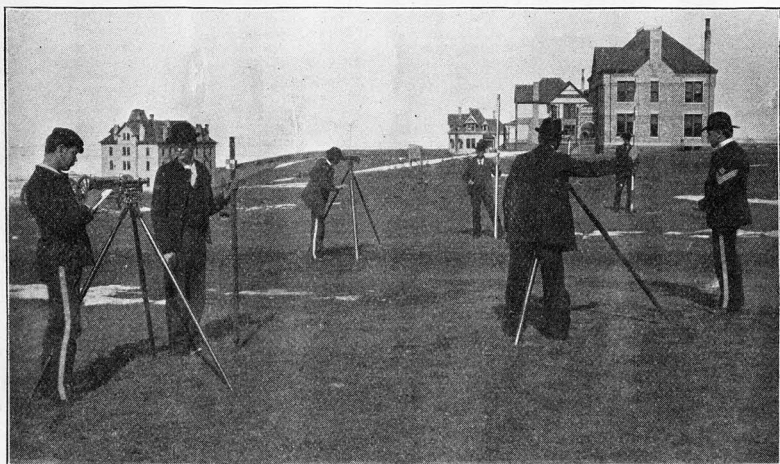
## COURSE IN CIVIL ENGINEERING.

The instruction in this course extends over a period of four years, and is designed to afford a training of a practical as well as theoretical nature to such students as are preparing to enter the profession of civil engineering. The course is also intended to qualify young men to fill other positions in life.

In Western America the design and construction of irrigation works, the need of competent managers and superintendents to operate them, and the supervision and control of the public waters, require men trained in body and theory and the practice of hydraulic engineering.

In the construction and operation of municipal works, trained specialists are rapidly taking positions; so that there is reason to hope that in the course of a few years the street supervisors, building and sanitary inspectors, water, sewer, and gas superintendents, and members of the boards of public works in American cities, will be appointed solely on the basis of efficiency in their respective departments.

For the reasons outlined, greater prominence has been given to the studies included in hydraulic and municipal engineering.



**Field Work.** First class instruments admit the opportunity for accurate, practical work in surveying, gauging, and other branches of civil engineering.

# COURSE IN CIVIL ENGINEERING.

**FRESHMAN YEAR.** (See Page 11.)

**SOPHOMORE YEAR.** (See Page 11.)

## JUNIOR YEAR.

| FIRST TERM.         |   | SECOND TERM.         |   | THIRD TERM.         |   |
|---------------------|---|----------------------|---|---------------------|---|
| Calculus.           | 5 | Hydraulics.          | 5 | Calculus.           | 5 |
| Literature.         | 3 | Calculus.            | 2 | Elements of Mechan- |   |
| Surveying.          | 2 | German.              | 3 | ism.                | 4 |
| German.             | 3 | Analytical Geometry. | 5 | Materials of Engin- |   |
| Desc. Geometry.     | 2 | Desc. Geometry.      | 2 | eering.             | 5 |
| Mechanical Drawing. | 5 |                      |   | German.             | 3 |

### Laboratory Work (Afternoons.)

|                       |                     |                      |   |
|-----------------------|---------------------|----------------------|---|
| Field Practice in En- | Drawing and Design- | Mech. Drawing.       | 2 |
| gineering.            | ing.                | Hydrographic Survey- |   |
|                       |                     | ing and Field Prac-  |   |
|                       |                     | tice.                |   |

## SENIOR YEAR.

| FIRST TERM.          |   | SECOND TERM.          |   | THIRD TERM.          |   |
|----------------------|---|-----------------------|---|----------------------|---|
| Applied Mechanics.   | 5 | Power, Measurement    |   | Geology.             | 5 |
| German.              | 3 | & Transmission.       | 3 | German.              | 3 |
| Higher Surveying.    | 5 | German.               | 3 | Roads & Pavements.   | 5 |
| Municipal Engineer-  |   | Municipal Engineer-   |   | Applied Electricity. | 5 |
| ing.                 | 3 | ing.                  | 2 |                      |   |
| Irrigation Engineer- |   | Irrigation Engineer-  |   |                      |   |
| ing.                 | 2 | ing.                  | 3 |                      |   |
|                      |   | Graphical Statics and |   |                      |   |
|                      |   | Roofs & Bridges.      | 5 |                      |   |

### Laboratory Work (Afternoons.)

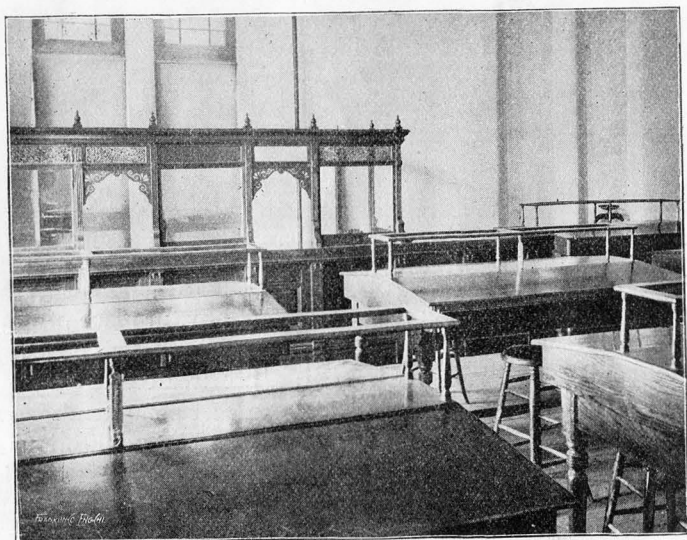
|                     |                     |              |
|---------------------|---------------------|--------------|
| Experimental Work & | Mineralogy & Assay- | Thesis Work. |
| Engineering and De- | ing.                |              |
| signs.              |                     |              |

## FARM IRRIGATION AND IRRIGATION ENGINEERING

The College aims to make a specialty of these subjects. As early as the sub-Freshman year lectures on irrigation engineering are given to students in physical geography, in place of much other matter usually studied in that class. Drainage and irrigation, as applied to farms and orchards, are treated at length in the course in agriculture. Irrigation engineering extends over two terms in the Civil Engineering course. The publications of the College on irrigation represent much original investigation of important problems, and the results are of great value to students. Irrigation as a special course is open to those who desire to investigate this subject with practical ends in view; and it is likely that in the near future a four-year course in Irrigation Engineering may be offered.

## COMMERCIAL COURSE.

Four years ago, after mature reflection, a commercial course of two years was placed in association with the other courses of the College. This course offered a broader general education than is common in commercial courses. Last year a commercial course of four years was offered, making an entirely new departure in the history of commercial education in this country. This departure was based upon the success of the two years' course and a desire to bring it into harmony with the aim of the institution. This aim is a liberal and practical education for the industrial classes—education for citizenship and for industrial life. No other large industrial class has a more direct and important relation to the material, social and political life of the nation, and it seems that if a general education should be associated with technical education in agriculture, mechanic arts, civil engineering, and domestic arts, it certainly should be associated with the commercial course. The success of the courses has exceeded expectation. This success is ascribed to the practical character of the technical work, and to the fact that associated with the instruction are other studies which give to the student an enlarged view of his varied relations as a citizen of the state. The course is broad enough to prepare the student for teaching, or for entering upon the study of law.



**Commercial Room.** The bank is furnished with commercial desks, counters, books, and commercial papers, affording opportunities to study banking from a practical standpoint. The same relation exists between it and the students as between a bank and business men in actual life.

# COMMERCIAL COURSE.

**FRESHMAN YEAR.** (See Page 11.)

**SOPHOMORE YEAR.** (See Page 11.)

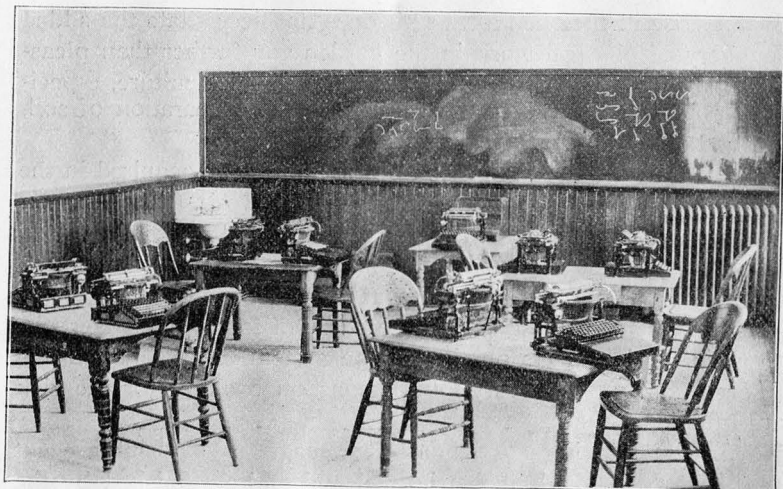
## JUNIOR YEAR.

| FIRST TERM.                   |   | SECOND TERM.                            |   | THIRD TERM.                 |   |
|-------------------------------|---|-----------------------------------------|---|-----------------------------|---|
| Commercial Arithme-<br>metic. | 5 | Science of Bookkeep-<br>ing.            | 4 | Typewriting (Op-<br>tional) | 5 |
| Literature.                   | 3 | Anatomy and Physio-<br>logy.            | 4 | Physiology.                 | 3 |
| Psychology.                   | 3 | Logic.                                  | 3 | Ethics.                     | 2 |
| German.                       | 3 | Typewriting (Option-<br>al) or Zoology. | 2 | Geology.                    | 5 |
| Sociology.                    | 2 | German.                                 | 3 | German.                     | 3 |
| Afternoon Exercises.          |   |                                         |   |                             |   |
| Penmanship.                   | 4 | Mineralogy.                             | 6 | Geology.                    | 2 |
| Typewriting.                  | 5 | Anatomy.                                | 2 | Anatomy.                    | 6 |

## SENIOR YEAR.

| FIRST TERM.           |   | SECOND TERM.                   |   | THIRD TERM.     |   |
|-----------------------|---|--------------------------------|---|-----------------|---|
| Commercial Law.       | 4 | Commercial Law.                | 4 | Commercial Law. | 4 |
| German.               | 3 | German.                        | 3 | German.         | 3 |
| Stenography.          | 4 | Stenography.                   | 4 | Stenography.    | 4 |
| Hist. of Commerce.    | 5 | Advanced Political<br>Economy. | 2 | Literature.     | 5 |
| Business Economics. 3 |   |                                |   |                 |   |

Practical work in bookkeeping, banking, freighting, insurance, etc.



Typewriting and Stenography.



## COURSE IN DOMESTIC ARTS.

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The course for young women is in general the same as for young men in the four years' course in agriculture, except in the hours devoted to shop, farm, or horticultural work. In the place of these there are special studies adapted to woman's work.

The value and necessity of special training in household economy are too well known to require explanation.

It will be seen that special attention is given to those branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to horticulture, floriculture, and economic botany, should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, especially as adapted to window gardening; in the preparation of soil, and in the growth of vegetables and small fruits.

Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work. Lectures on chemistry are succeeded by cooking. (Sophomore year, page 22) The cooking exercises are accompanied by practice in table-setting, table-waiting, and presiding at the table as hostess.

A term's work is given to the study of foods, with reference to their special effects on the human system in both health and disease; and about twenty-four lessons on cooking for the sick are offered in the last term.

In dressmaking (Freshman year, page 22) gowns are cut out, basted, fitted, draped, trimmed and entirely finished by the student. Regular practice is given in the care of the machine,

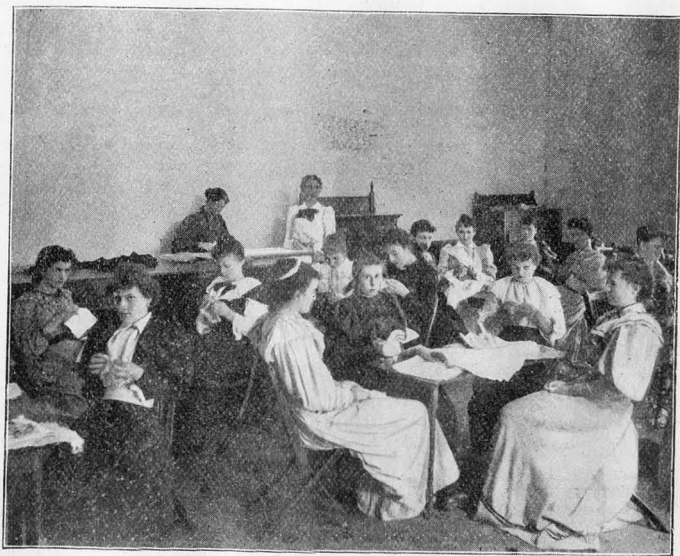
and its mechanism is illustrated. The students furnish materials and make their own clothing.

In dairying very decided attention is given to this most important field of work, over which woman has general charge. Fortunately, the more exacting work of the dairy now falls to other hands, but the necessity remains for mastery by women of the philosophy of dairying.

A special course of lectures on hygiene is given to the young women of this course.

A term in geometrical drawing and a term in advanced drawing have been included, in order that those students who have a taste for these accomplishments may acquire them.

A term in aesthetics, the science of taste and beauty, and a term of ethics, have been added to this course, in the belief that these studies will give culture and refinement, besides furnishing wholesome mental discipline in the analysis of philosophic theories and systems of thought.



**Sewing Room.** Sewing machines, tables, and models for cutting and fitting are supplied free to the student for regular daily instruction in dressmaking, fancy work, millinery, etc.

## COURSE IN DOMESTIC ARTS.

## FRESHMAN YEAR.

| FIRST TERM.                          | SECOND TERM.                         | THIRD TERM.                          |
|--------------------------------------|--------------------------------------|--------------------------------------|
| Higher English Grammar. 5            | Rhetoric. 5                          | Literature. 5                        |
| Plane Geometry. 5                    | Algebra. 5                           | Algebra. 5                           |
| Military Drill & Physical Culture. 3 | Military Drill & Physical Culture. 2 | Military Drill & Physical Culture. 3 |
| Element. Physics. 3                  | Mediaeval History. 2                 | Botany. 3                            |
| Ancient History. 2                   | Element. Physics. 3                  | Mediaeval History. 2                 |
| Laboratory Work (Afternoons.)        |                                      |                                      |
| Laundry & Sewing. 5                  | Sewing. 5                            | Dressmaking. 5                       |

Declamations bi-weekly throughout the year.

## SOPHOMORE YEAR.

| FIRST TERM.                   | SECOND TERM.           | THIRD TERM.            |
|-------------------------------|------------------------|------------------------|
| Chemistry. 3                  | Chemistry. 3           | Chemistry. 3           |
| Botany. 2                     | Rhetoric. 2            | Floriculture. 2        |
| Argumentative Rhetoric. 2     | Lectures on Cooking. 4 | Sci. of Nutrition. 4   |
| Geometry. 3                   | Political Economy. 3   | Sanitary Science. 3    |
| Modern History. 3             | Civil Government. 2    | Civil Government. 2    |
| Higher Algebra. 2             |                        |                        |
| Laboratory Work (Afternoons.) |                        |                        |
| Physic. Measur'm't's. 4       | Chemical Analysis. 6   | Practice in Cooking. 4 |
| (Heat, Sound & Light.) 4      | Prac. in Cooking. 4    | Chemical Analysis. 3   |
| Chemistry. 4                  |                        |                        |

## JUNIOR YEAR.

| FIRST TERM.                   | SECOND TERM.                    | THIRD TERM.             |
|-------------------------------|---------------------------------|-------------------------|
| Horticulture. 2               | Physiology. 4                   | Anatomy & Physiology. 3 |
| Literature. 3                 | Designing, Cutting & Fitting. 5 | Geology. 5              |
| Psychology. 3                 | Logic. 3                        | Millinery. 2            |
| Geometrical Draw. 5           | Zoology. 2                      | German. 3               |
| German. 3                     | German. 3                       | Hygiene. 4              |
| Laboratory Work (Afternoons.) |                                 |                         |
| Bacteriology. 6               | Anatomy. 2                      | Anatomy. 6              |
| Fruit Work. 4                 | Mineralogy & Lithology. 6       | Geology. 2              |

## SENIOR YEAR.

| FIRST TERM.                   | SECOND TERM.          | THIRD TERM.           |
|-------------------------------|-----------------------|-----------------------|
| Dairying. 3                   | Fancy Work. 3         | Ethics. 2             |
| Aesthetics. 3                 | Entomology. 2         | Literature. 5         |
| Household Management. 4       | German. 3             | German. 3             |
| German. 3                     | Advanced Cooking. 2   | Biology. 2            |
| Either Drawing. 2             | Advanced Economics. 2 | Dairying. 3           |
| or Economic Botany. 3         | Dairying. 2           | or Astronomy. 5       |
| or Sociology. 2               | Drawing. 3            |                       |
|                               | or Horticulture. 2    |                       |
| Laboratory Work (Afternoons.) |                       |                       |
| Cheesemaking (Monday's.) 2    | Horticul. Practice. 4 | Horticul. Practice. 2 |
| Buttermaking. 2               | Elective. 5           | Elective. 5           |
| Economic Botany. 2            |                       |                       |

The first two years of the ladies' course are the same as the first two years of all the other courses with the exceptions here noted:

Lady students in Domestic Arts take sewing and dressmaking in the place of shopwork.

