1900

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CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF

UTAH

FOR

1900-1901.

With List of Students for 1899-1900.

LOGAN, UTAH.

Published by the College,
August, 1900.
Calendar, 1900-1901.

### 1900.

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COLLEGE CALENDAR, 1900-1901.

FIRST TERM begins Tuesday, September 18, and ends Friday, December 21, 1900.

SECOND TERM begins Tuesday, January 8, and ends Thursday, April 4, 1901.

THIRD TERM begins Tuesday, April 9, and ends Tuesday, June 18, 1901.

Commencement Exercises occur from Sunday, June 16, to Tuesday, June 18, 1901.

HOLIDAYS.

Thanksgiving Day.
Christmas vacation, December 21, to January 8.
Washington's Birthday, February 22.
Arbor Day, April 15.
Summer vacation begins June 19, 1901.
BOARD OF TRUSTEES.

HON. WILLIAM S. McCORNICK ...........Salt Lake City
HON. EMILY S. RICHARDS..................Salt Lake City
HON. D. C. ADAMS..........................Salt Lake City
HON. LORENZO HANSEN ....................Logan
HON. JOSEPH MORRELL.....................Logan
HON. ROSINA N. BAGLEY...................Ogden
HON. JOHN A. McALLISTER................Logan

OFFICERS OF THE BOARD.

WILLIAM S. McCORNICK .....................President
PETER W. MAUGHAN .......................Secretary
ALLEN M. FLEMING .......................Treasurer

EXECUTIVE COMMITTEE.

WILLIAM S. McCORNICK, Chairman.
D. C. ADAMS
LORENZO HANSEN

EXPERIMENT STATION STAFF.

W. J. KERR............................President of the College
JOHN A. WIDTSOE .......................Director and Chemist
F. B. LINFIELD .........................Dairyman
GEORGE L. SWENDESEN .................Hydraulic Engineer
CHARLES P. CLOSE ....................Horticulturist
JAMES DRYDEN .........................Meteorologist and Poultry Manager
EPHRAIM G. GOWANS ....................Biologist
LEWIS A. MERRILL ....................Assistant Agriculturist
JOHN A. CROCKETT ....................Assistant Dairyman
JOHN STEWART .........................Assistant Chemist
ALLEN M. FLEMING ....................Treasurer
PETER W. MAUGHAN ....................Secretary
FACULTY AND INSTRUCTORS.

Arranged in groups in the order of seniority of appointment.

WILLIAM JASPER KERR, B. S., D. Sc.,
President.
Professor of Mathematics and Astronomy.

ELIAS J. MACEWAN, M. A.,
Secretary of the Faculty.
Professor of English Language and Literature.

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

JOHN A. WIDTSOE, B. S., M. A., Ph. D.,
Director of Experiment Station.
Professor of Chemistry and Mineralogy.

DALINDA COTYEY, B. S.,
Professor of Domestic Arts.

JOSEPH JENSON,
Director of Work Shops.
Professor of Mechanical Engineering.

JOHN W. FARIS,
Principal of Commercial Department.
Professor of Economics and Bookkeeping.
CHARLES P. CLOSE, M. S.,
Professor of Botany, Horticulture, and Entomology.

GEORGE L. SWENDESEN, B. S.,
Professor of Civil Engineering.

CLARENCE SNOW, B. S.,
Professor of Physics.

EPHRAIM GOWANS GOWANS, B. S., M. D.,
Curator of the Museum.
Professor of Animal Biology.

JOHN FRANKLIN ENGLE, A. M., Ph. D.,
Professor of History and Civics.

Professor of Agriculture.

Professor of Military Science and Tactics.

JAMES DRYDEN,
Assistant Professor of Meteorology and Stenography.

WILLARD S. LANGTON, B. S.,
Assistant Professor of Mathematics and Astronomy.

LEWIS A. MERRILL, B. S.,
Assistant Professor of Agriculture and Veterinary Science.

EDWARD W. ROBINSON,
Assistant Professor of German.
JOHN T. CAINE, JR., B. S.,
Principal of Preparatory Department.
Instructor in English.

SARA GODWIN GOODWIN,
Librarian.

SARAH E. BOWEN,
Instructor in Sewing and Millinery.

RUTH EVELYN MOENCH,
Instructor in Elocution and Physical Culture.

JOHN STEWART, B. S.,
Assistant in Chemistry.

AUGUST J. HANSEN,
Foreman in Carpentry.

JULIEN P. GRIFFIN,
Foreman in Forging.

JOHN A. CROCKETT,
Assistant in Dairy Department.

WILLIAM PETERSON, B. S.,
Instructor in Mathematics.

PETER W. MAUGHAN,
Instructor in Penmanship.

SAMUEL B. MITTON,
Instructor in Vocal Music.
Agricultural College of Utah.

HERBERT W. HILL, B. L.,
Instructor in English.

RENA BAKER,
Instructor in English.

ELVIN JENSEN NORTON,
President's Private Secretary.

LYDIA HOLMGREN,
Assistant in Domestic Arts.

EDWARD PARLEY PULLEY,
Instructor in Mechanical Drawing.
General Information.

HISTORY.

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 a 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. This land became available upon the admission of the Territory to Statehood.

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 forbids the use of any portion of the aforementioned fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

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, prescribing its work, and indicated its sphere:—

"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."

"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."