Lady students in Domestic Arts take lectures on cooking 4, in place of trigonometry; laboratory practice in cooking 4, in place of electricity and magnetism; science of nutrition 2, in place of mechanics and surveying; and practice in cooking 4, in place of field work in surveying.

## COURSE IN ELECTIVE SCIENCE.

This course is believed to be especially adapted to the need of those preparing to study medicine or pharmacy, or to take higher technological training abroad. It will also be an exceptional preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

The student will select either biology or chemistry, or physics, and will take all the subjects specified under the subject so elected. He must then select, from the other College courses, subject to the approval of the head of the department, enough subjects to complete his course.

**FRESHMAN YEAR.** (See Page 11.)

**SOPHOMORE YEAR.** (See Page 11.)

## JUNIOR AND SENIOR YEARS.

Either biology, or physics, or chemistry, as follows

### BIOLOGY.

|                                     |                                  |
|-------------------------------------|----------------------------------|
| Anatomy & Physiology.....Two Terms. | General Biology.....Three Terms. |
| Bacteriology.....One Term.          | Zoology, advanced.....One Term.  |
| Entomology.....One Term.            | Anthropology.....One Term.       |
| English Literature.....Two Terms.   | German.....Six Terms.            |
| Sociology.....One Term.             |                                  |

### CHEMISTRY.

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Agricult. Chemistry....Two Terms. | Organic Chemistry.....Two Terms. |
| Gen. Analyt. Chem...Three Terms.  | German.....Six Terms.            |
| English.....Two Terms.            | Mineralogy.....One Term.         |
| Geology.....One Term.             |                                  |

### PHYSICS.

|                                  |                                   |
|----------------------------------|-----------------------------------|
| Advanced Physics.....Six Terms.  | Heat.....One Term.                |
| Electricity.....Two Terms.       | Strength of Materials.Two Terms.  |
| Geology.....One Term.            | Analytical Geometry...Two Terms.  |
| Descriptive Geometry..Two Terms. | Calculus.....Three Terms.         |
| German.....Six Terms.            | English Literature.....Two Terms. |

The additional electives are to be chosen subject to the approval of the professor in charge of the department in which the major work has been chosen.

## OUTLINE OF COURSES AND ANALYSIS OF SUBJECTS.

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The work of the College may be classified under the following departments of instruction:

**Agriculture**, Biology, Botany, Chemistry, Civil Engineering, Commercial Branches, Dairying, Domestic Arts, Drawing, English, German, Geology and Mineralogy, History, Horticulture and Entomology, Irrigation Engineering, Mathematics, Mechanic Arts, Mechanical Engineering, Military Science and Tactics, Oratory and Declamations, Physical Culture, Physics, Philosophy, Political Science and Sociology, Sewing, and Veterinary Science.

### AGRICULTURE.

**Professors Fischer and Mills.**

Three exercises a week for two years are given to technical instruction in agriculture. Few works on agriculture are adapted for use as text books and the greater part of the instruction is given by lectures and field exercises. The lectures are based on the works of standard writers, supplemented by the results obtained at the different experiment stations in this and other countries.

The work includes the following subjects:

#### **HISTORY OF AGRICULTURE**

A general outline of agricultural development in the older countries from which we derived our practices; the introduction of machinery, with special reference to its development in this country.

#### **FARM FENCES AND BUILDINGS:**

A description of the different kinds of fences and materials, with the advantages and disadvantages of each; the best methods of gate-making and the setting and bracing of posts; preservation of posts and the

prevention of rot in timbers; the location, plans, and necessary features of farm buildings. The student is required to draw plans and elevations of a farm house, barn, piggery, and sheep pen, which are criticised by the class and then drawn in ink and preserved for future use.

Books of Reference: Convenient houses with fifty plans for the housekeeper—Gibson; barn plans and out-buildings, stables and outbuildings—Bicknell; barn buildings—Sanders.

Jun. Ag. I, 3.

### ABBREVIATIONS :

The following abbreviations are used: A g. Agriculture (course in); D. A., Domestic Arts; M. E., Mechanical Engineering; Civ. E., Civil Engineering; Com., Commercial; El. Sc., Elective Science; Fresh. Freshman; Soph., Sophomore; Jun., Junior; Sen. Senior; I, II, III, first, second and third terms; 2, 3, 5, etc., denote the number of recitations or the hours of laboratory practice per week.



**A Model Barn** is connected with the department of agriculture. It contains a silo, a root cellar, an engine room, quarters for swine, for sheep, for cattle, for horses, for hay and other coarse fodder; for grain, for tools and for horticultural uses.



**FARM MACHINERY:** The general mechanical principles involved in machines and the laws that govern machines, with their special application to agricultural machinery; the variation of draft in the same and in different machines and farm implements illustrated by the use of the dynamometer in the field.

Books of Reference: Farm Implements and Farm Machinery, Thomas; Bulletins Nos. 2, 4, 6 and 7 of the Utah Experiment Station, and Bulletins Nos. 32 and 4 of the Missouri Station.

Jun. Ag. I, 3.

**FARM IRRIGATION:** The history of irrigation and the development of different systems of irrigation in the older countries, with the general development and best applications under local conditions; acquisition of "water rights" and the relation of the "stockholder" to the "company;" amount of water to use for the different crops, and different methods of applying water.

Books of Reference: Irrigation in Egypt, Barrios; Irrigation Development and Irrigation in Southern California, Hall; Irrigation for Farm, Garden and Orchard, Stewart.

**DRAINAGE:** The benefits of drainage, the soils that need drainage, with special reference to the drainage and reclamation of alkali soils; the laying out of a proper system of drains, with the material used.

Books of Reference: Drainage for Profit and Health, Waring; Farm Drainage, French; Land Drainage, Klippart.

Jun. Ag. II, 3 for the two courses.

**FARM CROPS:** The history, uses, composition, production, and adaptability of different crops to local conditions; the crops best suited for different rotations, and the grasses best suited for meadows and pastures, with the common noxious weeds, are especially dwelt on.

**SOILS AND FERTILIZERS:** Waste by Fermentation; the leaching and loss of nitrogen; preservation; manure of different animals and from different feeding stuffs; green manuring; methods and rate of applying. The origin, formation, improvement and general cultivation of soils; special attention is paid to the improvement of soils by irrigation, drainage, cultivation, rotation, and fertilizers, and the effects that each has on the physical properties of the soil, following the work of Professors Whitney, King and Hilgard.

Books of Reference. Sorghum, Collier; Grasses of North

America, Beal; Wheat Culture, Curtis; Plant Life of the Farm, Masters.

Reference Books: Rocks and Soils, Stockbridge; Soils of the Farm, Scott and Morton; Clay Lands and Loamy Soils, Donaldson; How Crops Feed, Johnson; Some Physical Properties of Soils in Their Relation to Moisture and Crop Distribution, Whitney.

**Jun. Ag. III, 3.**

**STOCK FEEDING.** Composition of the animal body; the processes of digestion and absorption; the part that each food takes in replacing the wastes of the body or in producing heat or power or in laying on fat.

Books of Reference: A Treatise on Manures, Griffiths; Manures and Manuring, Aikman; Talks on Manures, Harris.

**FEEDING STUFFS:** Composition, digestibility, palatableness, and general characteristics of hay and other fodders and the different grains.

**Jun. Ag. III, 3.**

**FEEDING FOR SPECIAL PURPOSES.** Nutrients; feeding standards; calculation of proper rations; fuel value of foods and rations; maintenance rations and excess food; the feeding of work animals with the discussion of the source of power; feeding for meat production in beef, mutton and pork; feeding for fat or for lean meat, with the influence of the different foods on the carcass and the vital organs, and in regard to the health of the animal.

**Sen. Ag. Elective:**

Books of Reference: Feeding Animals, Stewart; Manual of Cattle Feeding, Armsby.

Aside from the books of reference given under the different headings there are many works on general agriculture as well as the bulletins and reports of the experiment stations of the different States and Territories, the publications of the department at Washington, with many others from Canada and other countries. Added to these is a list of about one hundred of the best farm journals of this and other countries, all of which are available to the students. All of the work detailed under agriculture is required of students in either the short or the long course in agriculture.

## DAIRYING.

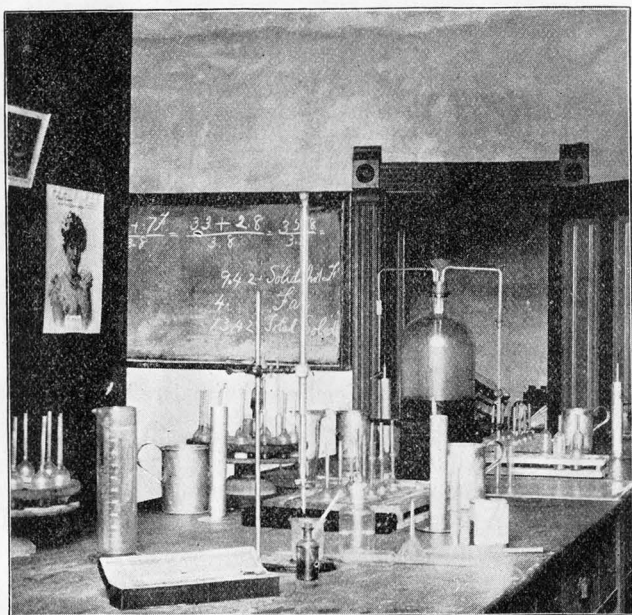
Professor Linfield.

Instruction in this subject is given by lectures supplemented by practical work in the dairy, three times a week during the fall and twice a week during the winter and spring terms.

**MILK TESTING:** The elaboration, composition, and fermentation of milk; the cheapest and most accurate method of testing, with practical applications.

**BUTTERMAKING:** The creaming of milk by different methods; the handling of cream; churning; working and packing butter for market.

**CHEESEMAKING:** Both factory and farm dairy methods of manufacture are dealt with; how to make a uniform product and to deal with practical difficulties.



**Milk Testing.** Milk is one of the most complex and unstable of compounds presenting in its management difficult and interesting problems. These receive practical investigation in well-supplied laboratories.

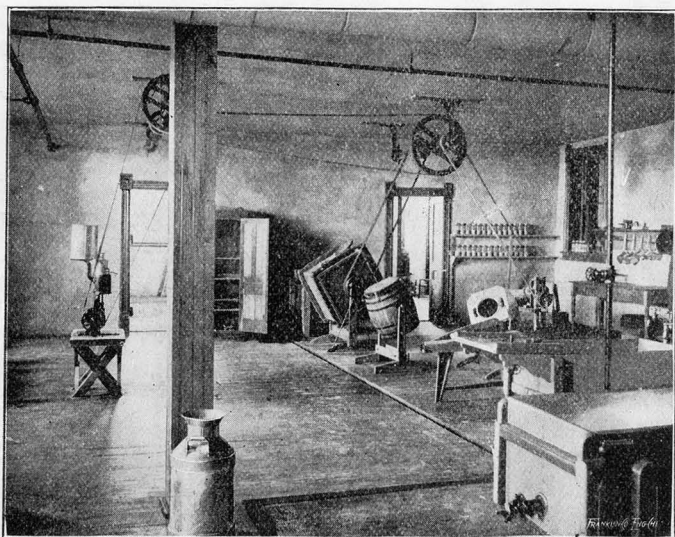
In the dairy laboratory, butter and cheeserooms, the lessons of the class room are put in practice by the students.

Books of Reference: Gurler's American Dairying; Decker's Cheddar Cheesemaking; Schoenman's Milk Testing; Grotenfelt's Principles of Modern Dairy Practice; Russell's Dairy Bacteriology.

Dairying is required of all Senior students in both long and short courses in agriculture and domestic arts.

Sen. D. A., and Ag. I, 3.

**PRACTICAL WORK:** Cheesemaking each Monday, and buttermaking and milk testing two afternoons of the week throughout the year.



**The Dairy** occupies five rooms covering a space of 36x80 feet, and is equipped with modern conveniences for the production of the best grades of butter and cheese. Here students apply in practice the theories learned in the classroom.

## ANIMAL HUSBANDRY.

**Professor Linfield.**

Lectures and the practical handling of the different breeds of livestock; the history and description of the various breeds of horses, cattle, sheep, swine, and poultry and their management, and the science and practice of breeding.

**HISTORY AND DESCRIPTION** of the different breeds of live stock, their origin and development into the specialized animals of today; effects of soil, climate, and management on the animals.

**BREEDING:** The laws of reproduction; heredity; reversion; correlation; variation; fecundity; in-and-in breeding; cross breeding; selection; period of gestation, and pedigree.

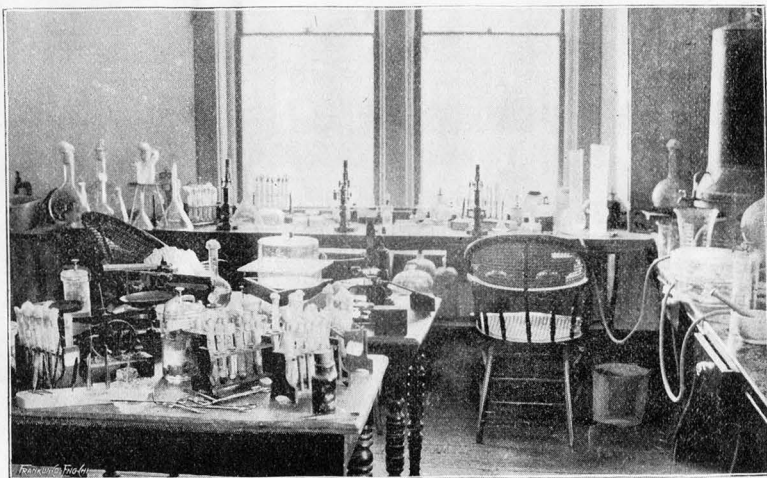
References: Curtis' Breeds of Domestic Animals; Sanders' Breeds of Livestock; Coburn, Swine Husbandry; Stewart, Shepherd's Manual; Randall's Practical Shepherd; Stonehenge, The Horse in the Stable and Field; Miles, Stock Breeding; Sanders, Horse Breeding; Warfield, Cattle Breeding.

**PRACTICAL WORK:** Two hours a week for the second half of the fall term, and four hours a week for the spring term of the Senior year.

## BIOLOGY.

**Professor Brewer.**

**BIOLOGY:** The course of lectures on General Biology and the accompanying laboratory work will cover the usual range of topics. The difference between living and dead matter will be



**The Biological Laboratory** is well supplied with microscopes and other apparatus for research according to approved modern methods.

reviewed, and each subject as protoplasm, cells, tissues and organs will be considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life will be taken for illustration and for examination in the laboratory.

Sen. Ag. III, 2

**ZOOLOGY.** A comparative review of the various functions concerned in animal life and their applicability to the environments of the different classes of animals; the classification of the animal kingdom, and the morphology and the attributes of its different members; the distribution of animals according to place and time; their present location and their primeval forms.

Jun. Ag. and Com. II, 2.

**FUNGOLOGY AND PROTOPHYTOLOGY:** So much of these subjects as relates to the moulds, ferments, etc., which are important factors in human and animal life, will be treated of in lectures and illustrated in the laboratory. Algae, diatoms, desmids, etc., will also be discussed and illustrated.

Jun. II, 2, El. Sc.

**ANTHROPOLOGY:** A short course will be included, in continuation of the general course, discussing the different types of the human race, existent at the present time in the various countries of the world; their relations, origin, and tribal differences; their dwellings and their implements.

Jun. or Sen. El. Sc.

**BACTERIOLOGY:** This special branch of science, which has, during the last decade, made great strides, and which is so intimately connected with diseases affecting both man and animals, will occupy a full course of lectures and also receive adequate laboratory exemplifications. Research work in the germ causatives of disease, especially of animals, will be made in connection with the experiment station and students will be familiarized with the processes used in bacteriology, such as the preparation of culture media, the culture and separation of germs, staining and mounting specimens of various bacteria, making sections of tissue, etc, and general microscopical work.

The laboratory contains a full set of apparatus for the work of investigation, similar to that used in the laboratories of Professor Koch in Berlin, and of Professor Pasteur in Paris. Microscopes, microtomes, and the general accessories of laboratory



investigation will also be used by the students. It is intended that the courses shall be so directed as to be of practical value after the College curriculum has been completed.

Jun. Ag. Com. and El. Sc., 1, 6



**Bacteriology.**

Cultivation of bacilli and their examination and identification under the microscope make part of the work of this department.

**SANITARY SCIENCE:** A course of lecture on the general principles of Sanitary Science as applied to the selection of sites for homes and the erection of the house; ventilation and heating; water supply and its uncontaminated preservation; removal of refuse and waste; food, its uses and abuses; adulterations of foods, their detection and general hygienic subjects.

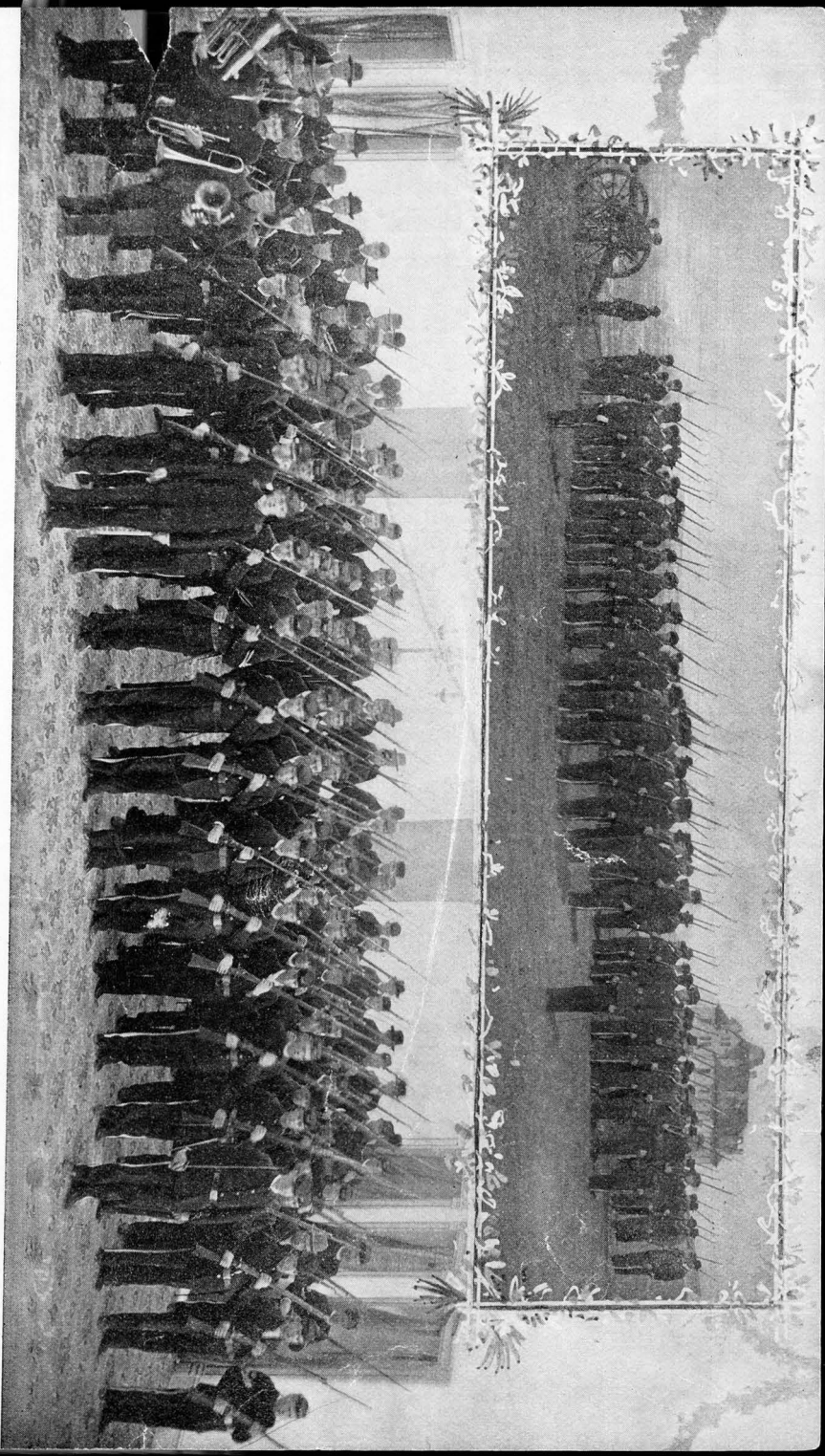
Soph. III, 3.

**BOTANY.**

**Professor Fischer.**

**ELEMENTARY BOTANY:** Analysis of at least forty spring flowers; the preparation of a herbarium, and the drawing of one complete specimen—foliage, flowers and fruit. Botany commences in third term Freshman in all courses. The student will become familiar with the structure of plants and lay a foundation for more advanced work in botany in the fall term Sophomore.

Fresh. III, 3.



PANT A. Captain W. W. M. T. Adjutant W. F. Culmer.

Officers of Battalion.



#### Physical Culture.

**LADIES' MILITARY ORGANIZATION** Captain Lucy Merr II. First Lieutenant Winnie Smith. Second Lieutenant Libbie Rich. First Sergeant Minnie Smith. Second Sergeant Agnes P. Ikin. Third Sergeant Phoebe Eliason. First Corporal Lettie Peterson. Second Corporal Jennie Hubbard. Third Corporal Maud Smith. Fourth Corporal Nora Pugmire.

Physical Exercises for Young Women are Systematically Conducted, in the Department of Physical Culture.

**ADVANCED BOTANY:** The composite, grasses, and cryptogams; microscopic dissections exhibiting the minute structure of plants; lectures on the physiology of plant life.

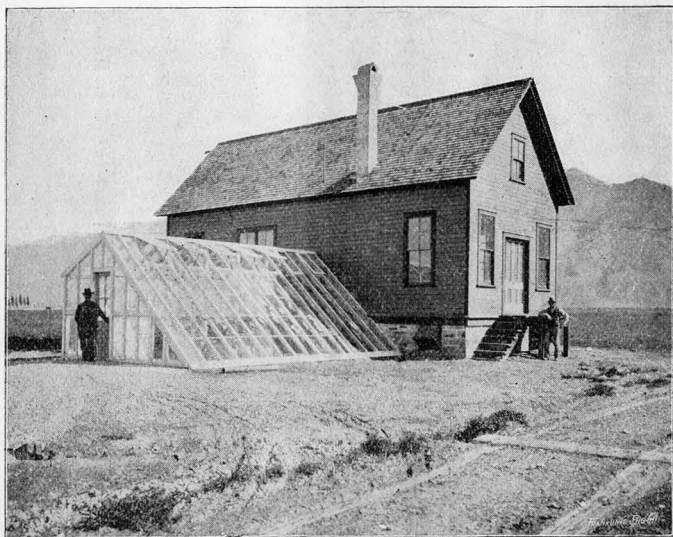
Soph. 1, 2.

**ECONOMIC BOTANY:** Microscopic investigation of rust, smut, and mould, with methods of exterminating the injurious species. Food plants—their origin and uses. Methods of exterminating noxious weeds.

Jun. Ag. I, 2.

**BOTANICAL LABORATORY:** Work with the compound microscope—simple objects, the cell and its contents—starch, protoplasm, etc.,—with special attention to the structure and life of the lower cryptogams.

Sen. Ag. I, 4.



Green House and Dissecting Room.

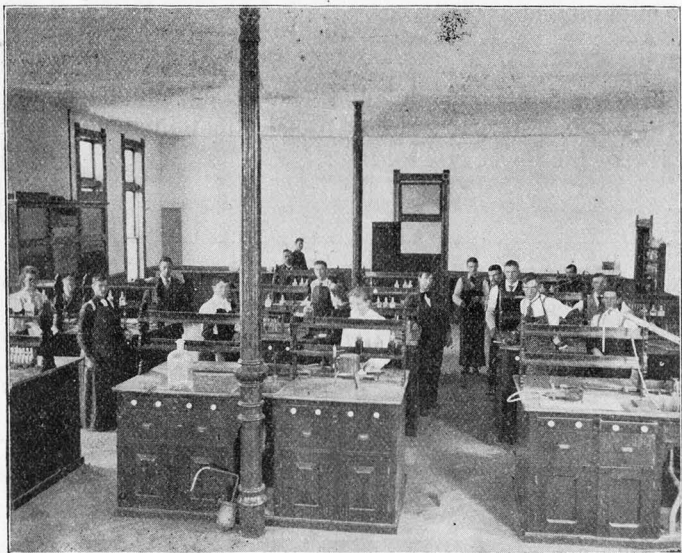
## CHEMISTRY.

Professor Widtsoe.

**ELEMENTARY PRACTICAL CHEMISTRY.** This course supplements course I and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other;

their reactions are determined and verified, and the facts and theories of the lecture room are tested by experiments. This course can only be taken in connection with course I.

**Soph. I, 6.**



**The Chemical Laboratory** is large and well lighted and ventilated, fitted with hoods, gas, water, and individual tables to accomodate sixty students.

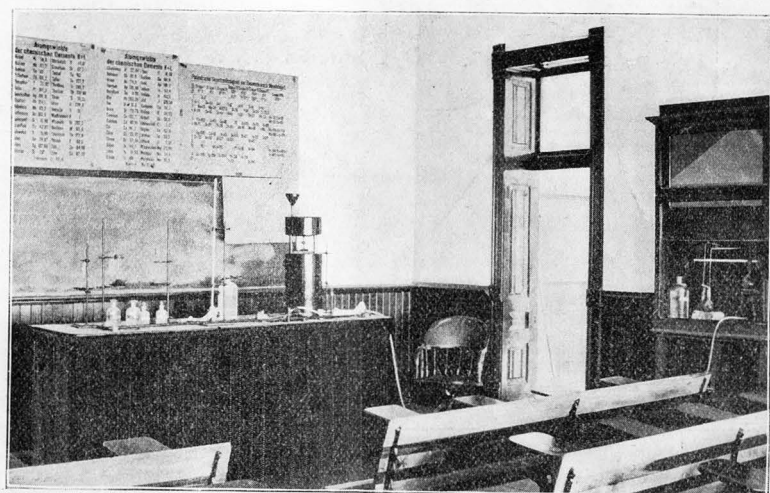
**QUALITATIVE ANALYSIS.** This course runs parallel with and supplements the descriptive study of the metals and their compounds. Under the direction of the instructors in chemistry the students apply with their own hands the reagents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view

**Soph. II, 6.**



**AGRICULTURAL CHEMISTRY.** A series of lectures treating of the chemical problems of agriculture; composition of plants; sources of plant food; manures, general and special; chemistry of animal nutrition; soils and dairy products. Students who are interested in this subject will be permitted to take laboratory work in connection with the lectures.

Jun. Ag. I, 3, II, 2.



Class Room in Chemistry.

Note: Each student taking a laboratory course in chemistry is required to deposit \$3 for the first term, and \$1 for each succeeding term to pay for chemicals and to cover breakage, etc.

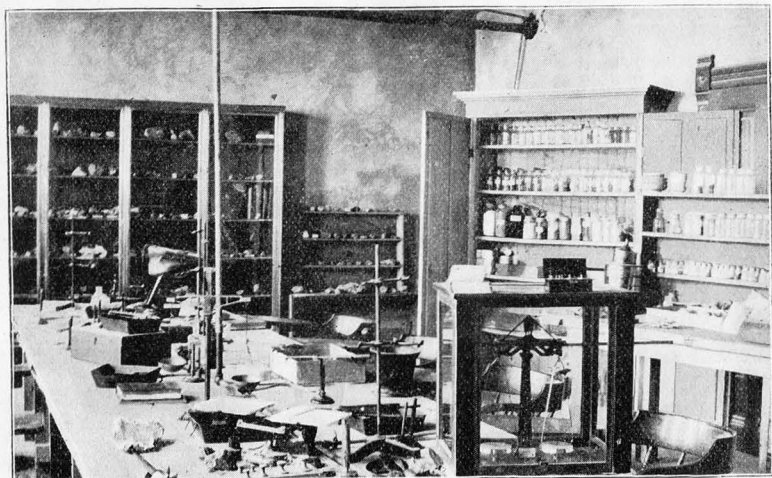
**ORGANIC CHEMISTRY:** This course is planned for students who intend to fit themselves for professional work in chemistry. It consists of a brief survey of the reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives; together with a full discussion of the nature and influence of molecular structure. In the laboratory the student makes a number of organic preparations which in their formation involve the methods of oxidation, reduction, substitution and synthesis.

Jun. or Sen. El. Se. I, II, 2.





Chemical Laboratory No. 2.



**Mineralogical  
Laboratory.**

The room for blow-pipe analysis and wet and dry determinations of minerals is supplied with gas and hydrant-water, and with all necessary reagents and apparatus for assaying and practical mineralogy.

## GEOLOGY AND MINERALOGY.

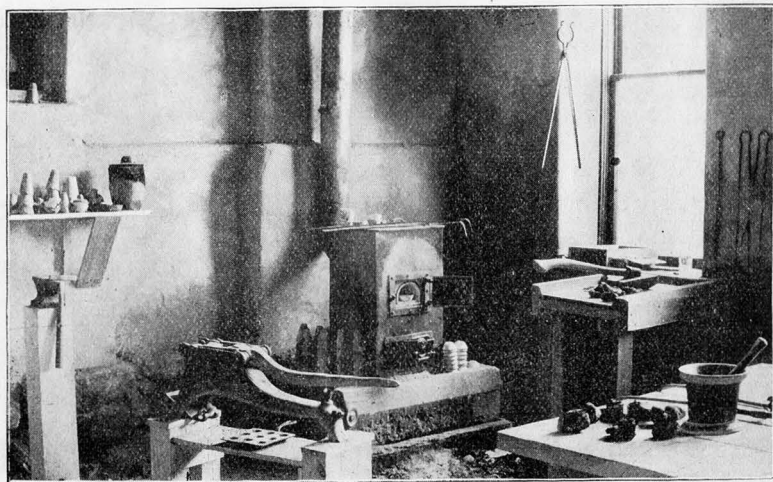
Professors Caine and Widtsoe.

**MINERALOGY AND ASSAYING.** A systematic study of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and Determinative Mineralogy, and in connection with the former are taught the simple methods of dry assaying. To those especially interested in the subject opportunities are given for practice in all methods of dry and wet assaying.

Jun. Ag. and Sen. Civil Eng. II, 6.

**GEOLOGY AND LITHOLOGY.** A course in general and economic geology in which particular attention is given to Dynamical and Structural Geology. Along with the occurrence of rocks is studied also their mineralogical composition. The instruction is based on a text-book supplemented with lectures. Weekly excursions give practice in geological field work and material for reports.

Jun. or Sen. III.



**Assaying Room.** Regular practice in Assaying for Gold, Silver, Lead and Copper, is included in Mineralogy. Last season about one hundred assays of native ores were made. A large brick furnace for use in metallurgy is in course of construction.

## CIVIL ENGINEERING.

Professor Fortier.

**HYDRAULICS.** The fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water-wheels and pumping engines.

Text Book: Merriman's Hydraulics.

Jun. Civ. and M. E., II, 5.

**IRRIGATION ENGINEERING.** The location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; windmills, artesian wells, etc.

Text Books: Wilson's Manual of Irrigation and other works of reference.

Sen. Civ. E., I, 2.

**ELEMENTARY SURVEYING.** The adjustment of instruments, the location of railways, pipe lines and canals, city, mining, and hydraulic surveying. Field practice in the afternoons of the first and third terms.

Text Book: Johnson's Surveying.

Jun. Civ. I, 2, II, 3.

**HIGHER SURVEYING.** Measuring base lines, triangulation, practical astronomy, the determination of the meridian, time, latitude, longitude, etc.

Text Books: Johnson's Surveying; Merriman's Geodesy.

Sen. Civ. E., I, 5.

**APPLIED MECHANICS.** Shearing force and bending moment; equilibrium of beams, fatigue of metals, energy, impact, centrifugal force; friction; strength of cylindrical boilers and pipes; torsional strength of shafts; column formulae.

Text Book: Bovey's Theories of Structures.

Sen. Civ. and M. E., I, 5.

**GRAPHICAL STATICS.** The analytical and graphical methods of determining stresses in framed structures and the design and proper proportioning of bridges, flumes, head-gates, dams, retaining walls, trestles, roofs, arches.

Sen. Civ. E., II, 4.

**MATERIALS OF ENGINEERING.** Daily lectures throughout the last term to supplement the practical knowledge obtained in the carpentry, blacksmith, foundry, and machine shops, by notes on stone, brick, lime, cement, iron, steel, and alloys.

Jun. Civ. E., III, 5.

**ROADS AND PAVEMENTS.** Country roads and highways, their location, construction and maintenance; the paving of city streets and sidewalks; the materials used and mode of construction.

Text Book: Bryne's Highway Construction.

Sen. Civ. E, III, 5.

**ROOFS AND BRIDGES.** The application of the study of applied mechanics to roofs and bridges; dead and live loads; lateral truss systems; pin connected structures; rivets and riveting; marketable forms of iron and steel and their application in the design of roofs and bridges.

Text Book: Johnson's Theory and Practice of Modern Framed Structures.

Sen. Civ. E, III, 4.

**MUNICIPAL ENGINEERING.** Embraces water-works systems; gas and electric lighting; rapid transit and sewerage.

Sen. Civ. and M. E, I, 5.



Samples of Iron Work.

**SUMMER REPORT.** Each student upon entering the senior year in civil engineering is required to present a report prepared by himself during the summer vacation on some structural work connected with the profession.

## COMMERCIAL BRANCHES.

**Professor Shepard.**

**PRACTICAL BOOKKEEPING.** The student obtains some capital, rents a place of business, deposits his money in the bank transacts all kinds of business, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, bills of sale. He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, coal, lumber, furniture, drug, jobbing, commission and shipping, brokerage, real estate, and for joint stock companies and corporations. Various business relations are entered into in the formation of agencies, partnerships, joint stock companies and corporations.

**Sen. Com. I, II, III, 10.**

### **HISTORY OF COMMERCE AND COMMERCIAL GEOGRAPHY.**

Recitations and lectures. The student will make a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He will note the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; how markets are created and controlled; how waterways and railways afford a ready means of transportation and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics will be gathered showing the magnitude of the world's production. Practical commercial problems of the day will be discussed in class.

**Sen. Com. I, 5.**

**COMMERCIAL LAW.** A study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contract; including domestic relations, agency, partnership, corporation, bills, notes and checks, purchase and sale of personal property, guaranty or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, telegraphic communication, patents, copyright, trade marks, real estate conveyances, and the business of legal forms that are used to carry on trade. It is our object to prepare students for a position in the world as business men rather than mere clerks; hence the prominence given to this subject.

**Sen. Com. I, II, III, 4.**

**COMMERCIAL ARITHMETIC AND RAPID CALCULATION.** Daily drill in addition, multiplication, division, fractions, measurements, metric system, percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all the problems that the average business man is called upon to solve. Short methods are studied and practical devices presented.

**Jun. Com. I, 5.**

**COMMERCIAL ECONOMICS.** The economic laws of trade, the general principles of Political Economy technically applied to commerce, and a discussion of business methods.

**Sen. Com. II, 3.**

**PENMANSHIP.** A plain legible style of writing with a rapid movement is taught. Daily throughout the year. Required of commercial students; elective to others.

**Fresh I, II, III, 5, Hyde.**

**SCIENCE OF BOOKKEEPING.** The underlying principles of single and double entry book-keeping; opening and closing books; journalizing, posting, classifying accounts, etc. Especial attention is given to making the original or charge entry, the legal as well as the scientific feature of the entry being kept in mind.

**Jun. Com. II, 4.**

**STENOGRAPHY.** An elective study for second year students in the short commercial course, and for Senior students in the four years' commercial course. Graham's system of Standard Phonography is taught. The class is given one hour's instruction daily throughout the year.

Text Book: Graham's Handbook.

**Sen. Com. I, II, III, 5, Dryden.**



**TYPEWRITING.** An optional study for first year students in the short commercial course. Required of Junior students in the four years' commercial course. Three different makes of machine are used, viz., the Remington, the Caligraph, and the Smith-Premier. There are nine machines for use of students. An hour a day is given to typewriting throughout the year.

Jun. Com. I, II, III, 3, Dryden.

## DRAWING.

**ELEMENTARY DRAWING.** Practice in freehand, leading to the use of instruments.

Sub. Fresh. I, II, III, 2.

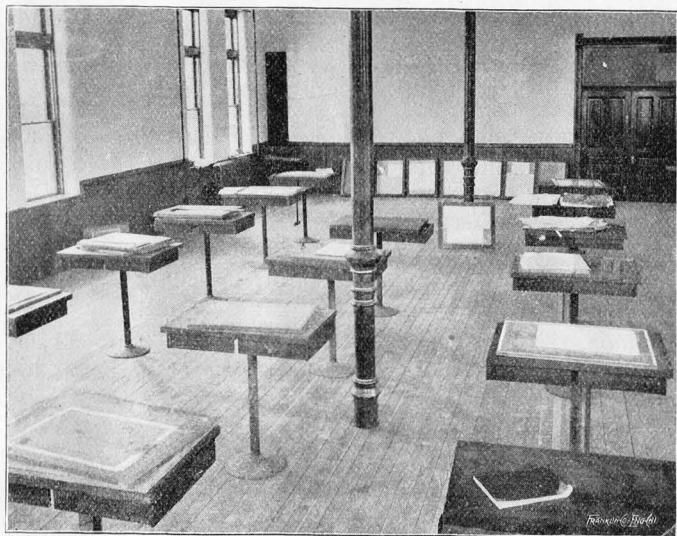
**MECHANICAL DRAWING.** Several courses are given. See under Mechanic Arts and Mechanical and Civil Engineering.

**GEOMETRIC DRAWING.** Chiefly plane work for patterns and designs.

Jun. D. A, I, 5.

**ADVANCED DRAWING.** Sketching, shading and tinting.

Sen. D. A, II, 3.



**Mechanical Drawing Room.** Large, technical works on drawing are furnished by the college. Each student in the engineering courses must purchase, under the advice of the teacher, a set of good instruments.

# DOMESTIC ARTS.

Mrs. Cotey.

**LECTURES ON COOKING.** Scientific basis of the art is given by a course of lectures treating of the selection, care, and preparation of food.

Soph. D. A, II, 4.

**SCIENCE OF NUTRITION.** The relative values of different foods in repairing the waste of the body; a study of the physiological processes of digestion and assimilation; proper quantity, kind, and quality of food necessary.

Soph. D. A, III, 4.



The Kitchen

is supplied with model work tables, range, gas, and water, and with implements for the preparation and cooking of food.

**PRACTICE IN COOKING.** Daily preparation of meals for guests; table-setting, serving, and presiding at table.

Soph. D. A, II, III, 4.

**FRUIT WORK.** Canning of native fruits; making of jellies, sauces, pickles, preserves, etc.

Jun. D. A, I, 4.

**HYGIENE.** Course of lectures on personal hygiene for women.

Jun. D. A, III, 4.

**HOUSEHOLD MANAGEMENT.** Study of economy of time and strength in performing home duties; the arrangement of entertainments; relations of mistress to maid and of the housekeeper to her environments; convenient arrangement and artistic and economical furnishing of rooms.

Sen. D. A, I, 2.

**ADVANCED COOKING.** Study of dietaries for the healthy person; the proper foods to be given in different diseases; practice in proper methods of cooking for the sick.

Sen. D. A, II, 2.

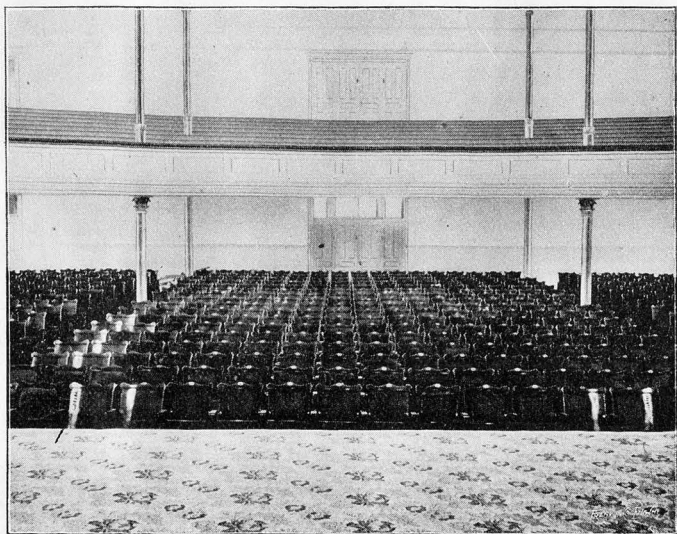
See also under Sanitary Science, Sewing, Drawing, and Horticulture.

## ENGLISH CLASSICS, ELOCUTION AND DECLAMATION.

Miss Kenyon.

It is the object of this department to make good readers, better conversers and good speakers; to make the voice and the body fit instruments to serve the soul and mind. The course then will include the development of the voice and the training of the body to respond to the changes of the soul's emotion.

**ENGLISH CLASSICS.** The work consists of a study of some of the minor English Classics. Those read during the past school



**The Chapel.** has a seating capacity of 1,500 and is used for public meetings and students' entertainment.

year were, Scott's *Lady of the Lake*, Longfellow's *Miles Standish*, Pope's *Essay on Criticism*, Arnold's *Sohrab and Rustum*, and Shakespeare's *Julius Caesar*. The object of this work is to create a taste for good literature and to furnish profitable drill in the art of reading.

**Sub-Fresh, I, II, III, 2. Elective to Others.**

**ELOCUTION.** 1. Physical culture, voice culture, articulation and light reading.

2. Inflection, pronunciation, gesture, and expressive reading.

3. Gesture continued, practical work in recitations and impersonation.

**Sub-Fresh, I, II, III, 3. Elective to Others.**

**DECLAMATIONS.** The reading or recitation of themes and essays prepared under the direction of the professors in different subjects.

**Fresh. bi-weekly throughout the year.**

## ENGLISH LANGUAGE AND LITERATURE.

**Professor MacEwan.**

**HIGHER ENGLISH GRAMMAR.** The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, with special attention to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors..

**Fresh, I, 5.**

**ELEMENTARY RHETORIC.** The principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narration. Longfellow's *Tales of a Wayside Inn*, furnishes matter for reproduction and study in versification.

**Fresh, II, 5.**

**RHETORICAL ARGUMENT.** Instead of more advanced rhetoric, the rules of argument are studied; and to illustrate and enforce these, some masterpieces are critically examined. The speeches in .. P. Baker's *Specimens of Argumentation* furnish

suitable material. Frequent oral and written exercises make the work entirely practical; debates, written and oral, are had on questions of general interest. Each student presents three written exercises.

**Soph. I, II, 2.**

**LITERATURE.** The first work in literature follows the elementary rhetoric. It is a critical study of short, complete classics—essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts are read:

Shakespeare's Merchant of Venice; Bacon's Essays—Selections; Milton's L'Allegro, Il Penseroso, Hymn, and Lycidas; Addison's Sir Roger De Coverly Papers; Pope's Rape of the Lock; Gray's Elegy in a Country Churchyard; Goldsmith's Deserted Village, and Traveller; Burns's Cottar's Saturday Night, and some other poems; Wordsworth's Ode on Immortality, and narratives from The Excursion; Irving's Sketchbook; Tennyson's Ulysses, Locksley Hall, Enoch Arden; Dickens's Christmas Carols, and selections from Emerson, Lowell, Holmes, Longfellow and Hawthorne.

**Fresh. III, 5.**

**LITERATURE.** The Second Course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention, and one day each week is given to reading Shakespeare. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses.

**Jun. I, 3. All courses.**

**LITERATURE ADVANCED.** The last term of the Senior year is given to the study of masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One week is given to each piece selected. The work of the classroom is largely a report of students, either oral or written, on what they have done by themselves.



Section of English Library.

The following course, or its equivalent—texts changing somewhat from year to year—is offered:

Shakespeare, two great tragedies, Hamlet, Macbeth, Lear, Othello; Webster, Reply to Hayne; Burke, Conciliation With American Colonies; Macaulay, Essays on Milton and Addison; Milton, Paradise Lost, I and II, Samson Agonistes; Carlyle, Essays on Burns, Hero as Prophet; Tennyson, Princess, or selected poems; Motley, Peter the Great; George Eliot, Silas Marner; Wordsworth, selected poems, Ed. by M. Arnold.

Sen. Ag. D. A. and Com. III, 5.

## GERMAN.

Professor MacEwan.

This is the only foreign language taught in the institution, and is in all the courses, three hours a week, during the Junior and Senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German



press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the Joynes-Meissner Grammar and Reading book, students are given such scientific reading material as will best equip them for using works of reference, and the publications of scientific institutions and societies; and such selections from classic German literature as are adapted to awaken an interest and stimulate a further reading. Tell, Nathan The Wise, Egmont, Hermann and Dorethea, Reisebilder, Ekkehard, Peter Schlemihl, Das Kalte Herz.

Jun. and Soph. I, II, III, 3.

## HISTORY.

Mrs. Eddy.

**THE UNITED STATES.** A course of lectures and recitations based on Fiske's History of the United States.

Sub-Fresh. II, III, 4.

**ANCIENT HISTORY.** Eastern nations and Greece; recitations from Myer's Ancient history; the rise and development of institutions.

Fresh. I, 2.

**ROMAN HISTORY.** The development of the Roman power and its expression in the civil law; political and general history of the Romans.

Fresh. II, 2.

**MEDIAEVAL HISTORY.** The overthrow of the Roman empire and the formation of modern nations. History of the middle ages.

Fresh. III, 2.

**MODERN HISTORY.** The history of England and the growth of the English constitution, are the chief topics, with some reference to the philosophy of history.

Soph. I, 3.

## HORTICULTURE AND ENTOMOLOGY.

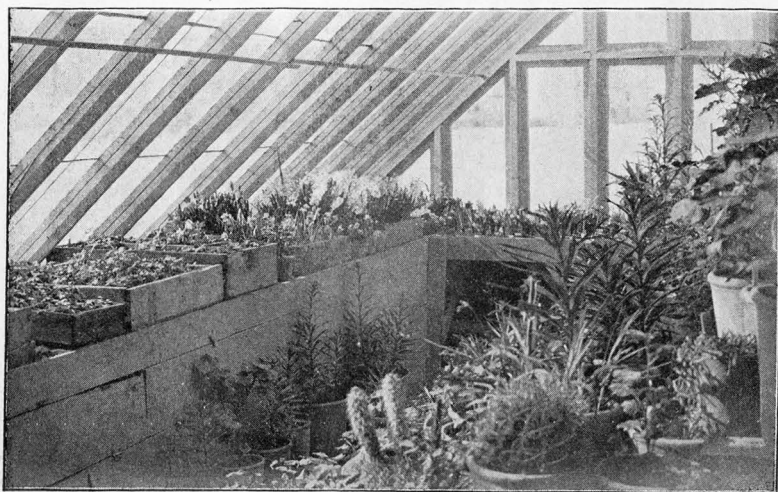
Professor Richman.

**FRUITS AND VEGETABLES.** Lectures and field work. Selection and preparation of the soil, methods of propagation, including seeding, grafting by the various methods, budding, layering, etc.; the pruning and care of orchards, picking, packing, marketing, and preservation of fruits.

Jun. Ag. D. A, I, 2.

**THE PROPAGATING HOUSE.** One afternoon of each week is given to root grafting and other work in the propagating house. Students in the Agricultural course take this work.

Jun. Ag. D. A, II, 2.



Interior of Green House.

**FORESTRY.** Propagation and care of the forest trees best adapted to this region. The grounds of the Horticultural Department contain a large number of the most promising kinds of forest and ornamental trees, which are studied as part of the field work of the department. Special attention is given to the effect of forests on the conservation of moisture, and the effect of the latter on the agriculture of the country.

**FLORICULTURE.** Instruction and practice in the care of house plants and flower gardening.

Jun. Ag. D. A, III, 2.

**ENTOMOLOGY.** Classes and life history of insects, especially those injurious to vegetation. Methods of exterminating destructive species. Lectures, with Packard's Entomology.

Sen. Ag. II, 2.

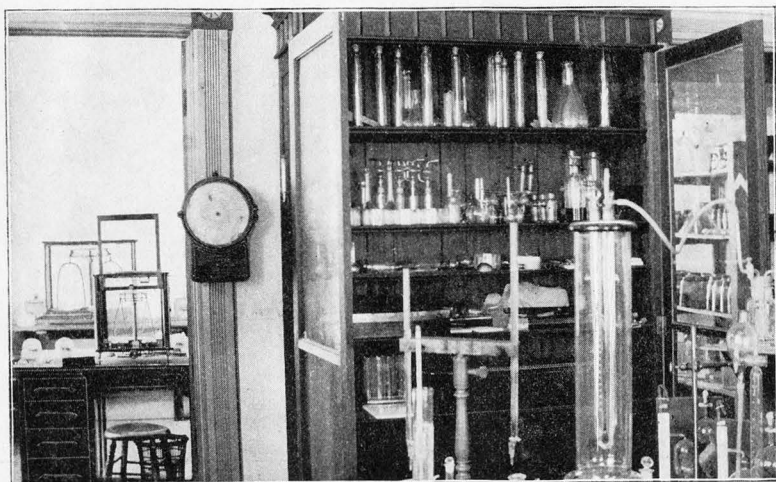
## MATHEMATICS.

**ALGEBRA.** A thorough drill in the elements of Algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions.

Fresh. II, III, 5. Langton.

**PLANE GEOMETRY.** Oral and written recitations in the elements of plane geometry. Required of Freshmen.

Fresh. I, 5. Styer.



**Scale Room.** Sets of balances for both ordinary and fine quantitative work in analyses are used by the students.

**HIGHER ALGEBRA.** Quadratic equations; simple indeterminate equations, inequalities, theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems.

Soph. 1, 2. Styer.

**SOLID GEOMETRY.** Recitations on the relation of lines and planes in space, area of surfaces; volume of solids; and the solution of practical problems.

Soph. I, 3. Styer.

**TRIGONOMETRY.** The use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulae.

**Soph. II, 5, except D. A. Styer.**

**SURVEYING.** Eleven weeks, two recitations and four hours field practice a week; the solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying, and the use of the level in establishing grades.

**Soph. III, 5, except D. A. Styer.**

**DESCRIPTIVE GEOMETRY.** The representation of and the solution of problems relating to geometrical magnitudes in space.

**Jun. Civ. and M. E. I, II, 2, Jensen.**

**CALCULUS.** General survey of the differential calculus, the solution of higher plane curves, and the ordinary methods of integration, following Osborne's text.

**Jun. Civ. E. and M. E. I, II, III, 5, 2, 5, Jensen.**

**ANALYTICAL GEOMETRY.** The reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

**Jun. C. E. and M. E. II, 5, Jensen.**

**DESCRIPTIVE GEOMETRY.** Orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and shadows; construction of maps; solution of problems relating to geometrical magnitudes.

**Jun. Civ. E. and M. E. I, II, 2, Jensen.**

Other courses in applied mathematics are described under Civil and Mechanical Engineering.

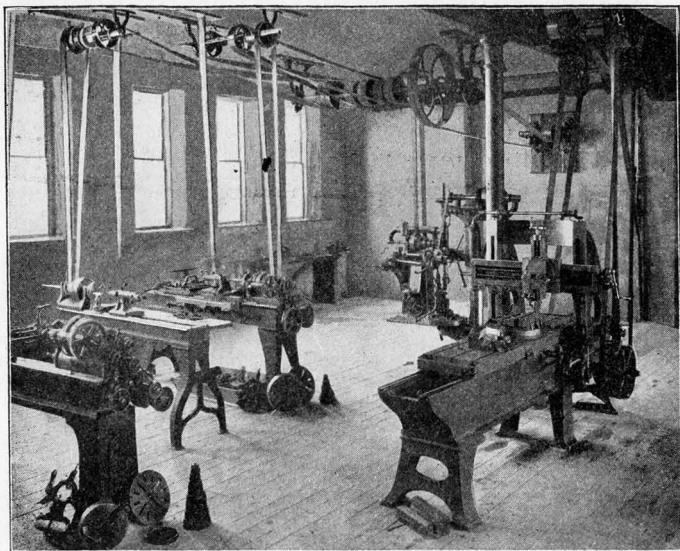
## MECHANICAL ENGINEERING.

**ELEMENTARY MECHANISM.** Study of the underlying principles of all mechanical construction, link work; toothed gearing, cams, belting, automatic feeds, clock-trains, etc.

**Jun. Civ. E. and M. E. III, 4, Jensen.**

**METALLURGY.** Consideration of the principal ores of iron; the processes of their reduction; and the characteristics of the various classes of iron and steel.

**Jun. Civ. and M. E. III, 5, Fortier.**



**Machine Shop.** The machinery includes a 2 x 2 x 6 feet iron planer, two 14-inch engine lathes, with attachments, a 20 inch drill press, emery grinder, a universal milling machine, etc.

**STEAM ENGINE.** A study of the various types of steam engine; the economic advantage of the compound and condensing engines; valves and valve gear; Zenner's diagram; use of the indicator; effect of reciprocating parts, and inertia of fly wheel.

Sen. Civ. and M. E. I, 5, Jensen.

**POWER, MEASUREMENT AND TRANSMISSION.** Measurements of power by means of the Prony break, and other forms of dynamometers; comparative efficiency of steam, gas, and electric motors; power absorbed by rope, leather belting, shafting, etc.

Sen. Civ. E. and M. E. II, 5, Jensen.

**MACHINE DESIGN.** The use of formulae in the designing of machines or parts of machines.

Sen. Civ. E. and M. E. II, 5, III, 2, Mayo.

**STEAM BOILERS.** A study of the construction, care, and management of steam boilers, with history of development of the steam engine.

Sen. Civ. and M. E. III, 5, Jensen.

**DRAWING AND EXPERIMENTAL WORK.** Testing experiments and the solution in the drawing room of practical engineering problems.

Sen. Civ. and M. E. I, 10, Fortier.

## MILITARY SCIENCE AND TACTICS.

Lieut. Styer.

This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and they are requested to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, they are required to appear in uniform as prescribed by the College.

**INFANTRY.** This includes all the movements described in the drill regulations of the U. S. Army from gymnastic instruction in the setting up exercises, the school of the soldier and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition. Instruction in signalling with flag and in military telegraphy.

**ARTILLERY.** This embraces drill in the manual of the piece, and target practice when practicable.

**THEORETICAL INSTRUCTION.** During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military science. Daily from 11:40 to 12:10 a. m. Required of all students except Juniors and Seniors.



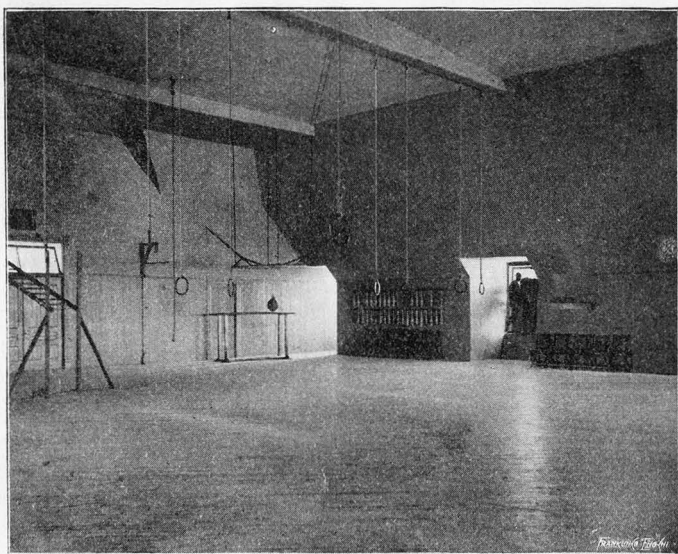
## PHYSICAL CULTURE.

**PHYSICAL CULTURE.** Systematic exercises in free gymnastics, and in light gymnastics with Indian clubs, dumb-bells, swings, and weight machines.

**Fresh. and Soph. D. A. I, II, III, 3, Kenyon.**

**LADIES' MILITARY DRILL.** Regular infantry tactics with light rifles.

**Fresh. and Soph. I, II, III, 2, Kenyon.**



**The Gymnasium** is 70 feet square, and is equipped with weight machines, swings, ladders, bowling alley, Indian clubs, dumb-bells, and other appliances.

## MECHANIC ARTS.

## I. FRESHMAN YEAR.

**TECHNICAL INSTRUCTION.** (a) Lectures and recitations on the forms and use of wood-working tools.

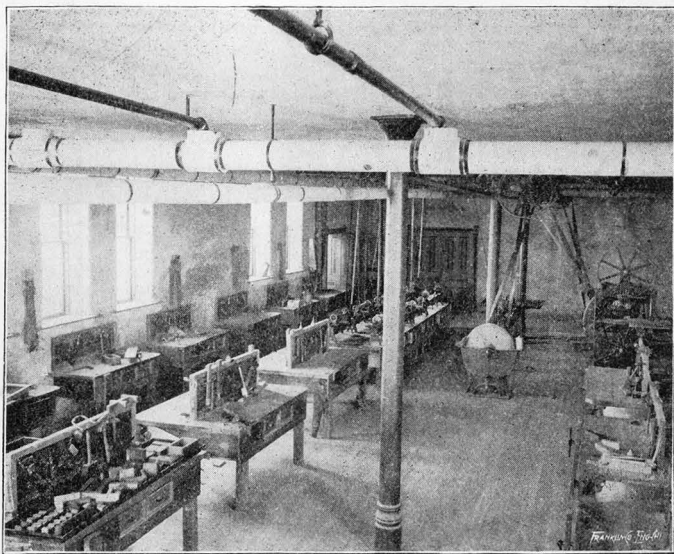
(b) Lectures and recitations on the growth, felling and seasoning of timber.

(c) Lectures on the construction and operation of wood-working machines.

**Fresh. I, 2, Mayo.**

**MECHANICAL DRAWING.** In the first year is taught the use of drawing instruments in the solution of geometric problems and the principles of projections. The student is also required to sketch parts of machines, take necessary measurements and prepare working drawings, making the tracings and blue prints.

Jun. Civ. E. and M. E. II, III, 5, Mayo.



**Wood Shop.** Each student has a bench and a complete set of carpenters tools of the most approved make. Power saws and planing machines are in the same room. Nearby are commodious store-rooms.

### FRESHMAN SHOP WORK.

(a) **BENCH WORK IN WOOD** Includes exercises in planing, sawing, chiseling, rabbiting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and general use of carpenters tools.

(b) **WOOD TURNING** Covers all the principles of straight turning, face plane and chuck work. **Fresh. I. 10, Mayo.**

(c) **IRON FORGING** Embraces the following principles; drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flatters, fullers, swages, etc. These principles are applied in the making of a pair of tongs for use in shop. Other articles are made, such as andirons, ornamental gates, etc., if time will permit.

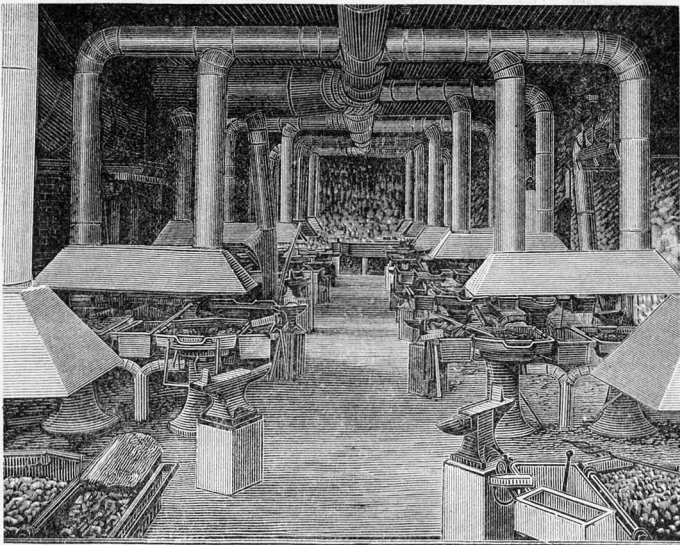
(d) **STEEL FORGING** Embraces the forging and tempering of punches, cold chisels, drills, lathe and planer tools, springs, etc. The welding of steel to iron and iron to steel, annealing, case hardening, and coloring are also taught.

Fresh. II, 10, Mayo.

(e) **CABINET MAKING** Is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood-carving added.

(f) **WOOD-CARVING** Is given only to special students who have the necessary preparation.

Fresh. III, 6, Mayo.



**Forge Room.** Twenty-four power-blaze forges, with anvils, vises, and all necessary tools, afford practice in the usual operations of iron and steel work at the forge.

## II. JUNIOR YEAR.

### TECHNICAL INSTRUCTION.

(a) Theory of Pattern Making.

Thirty-two lectures

(b) Metal Working Appliances.

Twenty lectures.

Mechanical Drawing.

Thirty-six weeks, ten hours per

week.

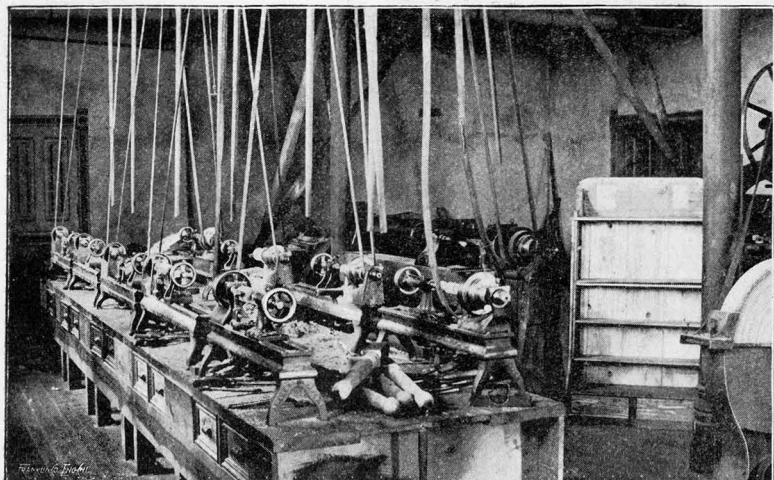
Solution of problems in descriptive Geometry, and a few lessons in Isometric Perspective.

Jun. M. E. I, II, III, 10, Mayo.

## ADVANCED SHOPWORK.

(a) **PATTERN MAKING**, Embraces a number of exercises in the construction of simple and built up patterns and core boxes.

(b) **VICE WORK** In iron embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of kep seats, riveting, brazing and soldering.



**Lathes and  
Wood Turning.**

The lathes are adapted to first class work, and each student turns out a complete set of wood turnings.

(c) **MACHINE WORK**, Embracing straight, paper and eccentric turning, thread cutting, face plate and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail and T grooves, and kep seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.

Jun. M. E. I, II, III, 10, Mayo.

## PHILOSOPHY.

**PSYCHOLOGY.** A study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized; and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

Jun. or Sen. I, 3, Paul.

Elective with others prepared to pursue the study.

**LOGIC.** The science of reasoning is considered by text-book lessons from Hills-Jevons Logic. The chapters on Forms, Propositions, Syllogisms, Induction, Deduction, and Fallacies are studied and recited.

Jun. or Sen. II, 3, Styer.

**ETHICS.** A series of lectures and text-book lessons, furnish the student with themes and materials for original essays and orations. This gives a grasp of the fundamentals of ethical doctrine, and affords practice in speaking and writing. Twice a week during the spring term

Jun. or Sen. III, 2, Caine.

**AESTHETICS.** A series of lessons on the science of taste and the theories of the beautiful in art and nature. Reference to the history and development of the fine arts is frequently made, and the subject is elucidated by concrete examples and suggestive illustrations. Three times a week throughout the fall term.

Sen. D. A. I, 3, Cotey.

**HISTORY OF THE FINE ARTS.** Ten lectures during the winter term, in connection with advanced drawing. Elective to Seniors in Domestic Arts.

## PHYSICS.

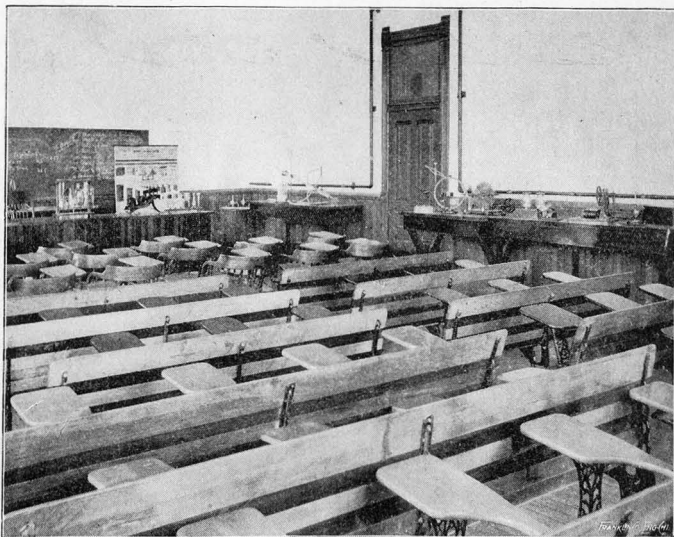
Professor Jensen.

**ELEMENTARY PHYSICS.** This is an introductory science course, in which the important laws of Natural Philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems bearing on the subject in hand are solved in and out of the class room.

Fresh, I, II, 3.

**PHYSICAL MEASUREMENTS.** Sound, Heat and Light. Essentially a course in exact quantitative measurements. Each student illustrates and verifies the laws of Sound, Heat, and Light by mean of a series of experiments in the physical laboratory. The work is performed with the utmost care; sources of error are eliminated as far as possible, and the error of each experiment is determined. As a training in accuracy of work and judgment the performance of such experiments stands foremost.

**Soph. I, 4.**



**The Physical  
Lecture Room.**

has seats for fifty students and the laboratory can be arranged to accommodate about the same number.

**PHYSICAL MEASUREMENTS.** Electricity and Magnetism. A continuation of course 2, dealing with the laws of electricity and magnetism; the practical methods of measuring strengths of currents resistances and voltages, and the construction and handling of electrical appliances. Here, as in course 2, the thoroughly equipped laboratory furnishes the students with exceptional advantages.

**Soph. II, 4.**

**ELEMENTARY MECHANICS.** Study of the laws of force and motion, solution of problems in the construction of buildings; and in the use of machines; with laboratory demonstrations.

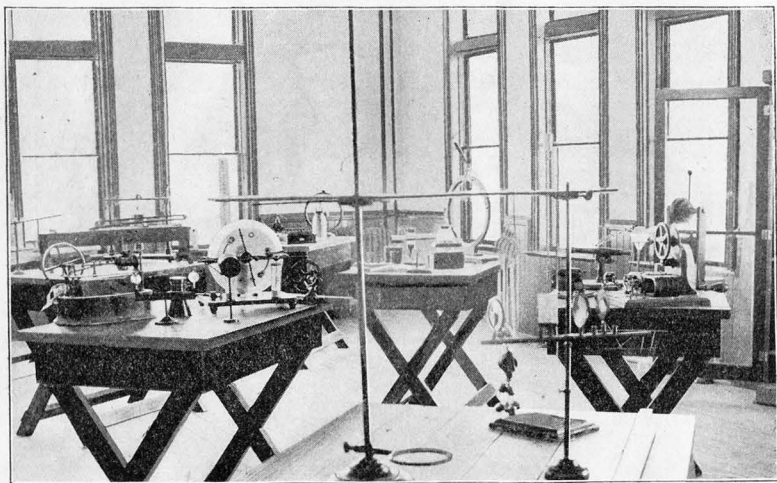
**Soph. III, 7.**



**ADVANCED PHYSICS.** Heat, steam engine, steam boilers, electricity, elements of mechanism and other courses in higher and applied physics are described under Civil and Mechanical Engineering.

**METEOROLOGY.** This includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

III, 2. Jun. and Sen. Elective, Dryden.



**Physical Laboratory.** The laboratory exercises are so planned as to require quantitative results even in elementary work. In advanced courses, the student is expected to derive his own constants and plan his own work.

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# POLITICAL SCIENCE AND SOCIOLOGY.

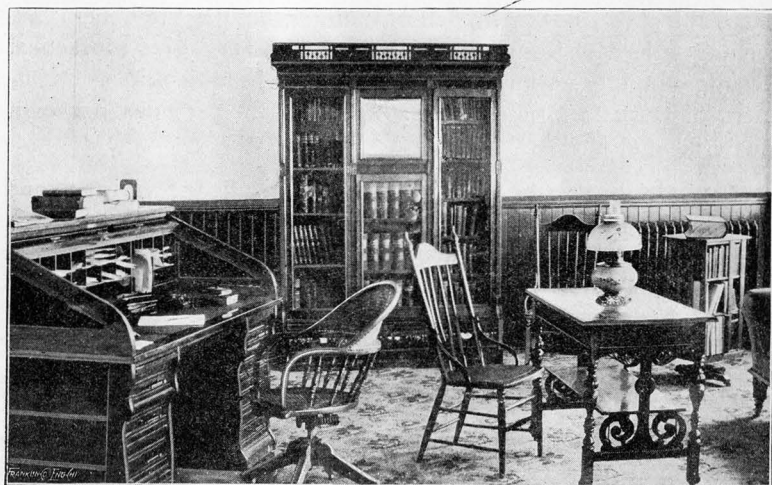
**President Paul.**

## **CIVIL GOVERNMENT AND CONSTITUTIONAL LAW.**

**A**

study of the township, county, municipal, state, and national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The present meaning and force of the national constitution is also considered. Fiske's Civil Government and Cooley's Constitutional Law.

**Soph. II and III, 2, Eddy.**



**President's Office.**

**SOCIOLOGY.** The state as an organism, crime and its causes, the nationalization of land, and other questions are investigated mainly by assigned readings in the library. Elective to students who have completed history, civil government, and political economy.

**Sen. Elective I, 2, Paul.**

**POLITICAL ECONOMY.** Three recitations per week from Laveye's Political Economy, supplemented by illustrative statistics, explanations, and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the discussion of the economic problems that now engage the highest thought of our country.

**Soph. II, 3, Paul.**

**ADVANCED POLITICAL ECONOMY.** Problems of the day—taxation, railways, co-operation, coinage and money, pauperism, etc.—treated by lectures and assigned readings.

**Sen. Elective, II, 2, Paul.**

**COMMERCIAL ECONOMICS.** See under Commercial Branches.

## SEWING.

**Miss Bowen.**

The object of this branch of training, besides the general advantages derived from industrial education, is to give a practical training in the sewing which every household requires. Neatness of work is insisted upon. The student provides her own material and makes her own dresses.

**PLAIN SEWING.** Practice is given first in the various hand stitches used in muslin and woolen goods; overhanding, running, hemming, hem-stitching, overcasting, felling, gathering and stroking gather, buttonholes, gusset, patching and darning, French hem on damask, etc.

**Sub. Fresh, I, II, III, 3.**

**DRESSMAKING.** At least two muslin garments are made. A gown is cut out, basted and entirely made by the student.

**Fresh. D. A. I, 2, II, III, 5.**

**DESIGNING, CUTTING AND FITTING.** This work consists of talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to draw the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

**Jun. D. A. II, 5.**

**FANCY WORK.** This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn work, etc.

**Sen. D. A. II, 5.**

**MILLINERY.** This course comprises instruction in frame-making, facings, shirring, making bows, lining, wiring, etc. General instruction is given in making tasteful hats and bonnets.

**Jun. D. A. III, 2.**

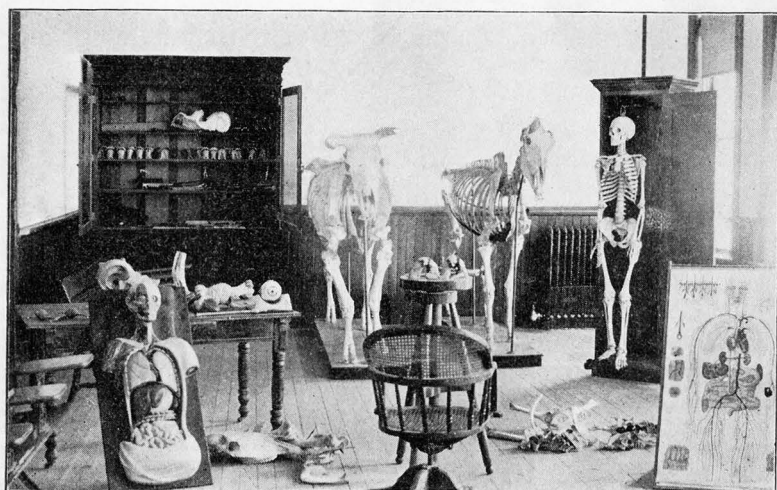
# ANATOMY AND PHYSIOLOGY.

**ANATOMY AND PHYSIOLOGY.** Lectures and recitations on human and comparative anatomy illustrated by models, anatomical preparations, diagrams, and dissections.

Jun. Ag. D. A. and Com. II, 4, III, 3, Brewer.

**VETERINARY SCIENCE.** Anatomy, physiology and hygiene of farm animals; zymotic, parasitic, dietetic, and constitutional diseases of domestic animals; prevention of animal plagues by legislative and individual action; general diseases of different systems of organs in domestic animals, together with clinical demonstrations.

Sen. Ag. I, II, 8, III, 6. Fischer.



**Dissections** of animals are made by students in the veterinary laboratory, located a short distance from the main building. The cut shows the class-room in human and comparative anatomy.

**LABORATORY WORK.** The lecture course is supplemented by laboratory work both in the winter (2) and spring (6); here the student devotes his time to dissections on small animals; the study of osteology; together with a consideration of the elements of histology.

Jun. Ag. & D. A. & El. Sc. Brewer.

## SHORT COURSES.

Three short courses are offered, for the encouragement of students who may not be able to continue longer than two years. These two-year courses have been so arranged that the student may, after graduation, enter the third year of the regular courses, under certain conditions.

## SHORT COURSE IN AGRICULTURE.

No student under seventeen years of age is admitted to this course, which has been arranged to meet the needs of persons of mature years who do not take a regular College course. The mathematics and the language study of the first year is either of the Sub-Freshman or of the Freshman grade, according to the advancement of the student.

## FIRST YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Agriculture.	3	Agriculture.	3	Agriculture.	3
Grammar.	4	Grammar.	5	Botany.	3
Arithmetic.	4	Arithmetic.	5	Physiology.	5
U. S. History.	4	Physical Geography.		Geology.	5
		Afternoon Work.			
		THIRD TERM.		SECOND TERM.	
FIRST TERM.		Shopwork in Iron.	4	Agriculture.	2
Free-Hand Drawing.	2	Mineralogy and Lithology.	6	Shopwork in Wood.	4
Shopwork in Wood.	4			Geology.	2
Agriculture.	2				

## SECOND YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Dairying.	3	Agriculture.	3	Agriculture.	3
General and Agricultural Chemistry.	5	General and Agricultural Chemistry.	5	Literature.	5
Economic Botany.	3	Veterinary Science.	3	Horticulture.	2
Physics.	3	Entomology.	3	Composition.	5
		Afternoon Work.			
Cheese Making (Mondays.)	2	Agriculture.	2	Agriculture.	4
Butter Making.	2	Horticulture.	2	Dairying or Shop Work.	6
Chemical Experiments.	6	Chemical Analysis.	6		

## SHORT COURSE IN DOMESTIC ARTS.

Upon completion of the Freshman and the Sophomore year of the regular course in Domestic Arts (page 22) the student is entitled to a certificate of graduation in the short course.

# SHORT COMMERCIAL COURSE.

## FIRST YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
English Grammar.	5	Rhetoric.	5	Literature.	5.
Plane Geometry.	5	Algebra.	5	Algebra.	5
Military Drill.		Military Drill.		Military Drill.	
Ancient History.	2	Elementary Physics.	3	Science of Book-Keeping.	3
Elementary Physics.	3	Ancient History.	2	Mediaeval History.	2

## Afternoon Work.

Typewriting.	5	Typewriting.	5	Typewriting.	5
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## SECOND YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Stenography.	4	Stenography.	4	Stenography.	4
Solid Geometry.	3	Commercial Law.	5	Commercial Law.	5
Rhetoric.	2	Political Economy.	3	Civil Government and Constitutional Law.	2
Commercial Geography	3	Rhetoric.	2		
		Civil Government.	2		

## Afternoon Work.

Practical work in bookkeeping, banking, freighting, insurance, real estate, etc.

# PREPARATORY DEPARTMENT.

Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some the schools are quite primitive. As a consequence many young men and women who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the Territory, and now feel that they are entitled to a share in its intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are do not provide instruction generally adapted to the age and wants of the class of whom we speak.

It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies:

## SUB-FRESHMAN YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Grammar.	4	Grammar.	4	Composition.	4
Arithmetic.	4	Arithmetic.	4	Arithmetic.	4
Physical Geography		U. S. History.	4	U. S. History.	4
		Elocution.	3	Elocution.	3
Political Geography.	4	Drawing.	2	Drawing.	2
Elocution.	3	Shopwork.	3	Shopwork.	3
Drawing.	2	Or Sewing.	3	Or Sewing.	3
Shopwork.	3				
Or Sewing.	3				

This preparation fits students for the several courses of College study. It will be seen that the elements of certain industrial exercises have been included. English classics, penmanship and spelling are also offered in this grade.



## WINTER COURSE FOR FARMERS.

Beginning in January, a course of special lectures in agriculture is given for the benefit of any farmer that may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and continues one term, till the end of March.

A special circular describing this course will be mailed upon application.

## WINTER COURSE FOR WOMEN.

A special course in sewing, household management, cooking and such literary or scientific studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term.

Special circulars describing this course are issued.



Samples of Woodwork.

# SUMMARY OF WORK AND PROGRAMME OF CLASS RECITATIONS.

## FIRST TERM.

### FIRST HOUR.

Times.	Class.	Teacher.	Taken By.
2	Botany.	Fischer.	Soph.
3	Econ. Bot.	Fischer.	Sen. Ag.
3	Hist. of Ag.	Mills.	Jun. Ag.
5	Hist. of Com.	Shepard.	S. M.
5	Pol. Geog.	Shepard	Sen. Com.
5	Grammar.	MacEwan.	Fresh.
5	Plane Geom.	Styer.	Fresh.
5	Higher Sur.	Fortier.	Sen. C. E.
1	Shopwork.	Mayo.	Sub. F.
5	Steam En.	Jensen.	Sen. M. E.
5	Sewing.	Bowen.	D. A.
5	Com. Arith.	Caine.	Jun. Com.
4	Arithmetic.	Langton.	Sub. Fr.

### SECOND HOUR.

3	Psychology.	Paul.	J. A. & D. A.
4	Pol. Geog.	Eddy.	Sub-F.
4	Stenography.	Dryden.	Com.
5	Grammar.	MacEwan.	Fresh.
3	English Classics.	Kenyon	Prep.
5	Plane Geom.	Styer.	Fresh.
3	Irr. Eng.	Fortier.	Sen. C. E.
2	Munic. Eng.	Fortier.	Sen. C. E.
3	Dairying.	Linfield.	Sen. Ag.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Jun. Ag.
5	Calculus.	Jensen.	J. C. E. & M. E.
4	Grammar.	Caine.	S. F.

### Laboratory Work (Afternoons.)

6	Bacteriology.	Brewer.	Jun.
6	Biology.	Brewer.	Sen.
10	Field, Eng.		
	& Ex. Work.	Fortier.	Sen.
10	Dairy Prac.	Linfield.	Jun.
4	Hand. Stock.	Linfield.	Jun.
10	Mach. Work		
	in Iron &		

### THIRD HOUR.

Times.	Subject.	Teacher.	Taken By.
2	Sociology.	Paul.	Jun. Agr.
2	Horticul.	Richman.	Jun. Ag.
4	Com. Law.	Shepard.	S. Com.
3	History.	Eddy.	Sen.
2	Rhetoric.	MacEwan.	Soph.
3	German.	MacEwan.	Sen.
3	Biology.	Brewer.	Special.
	Declamation.	Kenyon.	Fresh.
3	Solid Geom.	Styer.	Soph.
5	App. Mech.	Fortier.	
1	Shopwork.	Mayo.	Sub. F.
4	Household Man.	Cotey.	S. D. A.
3	Ele. Physics.	Jensen.	Fresh.
2	Desc. Geom.	Jensen.	J. M. E.
5	Grammar.	Caine.	Prep.
4	Phys. Geog.	Langton.	Sub. F.

### FOURTH HOUR.

3	History.	Eddy.	Sen.
2	History.	Eddy.	Fresh.
3	Eng. Lit.	MacEwan.	Jun.
2	German.	MacEwan.	Sen.
3	Elocution.	Kenyon.	S. F.
	Declamations.	Kenyon.	Fresh.
2	Higher Algebra.	Styer.	Soph.
2	Surveying.	Fortier.	J. C. E.
2	Drawing.	Mayo.	S. F.
4	Vet Science.	Fischer.	Sen. Ag.
5	Arithmetic.	Langton.	Prep.

	Designing.	Mayo.	Jun.
6	Chemistry.	Widtsoe.	Soph.
4	Sound, Heat		
	& Light.	Jensen.	Soph.
2	Penmanship.	Hyde.	Fresh.
4	Vet. Science.	Fischer.	Sen.
10	Sewing.	Bowen.	Fresh.
10	Woodwork.	Mayo.	Fresh.

## SECOND TERM.

### FIRST HOUR.

4	Com. Law.	Shepard.	Sen.
2	Civil Govern.	Eddy.	Soph.
5	Rhetoric.	MacEwan.	Fresh.
4	Anat. & Phys.	Brewer.	Jun.
5	Algebra.	Lang.	Fresh.
5	Hydraulics.	Fortier.	Jun.
1	Shopwork.	Mayo.	S. F.
5	Org. Chem.	Widtsoe.	Special.
2	Mach. Design.	Jensen.	Sen.
3	Pow., M't., etc.	Jensen.	Sen.
3	Agriculture.	Fischer.	
5	Grammar.	Caine.	Prep.

### SECOND HOUR.

5	Special Course.	Richman.	Special.
5	Spec. Course.	Richman.	Special.
3	Farm Irrig.	Mills.	Jun.
4	Bookkeeping.	Shepard.	Sen.
5	Geography.	Eddy.	Prep.
4	Stenography.	Dryden.	Sen.
5	Rhetoric.	MacEwan.	Fresh.
2	Zoology.	Brewer.	Soph.
5	Algebra.	Langton.	Fresh.
2	Mun. Engi.	Fortier.	Sen.
5	Irr. Engi.	Fortier.	Sen.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Soph.
2	Agr. Chem.	Widtsoe.	Jun.
5	Analyt. Geom.	Jensen.	Jun.
5	Spec. Course.	Fischer.	Special.
5	Sewing.	Bowen.	
5	Grammar.	Caine.	S. F.

### THIRD HOUR.

3	Com. Econ.	Shepard.	Sen. Com.
2	History.	Eddy.	Fresh.
3	German.	MacEwan.	Jun.
2	Zoology.	Brewer.	Jun.
3	Elocution.	Kenyon.	S. F.
5	Trigonometry.	Styer.	Soph.
5	Graphical Stat.	Fortier.	S. E. C.
5	Spec. Course.	Linfield.	Special.
2	Drawing.	Mayo.	S. F.
4	Cooking.	Cotey.	Soph.
3	Physics.	Jensen.	Jun.
2	Calculus.	Jensen.	Jun.
4	Vet. Science.	Fischer.	Sen. Ag.
5	Arithmetic.	Langton.	Prep.

### FOURTH HOUR.

4	U. S. History.	Eddy.	S. F.
2	Rhetoric.	MacEwan.	Soph.
3	German.	MacEwan.	Sen.
	Declamations.	Kenyon.	Fresh.
1	Shopwork.	Mayo.	S. F.
3	Mech. Draw.	Mayo.	Jun.
2	Desc. Geom.	Jensen.	Jun.
3	Logic.	Styer.	Jun.
3	Eng. Classics.	Styer.	Prep.
4	Arithmetic.	Langton.	S. F.

## Laboratory Work (Afternoons.)

Times.	Subject.	Teacher.	Taken by
10	Bookkeeping.	Shepard.	Jun.
4	Anatomy.	Brewer.	Jun.
6	Biology.	Brewer.	Sen.
10	Drawing & Designing.	Mayo.	Jun.
10	Drawing.	Mayo.	Jun. & Sen.
6	Mineralogy.	Widtsoe.	Jun.
6	Chemistry.	Widtsoe.	Soph.
4	Cooking.	Cotey.	Soph. & Jun.
4	Vet. Science.	Fischer.	Sen.

Times.	Subject.	Teacher.	Taken By.
2	Agri. Practice.	Mills.	Jun.
4	Elect. & Mag.	Jensen.	Sen.
10	Special Course.	Linfield.	Special.
6	Chemistry.	Widtsoe.	Soph.
4	Electricity and Magnetism.	Jensen.	Soph.
2	Penmanship.	Hyde.	Fresh.
10	Sewing.	Bowen.	Fresh.
10	Forgework.	Mayo.	Fresh.

## THIRD TERM.

## FIRST HOUR.

5	Ele. Mech.	Jensen.	Soph.
4	Com. Law.	Shepard.	Sen.
4	Hist. Reading.	Eddy.	Prep.
5	Literature.	MacEwan.	Fresh.
3	Biology.	Brewer.	Sen.
5	Algebra.	Langton.	Fresh.
5	Mat. & Engi.	Fortier.	Jun.
1	Shopwork.	Mayo.	S. F.
4	Sc. of Nutrition.	Cotey.	Soph.
5	Sewing.	Bowen.	
5	Geology.	Caine.	J. & S.
4	Arithmetic.	Langton.	S. F.
3	Sanitary Sci.	Brewer.	Soph.

## SECOND HOUR.

4	Stenography.	Dryden.	Sen.
5	Literature.	MacEwan.	Fresh.
3	Physiology.	Brewer.	Jun.
5	Algebra.	Langton.	Fresh.
2	Horticulture.	Richman.	Jun.
5	Roads & Pa'm'ts.	Fortier.	Sen.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Soph.
5	Calculus.	Jensen.	Jun.
2	Vet. Science.	Fischer.	Sen.
2	Millinery.	Bowen.	Jun.
4	Composition.	Caine.	S. F.
3	Eng. Classics.	Styer.	Prep.

## THIRD HOUR.

2	Floriculture.	Richman.	Soph.
4	U. S. History.	Eddy.	S. F.
4	Typewriting.	Dryden.	Jun.
5	Literature.	MacEwan.	Sen.
2	San. Science.	Brewer.	Special.
	Declamations.	Kenyon.	S. F.
2	Surveying.	Styer.	Soph.
3	App. Elec.	Fortier.	
1	Shopwork.	Mayo.	S. F.
4	Dom. Hygiene.	Cotey.	Jun.
5	Ele'm'ts of Mech.	Jensen.	Jun.
3	Agriculture.	Fischer.	Jun.
5	Sewing.	Bowen.	
4	Grammar.	Caine.	Prep
5	Penmanship.	Langton.	

## FOURTH HOUR.

2	History.	Eddy.	Fresh.
2	Civil Gov.	Eddy.	Soph.
3	German.	MacEwan.	Sen.
3	German.	MacEwan.	Jun.
3	Elocution.	Kenyon.	S. F.
2	Mech. Draw.	Fortier.	Jun.
2	Drawing.	Mayo.	S. F.
1	Shopwork.	Mayo.	S. F.
5	Steam. Boil.	Jensen.	Sen.
3	Botany.	Fischer.	Fresh.
5	Sewing.	Bowen.	
2	Ethics.	Caine.	Jun.
4	Arithmetic.	Langton.	Sh. Com.
3	Sci. Book'g.	Shepard.	Com.

## Laboratory Work (Afternoons.)

## THIRD TERM.

2	Field Agri.	Mills.	Jun.
10	Bookkeeping.	Shepard.	Jun.
10	Surveying, etc.	Fortier.	Sen.
4	Hand. Stock.	Linfield.	Sen.
6	Chem.	Widtsoe.	Soph.
4	Cooking.	Cotey.	Jun.
6	Anatomy.	Brewer.	Jun.
6	Biology.	Brewer.	Jun.

4	Surveying.	Styer.	Soph.
2	Mach. Des.	Jensen.	Sen.
2	Geom. Draw.	Jensen.	Jun.
10	Sewing.	Bowen.	Fresh.
2	Geology.	Caine.	Jun.
5	Astronomy.	Langton.	Sen.
6	Shopwork.	Mayo.	Fresh.
4	Vet. Science.	Fischer.	Sen.

### EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one-third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject upon examination. In all four year courses, an average of final marks, of not less than 75 per cent., with no mark less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month, may be dropped from the class.

### GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four year courses. A certificate is granted for the completion of any short course.

### COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the College course; for a single term \$2.50. The privileges of the library, museums, etc., are free to students. In the chemical laboratory, work shops and cooking rooms, students are charged for the cost of the materials actually used up by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificates of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

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### CHEMISTRY.

(Omitted from page 33.)

**Professor Widtsoe.**

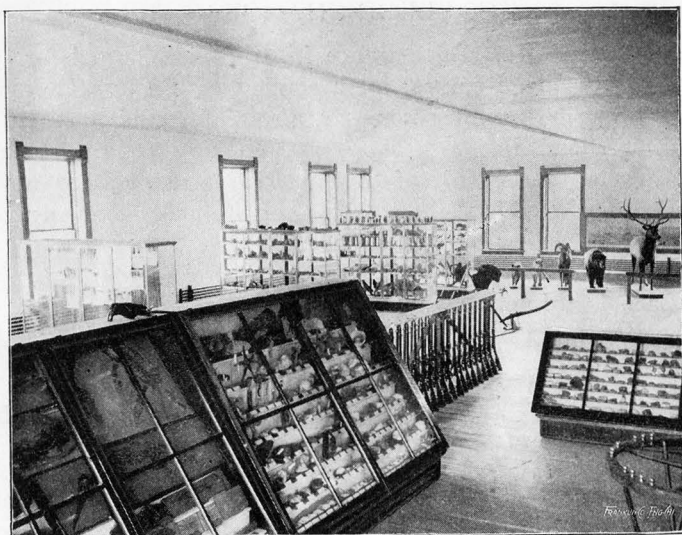
**ELEMENTARY CHEMISTRY:** A study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions; and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take course 2.

Soph. I, II, III, 3.

## CONTRIBUTIONS TO THE MUSEUM.

We acknowledge with thanks substantial favors from the following contributors

Silver King Mining Company.....	Minerals and Ores.
Butterfield Mining Company.....	Minerals and Ores.
Joseph Dixon Crucible Company, Jersey City, N. J.....	Graphite Specimens and Graphite Preparation.....
Thomas Griffin.....	Prizo Model of Steam Engine.
J. M. Macfarlane.....	Gold and Silver Minerals from Southern Utah.
J. H. Brown Marble Co.....	Specimen of Native Ornamental Marble.
Ezra Eames.....	Paleolithic Flints.
Jas. P. Law.....	Copper Ores.
Julius Johnson.....	Salt Crystals from Nevada.
Wm. Calder.....	Specimens of Chalcopyrite.
Henry James.....	Cache Valley Minerals.
A. L. Greene.....	Collection of Shells and Woods from the Samoan Islands.
John Reed.....	Indian Arrow-Heads and Relics.
Grant Soap Co.....	Salt Lake Temple Carved in Soap.
R. S. Betts, Benjamin, Utah..	Mineral Specimens.



**The  
Museum.**

contains 4,500 species of Rocky Mountain Flora, 400 microscopic slides geological, biological, and mineralogical sets, farm products, curios, etc.; and collections of native woods and Utah farm products.

FRESHMAN

Allen, Mary I.....	Logan.	Hayball, Alfred H.....	Logan.
Anderson, Mary.....	Logan.	Hess, J. A.....	Georgetown, Idaho.
Atkinson, Fred.....	Dayton, Idaho.	Holden, Edward H. Jr.....	Logan.
Bailey, Beulah.....	Sanford, Colo.	Holther, J. D.....	Ogden.
Baker, John S.....	Mendon.	Horner, Rose.....	Oxford, Idaho.
Bankhead, John.....	Wellsville.	Horner, W. H., Jr.....	Oxford, Idaho.
Barker, Olla M.....	Ogden.	Hubbard, Jennie.....	Willard.
Beers, William.....	Antelope, Idaho.	Jrvine, Ray.....	Logan.
Berryman, C. W.....	Blackfoot, Idaho.	Kent, Jesse.....	Lewiston.
Boyd, Walter M.....	Coalville.	Lee, Ernest A.....	Springville.
Brossard, Louis.....	Oxford, Idaho.	Lee, James A.....	Taylorville.
Bullen, Ethel.....	Richmond.	Lessing, Isadore.....	Minersville.
Bullen, Mabel.....	Richmond.	Macfarlane, John M.....	St. George.
Bunce, Emma.....	Logan.	Maughan, Elizabeth.....	Petersboro.
Bybee, Mary J.....	Lewiston.	McCausland, Georgina.....	Logan.
Cafferty, Carrie M.....	Lewiston.	McCune, Edward H.....	Nephi.
Cantwell, Ambrosine.....	Millville.	Merrill, Ezra J.....	Richmond.
Carver, Lewis H.....	Plain City.	Merrill, F. M.....	Richmond.
Clark, Fred G.....	Ogden.	Merrill, Lucille.....	Richmond.
Clemens, Edith.....	Soda Springs, Idaho.	Molen, William.....	Menan, Idaho.
Cole, Sarah E.....	Logan.	Page, Nellie.....	Payson.
Craggan, Katie.....	Smithfield.	Paul, Maude.....	Logan.
Crockett, Fred W.....	Logan.	Peterson, Hanst.....	Smithfield.
Crockett, John A.....	Logan.	Peterson, William.....	Bloomington, Ida.
Deal, Roe A.....	Springville.	Pitkin, Agnes.....	Millville.
Eliaison, Isaac.....	Soda Springs, Idaho.	Pond, Charles.....	Lewiston.
Ellsworth, Frank.....	Lewisville, Idaho.	Poulson, Andrew J.....	Richfield.
Fernette, Frank.....	Park City.	Pugmire, Nora.....	St. Charles, Idaho.
Fisher, Minnie.....	Oxford, Idaho.	Rainey, Jennie.....	Richmond.
Fjeldsted, Estella.....	Logan.	Smith, Winifred.....	Beaver.
Funk, Jas. W.....	Richmond.	Sorensen, Joseph.....	Huntsville.
Gibson, Wesley.....	Smithfield.	Stone, Ellen.....	Logan.
Griffin, Ute E.....	Richmond.	Stowell, Ephraim.....	Logan.
Hamson, Claudia.....	Oxford, Idaho.	Tarbet, Annie.....	Logan.
Hansen, N. M. Jr.....	Logan.	Toolson, George.....	Smithfield.
Hansen, Peter C.....	Soda Springs, Ida.	Van Orden, Wm.....	Lewiston.
Harris, Alexander.....	Richmond.	Weaver, Ida.....	Ibapah.
Harris, A. L.....	Richmond.	Widdsoe, Osborne.....	Logan.
Harris, Gertrude.....	Lewiston.	Wride, Minnie N.....	Payson.
Harris, Harry.....	Beaver.	Wright, Lester T.....	Ogden.
Harris, S. A.....	Junction.		

PREPARATORY & SUB-FRESHMAN.

Anderson, Lottie.....	Weston, Idaho.	Larson, Hyrum M.....	Newton.
Anderson, Robert.....	Logan.	Larson, J. J.....	Newton.
Andrus, A. B.....	St. George.	Larson, Victoria.....	Collinston.
Andrus, Gideon.....	St. George.	Lee, Frank A.....	Leoni, Idaho.
Baker, Willard.....	Mendon.	Leishman, Ida.....	Logan.
Ballif, Joseph F.....	Logan.	Lewis, Eugene.....	Logan.
Beck, Samuel.....	Salt Lake City.	Lewis, Thos. C.....	Logan.
Bergeson, John.....	Lewiston.	Martineau, Theodore.....	Juarez, Mex.
Bernhisel, Julia A.....	Lewiston.	Mathews, Hopkin C.....	Providence.
Bindrup, Martha.....	College Ward.	Matson, Amanda.....	Logan.
Brower, Geo. Alvin.....	Lewiston.	McAlister, W. L.....	Logan.
Brower, Wm. G.....	Lewiston.	McCann, Mary A.....	Smithfield.
Brown, Agnes M.....	Wellsville.	McCracken, Wm. R.....	Smithfield.
Brown, Lucy.....	Providence.	McGarry, James.....	Beaver.
Bridge, Frank.....	Paris, Idaho.	McLean, Andrew.....	Chicago.
Buelher, Louisa.....	Logan.	McNeil, Ellen.....	Logan.
Bullock, Winnie B.....	Providence.	Medford, Albert.....	Gentile Valley, Ida.
Burton, Winnie B.....	Custer, Idaho.	Medford, J. F.....	Gentile Valley, Ida.
Callan, Steven Jas.....	Dayton, Idaho.	Mendenhall, Ada.....	Franklin, Idaho.
Cantwell, Harriet.....	Millville.	Mendenhall, Lorin.....	Franklin, Idaho.
Chambers, Thos. H.....	Smithfield.	Mendenhall, Neoma.....	Franklin, Ida.
Christensen, Ephraim.....	Logan.	Merrill, Frederick W.....	Richmond.
Christensen, Nephi.....	Newton.	Middleton, F. W.....	Hamiltonville.
Christensen, William.....	Logan.	Miller, Maud L.....	Murray.
Christian, Guy.....	Beaver.	Mills, Albert.....	Hoytsville.
Christian, Marion.....	Beaver.	Mitchener, Myrtle M.....	Stockton.
Christiansen, Christen.....	Hyrum.	Morehead, J. H.....	Smithfield.
Coburn, Wm. Jr.....	Weston, Idaho.	Morehead, Mary J.....	Smithfield.
Connelley, Thos.....	Park City.	Morgan, Etta W.....	Paris, Idaho.
Coombs, Geo. R.....	Farmington.	Morgan, Fannie.....	Paris, Idaho.
Corry, George H.....	Cedar City.	Napper, Chas. E.....	Logan.
Cox, Howard.....	Manti.	Nelson, Oluf A.....	Logan.



✓Cragun, Reno.....	St. George	✓Nelson, William.....	Newton.
✓Cregges, Wm. C.....	Lewiston.	✓Nibley, Osmond.....	Richmond.
✓Cummings, M. E. Jr. Salt Lake City.		✓Nielson, Leo.....	Logan.
✓Cummings, Tracy.....	Salt Lake City.	✓Norman, Nore.....	Paradise.
✓Curtis, Harry B.....	Blackfoot, Idaho.	✓Norris, S. J.....	Salt Lake City.
✓Dahle, Joseph.....	Logan.	✓Olson, Martha.....	Weston, Idaho.
✓Davenport, Frank.....	Logan.	✓Orchard, Alvin.....	Lewiston.
✓Drysdale, Eliza.....	Logan.	✓Ord, R. J.....	Nephi.
✓Dunn, John V.....	Frisco.	✓Parkinson, Wm. B.....	Logan.
✓Eames, Ezra.....	Logan.	✓Peck, Lep.....	Gentile Valley, Ida.
✓Edwards, John H.....	Logan.	✓Peterson, Chas. P.....	Richfield.
✓Eliaison, Phoebe.....	Logan.	✓Peterson, Jos. H.....	Huntsville.
✓Ericarbrack, Chas. F.....	Goshen.	✓Peterson, Jos. S.....	Logan.
✓Facer, Susie M.....	Willard.	✓Peterson, Lettie.....	Hyde Park.
✓Far, Winslow.....	Logan.	✓Pike, Thos. W.....	Logan.
✓Felt, Charles E.....	Ibapah.	✓Porter, M. E.....	Logan.
✓Ferguson, Geo. W.....	Ibapah.	✓Powers, Diantha A.....	Smithfield.
✓Fife, Finis.....	Providence.	✓Pugmire, Leroy.....	St. Charles, Ida.
✓Fife, Wallace.....	Providence.	✓Pugmire, Moroni.....	St. Charles, Ida.
✓Foss, Calvin Z.....	Farmington.	✓Pugmire, Richard.....	St. Charles, Ida.
✓French, Edward.....	Montpelier, Idaho.	✓Rainey, Chloe.....	Richmond.
✓Froyd, Alfred.....	Cedar City.	✓Raymond, Laura.....	Smithfield.
✓Gee, Wm. E.....	Lewiston.	✓Read, Chas. M.....	Pocatello, Idaho.
✓Gleason, John C.....	Sunset.	✓Rheidoll, Louis.....	Newton.
✓Gleason, Meady.....	Sunset.	✓Rice, Nanna.....	Logan.
✓Gleason, Phoebe.....	Sunset.	✓Rich, Libbie.....	Montpelier, Idaho.
✓Goldsberry, Orson S.....	Paradise.	✓Rich, Thomas.....	St. Charles, Idaho.
✓Gonzalez, Ramon.....	Onasta, N. M.	✓Richards, C. W.....	Fielding.
✓Goodwin, Lottie.....	Logan.	✓Ricks, Harney.....	Logan.
✓Gorton, Henry C.....	Soda Springs.	✓Roberts, Edgar T.....	Afton, Wyo.
✓Green, Alma L.....	Menan, Idaho.	✓Robison, Lenore.....	Logan.
✓Griffin, Harry N.....	Salt Lake City.	✓Robison, Mary.....	Montpelier, Idaho.
✓Griffin, Walter.....	Newton.	✓Robison, Robert L.....	Logan.
✓Groot, Cornelius J.....	Corinne.	✓Sanderson, Wm. J.....	Malad, Idaho.
✓Guio, Presley.....	Minersville.	✓Scott, David.....	Millville, Idaho.
✓Hafen, Adolph.....	Santa Clara.	✓Severn, Lizzie.....	Montpelier, Idaho.
✓Hanks, Frank.....	Logan.	✓Shaw, Chas. H.....	Paradise.
✓Hansen, Emma.....	Providence.	✓Shilling, N. F.....	Ogden.
✓Hansen, Geo. D.....	Providence.	✓Shurtliff, Asel E.....	Logan.
✓Hansen, Jas. E.....	Providence.	✓Simmonds, W. W.....	Trenton.
✓Hanson, August J.....	Logan.	✓Sjoberg, Arnell F.....	Millville.
✓Hanson, Chas. W.....	Ione, Idaho.	✓Skeen, Willard A.....	Plain City.
✓Hanson, Nephi P. N.....	Newton.	✓Smith, Arthur.....	Beaver.
✓Hanson, Willard.....	Collinston.	✓Smith, Elaine.....	Providence.
✓Harmon, Geo. J.....	Manti.	✓Smith, Ernest C.....	Smithfield.
✓Harris, Emma.....	Richmond.	✓Smith, Isaac Leroy.....	Lewiston.
✓Hatch, Vivian.....	Ogden.	✓Smith, Maud.....	Minersville.
✓Hayball, George O.....	Logan.	✓Smith, Parley.....	Lewiston.
✓Henderson, J. T.....	Oneida, Idaho.	✓Smith, Robert.....	Logan.
✓Hendricks, Wm.....	Richmond.	✓Smith, Willis.....	Smithfield.
✓Herd, James.....	Franklin, Idaho.	✓Sorenson, Christian.....	Huntsville.
✓Hillman, Wm. H.....	Oxford, Idaho.	✓Sorenson, Theona.....	Huntsville.
✓Hirst, Lydia.....	Paradise.	✓Spahn, Karl.....	Salem.
✓Hoff, Beatrice.....	Georgetown, Idaho.	✓Staker, E. M.....	Rockport.
✓Hogenson, Christian.....	Newton.	✓Stocks, Jas. Halley.....	Lewiston.
✓Holbrook, B. C.....	Bountiful.	✓Stucki, Mary J.....	Paris, Idaho.
✓Holladay, J. W.....	Santaquin.	✓Sweeten, R. L.....	Mendon.
✓Holladay, Lucy A.....	Santaquin.	✓Taylor, George F.....	Plain City.
✓Hubbard, Alma.....	Millard.	✓Telford, J. E.....	Richmond.
✓Humphreys, Chas. R.....	Paris, Idaho.	✓Thatcher, H. E.....	Gentile Valley, Ida.
✓Huntsman, Sarah.....	Wellsville.	✓Thatcher, Roy.....	Logan.
✓Huttballe, Hans.....	Logan.	✓Thomas, Fenretta.....	Smithfield.
✓Izatt, Maggie A.....	Logan.	✓Thomas, Nathan A.....	Logan.
✓Jacobs, Fred.....	Logan.	✓Thorley, Lehi A.....	Cedar City.
✓James, David W.....	Paradise.	✓Tracy, D. T.....	Ogden.
✓Jenkins, Margaret.....	Oneida, Idaho.	✓Van Leuven, Lucinda.....	Lewiston.
✓Jensen, Elsie.....	College Ward.	✓Warner, Lizzie.....	Montpelier, Ida.
✓Jensen, Mary.....	Hyde Park.	✓Watson, William.....	Logan.
✓Jensen, Peter.....	Newton.	✓Webb, William.....	Fillmore.
✓Jeppson, Heber.....	Brigham.	✓Wheeler, David.....	Franklin, Idaho.
✓Johnson, Carl.....	Newton.	✓Whitmore, G. M.....	Nephi.
✓Johnson, Louise.....	Stockton.	✓Wilbur, J. M.....	Eden.
✓Jones, Effie.....	Providence.	✓Wilbur, O. K.....	Eden.
✓Jorgensen, Moses.....	Logan.	✓Williamson, Orson.....	St. Charles Ida.
✓Kilgore, Dora.....	Logan.	✓Wilson, Amy.....	Logan.
✓Kimball, Ernest.....	Logan.	✓Wilson, J. E. Jr.....	Logan.
✓Kimball, Orson H.....	Logan.	✓Winger, Ollie.....	Hyrum.
✓Kirkbride, Jas. Jr.....	Smithfield.	✓Wood, Frank H.....	Newton.
✓Lafount, Harold.....	Logan.	✓Woolf, Clara.....	Hyde Park.
✓Larson, Caroline.....	Sunset.	✓Yeates, John.....	Millville.
✓Larson, David.....	Collinston.		

**SPECIAL.**

✓ Ballif, Addie.....	Logan.	✓ Jeffs, Samuel.....	Farmington.
✓ Ballif, Harriet.....	Logan.	✓ Jorgenson, Malvena.....	Logan.
✓ Behunin, J. H.....	Ferron.	✓ Katsunuma, Thomas.....	Japan.
✓ Bell, Effie.....	Logan.	✓ Lindquist, Amelia.....	Logan.
✓ Betts, R. S.....	Benjamin.	✓ Lindsay, Jane.....	Taylorville.
✓ Bullock, Harriet.....	Providence.	✓ Morton, J. W.....	Wellsville.
✓ Cantwell, Edith.....	Millville.	✓ Morton, L. W.....	Wellsville.
✓ Cranney, H. K. Jr.....	Logan.	✓ Muir, W. S.....	Randolph.
✓ Davenport, Helen.....	Logan.	✓ Ormsby, Ray L.....	Logan.
✓ Drury, Chas. J.....	Hyde Park.	✓ Paul, Birdie.....	Salt Lake City.
✓ Gilmer, Mrs. M. E.....	Salt Lake City.	✓ Read, John.....	Logan.
✓ Hyde, Emma.....	Logan.	✓ Roberts, John J.....	Paradise.
✓ Hanson, Lizzie.....	Logan.	✓ Rogers, H. T.....	Logan.
✓ Israelson, A. M.....	Hyrum.	✓ Smith, Alice.....	Logan.

TOTAL.....360

Average age of all students 1894-5, 19 years.



## WEATHER FORECASTS.

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The Experiment Station is now in receipt of the telegraphic weather forecasts from the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are now displayed from the flagpole of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the per centage of verification of the forecasts for the Pacific Coast division was 83.7. For Utah, which is part of this division, the per centage was likewise 83.7. In the report of the Secretary of Agriculture for 1893, the importance of these forecasts is emphasized, and doubtless some means will be devised in the near future whereby these forecasts will be placed within the reach of every farmer in the country. An explanation of the flag signals is shown on the last inside page of the cover.



# INDEX.

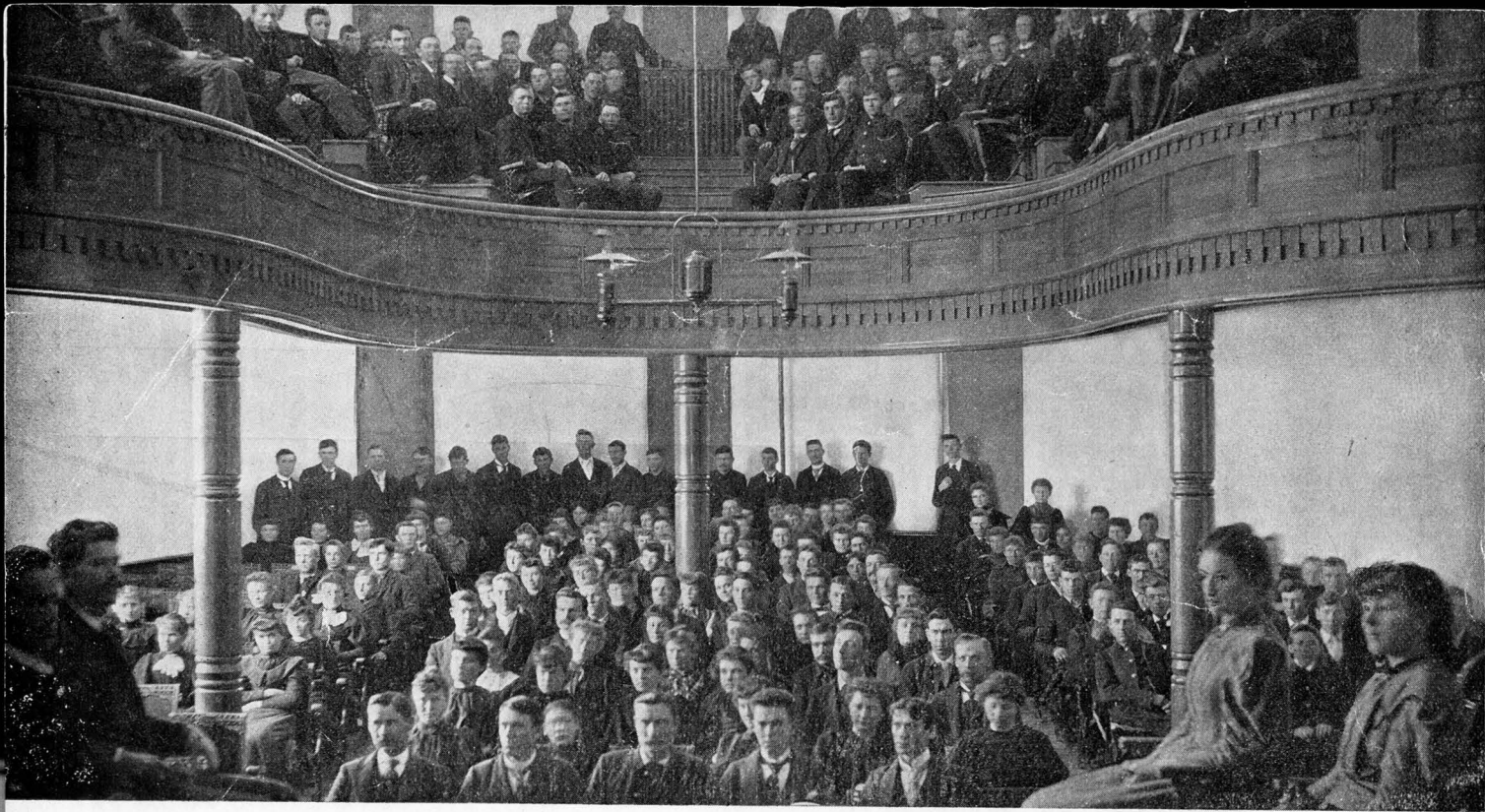
	Page
Abbreviations .....	25
Admission, (requirements for) ..	9
Aesthetics .....	58
Agriculture .....	12, 13, 21
Algebra .....	49
Anatomy and Physiology .....	63
Analytical geometry .....	51
Ancient History .....	48
Animal Husbandry .....	29
Anthropology .....	29
Artillery .....	53
Assaying .....	31
Bacteriology .....	51, 32
Barn .....	25
Biological Laboratory .....	30
Biology .....	30
Boarding House .....	73
Bookkeeping .....	40, 41
Botanical Laboratory .....	33
Botany, elementary .....	32
Botany, advanced .....	33
Botany, economic .....	33
Breeding .....	30
Cabinet Making .....	56
Calculus .....	51
Calendar .....	4
Certificate of Graduation .....	60
Chapel .....	44
Charges .....	69
Chemical Analysis .....	34
Chemical Laboratories .....	34, 36
Chemistry .....	33, 69
Chemistry, agricultural .....	35
Chemistry, class room .....	35
Chemistry, organic .....	35
Civil Engineering .....	16, 17
Civil Government, etc., .....	61
Commercial Branches .....	18, 19
Commercial Economics .....	40
Commercial Geography .....	40
Commercial Law .....	40
Contributions to Museum .....	69
Cooking, lectures on .....	43
Cooking, practice in .....	43
Cooking, advanced .....	44
Courses of study .....	5, 10-23, 63-66
Dairying .....	27, 29
Declamations .....	44
Descriptive Geometry .....	51
Designing, Cutting and Fitting ..	62
Diploma .....	69
Directions to Students .....	9
Dissections .....	63
Domestic Arts .....	20, 21, 22, 43
Dormitory .....	73
Drainage .....	26
Drawing .....	42
Drawing and exp. work .....	52
Drawingroom .....	42
Dressmaking .....	62
Elocution .....	44, 45
English classics .....	44
English grammar .....	45
English literature .....	45, 47
Engine room .....	14
Entomology .....	50
Establishment of College .....	5
Ethics .....	58
Examinations .....	69
Examinations, entrance .....	9

	Page
Faculty .....	3
Fancy work .....	62
Farm crops .....	26
Farm fences .....	24
Farm house .....	8
Farm irrigation .....	26
Farm machinery .....	26
First two years .....	10
Floriculture .....	49
Forestry .....	49
Freshman year .....	11, 22
Fruit work .....	43
Fungology .....	31
Geology .....	37
Geometric drawing .....	42
Geometry, plane and solid .....	50
Geometry, descriptive .....	51
Geometry, analytical .....	51
German .....	47, 48
Graduation .....	69
Graduates, list of .....	74
Graphical statics .....	38
Green house .....	33, 49
Gymnasium .....	54
History .....	48
History of agriculture .....	24
History of commerce .....	40
History of college .....	5
History of fine arts .....	58
Holidays .....	4
Horticulture .....	49
Household management .....	44
Hydraulics .....	38
Hygiene .....	43
Infantry .....	53
Irrigation .....	17, 26
Irrigation engineering .....	38
Ironwork, samples of .....	39
Kitchen .....	43
Ladies military drill .....	54
Lathes and wood turning .....	57
Library .....	72, 73
Library, English .....	47
Lithology .....	37
Literature English .....	46, 47
Logic .....	58
Machine design .....	52
Machine shop .....	52
Machine work .....	57
Materials of engineering .....	38
Mathematics .....	50, 51
Mediaeval history .....	48
Mechanics, applied .....	38
Mechanics, elementary .....	59
Mechanic arts .....	54, 55
Mechanical engineering .....	14, 15, 51, 52
Mechanism .....	51
Mechanical drawing .....	55
Metallurgy .....	51
Meteorology .....	60
Millinery .....	62
Military science .....	53
Milk testing .....	28
Mineralogical laboratory .....	36
Mineralogy .....	37
Modern history .....	48
Municipal engineering .....	39
Museum .....	59, 70

	Page.
Newspapers and periodicals .....	71
Outline of subjects .....	24
Pattern making .....	57
Penmanship .....	41
Philosophy .....	58
Physical culture .....	54
Physical laboratory .....	60
Physical lecture room .....	59
Physical measurements .....	59
Physics .....	58
Physics, advanced .....	60
Physics, elementary .....	58
Political science .....	61
Political economy .....	61, 62
Practical bookkeeping .....	40
Practice in cooking .....	43
Preparatory department .....	65
President's office .....	61
Programme of classes .....	67
Propagating house .....	49
Psychology .....	58
Reading room .....	71
Rhetoric .....	45
Rhetorical argument .....	45
Roads and Pavements .....	39
Roman history .....	48
Roofs and bridges .....	39
Samples of woodwork .....	66
Scale room .....	50
Science of bookkeeping .....	41
Science of nutrition .....	43
Sewing .....	62

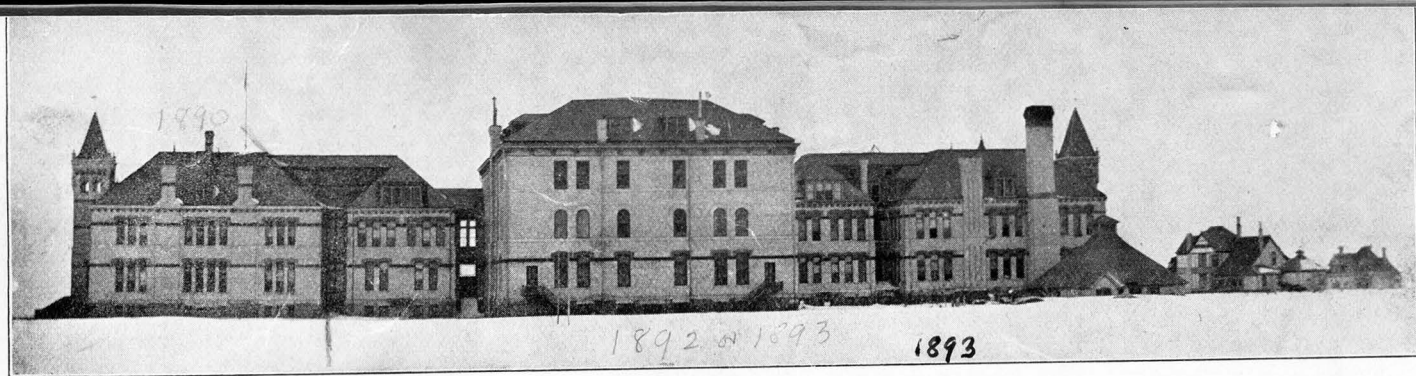
	Page.
Sewing room .....	21
Shopwork .....	55, 57
Short commercial course .....	65
Short courses .....	64
Short courses in Agri. ....	63
Short courses in Dom. Arts. ....	64
Sociology .....	61
Soils .....	26
Sophomore year .....	11, 22
Steam boilers .....	52
Steam engine .....	52
Steel forging .....	56
Stenography .....	41
Stockfeeding .....	27
Stock yards .....	12
Students, list of .....	74, 77
Sub-Freshman year .....	60
Summary of classes .....	67
Summer report .....	40
Surveying .....	38, 51
Tool room .....	15
Trigonometry .....	42
Typewriting .....	42
Typewriting and stenography ..	19
United States history .....	48
Veterinary science .....	63
Vise work .....	57
Weather forecasts .....	78
Winter course for farmers .....	65
Winter course for women .....	66
Zoology .....	31





**Student's Society in Small Chapel.** The Longfellow Literary Society holds its sessions every Monday evening throughout the school year,affording to students opportunities for acquiring self possession before an audience and ease and skill in speaking. Essays, orations, papers, and debates are included in the exercises





**East Side of Main Building.**

**College** Chief Musician, R. L. Sweeten, Sergeant, J. W. Welsh.  
**Band.** Thirty minutes each day, during drill, were devoted to band practice last season, with very satisfactory results. Students who play on a band instrument are advised to bring it, and take band practice in place of military drill.