It is clear that the Agricultural College was founded in the interest of industrial pursuits and professions 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 for which the older institutions had not, as a rule, made provision.

The 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 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, not 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 August 30, 1890, 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 is $25,000.

The legislature of 1888 gave $25,000 for buildings. The county of Cache and the city 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, two houses, apparatus and salaries of teachers. The legislature of 1894 appropriated $15,000 for the purchase of apparatus, for a greenhouse, a veterinary laboratory and the employment of teachers. The legislature of 1896 appropriated $12,000 for the construction of workshops and general expenses for one year. The legislature of 1897 gave $41,000 for the erection of a laboratory, the extension of shops, the maintenance of a manual training school, and for the general expenses during two and a half years. The legislature of 1899 appropriated $40,905 for two years' maintenance and various improvements.

The value of the College property now in possession may be put at the conservative figure of $210,000.

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 and immunities, franchises and endowments heretofore granted or conferred are hereby perpetuated unto said University and College, respectively."

OBJECTS.

The College is in several ways accomplishing the objects for which it has been endowed:

I. It gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all its departments, while the students are kept in sympathy with the industrial occupations.

II. It teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, biology and mechanics are made prominent means of educating to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves, illustrates and fixes the daily lessons. At the same time lessons in agriculture, horticulture, engineering and household economy show the application of science; and all are enforced by actual experiment.

III. It trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm, and household departments, is made a part of the general education for usefulness, and insures a means of living to all who make good use of it. At the same time it preserves habits of industry and manual exercise and cultivates a taste for rural and domestic pursuits.

IV. It strives to increase experimental knowledge of agriculture and horticulture. The provision for extensive and accurate research, made by establishing the Experiment Station as a distinct department of the College, offers assur-
ANCE OF MORE DEFINITE RESULTS THAN CAN BE OBTAINED BY ORDINARY METHODS.

LOCATION.

The College is located on a broad hill overlooking the city one mile east of Main Street, Logan, and commands 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, and seen through the clear atmosphere, constitute a delightful and impressive panorama. The city is noted for its freedom from vice; it is quiet, orderly, clean and generally attractive, with neat homes, fine public buildings, electric lights and water system; the citizens are thrifty and progressive. The city has a population of about 6,000, and is the capital and commercial center of an agricultural county with more than three times that population, known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about twelve by sixty 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.

BUILDINGS AND GROUNDS.

The College buildings comprise the Main Building, the Experiment Station Building, the Mechanic Arts Building, the Dormitory, the Conservatory, the Veterinary Laboratory, the Model Barn, the Poultry Building, and residences for the President of the College, the Director of the
Experiment Station, and the Farm Superintendent, and cottages for farm laborers.

The Main Building is constructed of brick and stone. It is 360 feet long, nearly 200 feet deep in the central part, and four stories in height. It is heated by steam and lighted by electricity in every part. The rooms are light and pleasant and the halls spacious, extending on each floor the entire length of the building. This building contains the large auditorium, with a seating capacity of about 1500; a small auditorium, which will seat 400; the administrative offices; the library and reading rooms; the general museum; the gymnasium; the biological, the botanical, and the physical laboratories and lecture rooms; the office and class rooms of the commercial department; the sewing and millinery rooms, the laundry, kitchen, and dining rooms, and the offices of the department of domestic arts; the dairy rooms; the offices and class rooms of the department of civil engineering; and the class-rooms for English, mathematics, and modern languages.

The Experiment Station Building is a brick structure, 45 feet long and 35 feet wide, two stories in height. It contains the laboratories of the Entomologist and the Horticulturist; the offices of the Director of the Station, the Agriculturist, the Horticulturist, and the Poultry manager; the library of the Professor of English; the mailing room; and a dark room for photographic work.

The Mechanic Arts Building, situated south of the Main Building, is 220 feet long by 40 feet wide, with the central part, 40 feet wide, extending back 120 feet. It is one story high, except the central front part, which is two stories. The walls are of brick and the roof of corrugated iron. The building is heated by steam, and is well lighted and ventilated throughout. It contains the Station and College chemical laboratories, the power room, the forge room, the carpentry, or bench room, the machine shops for wood and metal, and the office and class rooms of the director of manual training.
Adjoining the Mechanic Arts Building is a store room, 40 by 27 feet, two stories high.

The Dormitory is a brick and stone structure, 50 feet wide by 80 feet long, four stories in height. It contains thirty-three rooms for students, each 12 by 14 feet exclusive of closet; a reception room for students, 19 by 27 feet; a model kitchen; a dining room; a pantry, supplied with all modern conveniences; a laundry room; bath rooms; and rooms for the matron and for the employees. The rooms of this building are well lighted and ventilated, each room having two registers for ventilation.

The Conservatory is of the most modern type, 90 by 25 feet, and is filled with beautiful flowering and ornamental plants. There are three compartments of equal size, one for semi-tropical plants, such as ferns, palms, bananas, etc., one for roses, and one for carnations and other plants.

The Veterinary Laboratory Building, situated several hundred yards to the rear and east of the main College building, is a stone and frame structure, 18 feet wide and 42 feet long, two stories in height. It contains a dispensary, an operating room, stalls, etc. It is heated by steam.

The Forcing House, adjoining the Veterinary Laboratory Building, is 16 feet wide by 25 feet long.

The Model Barn is a wooden building, 60 feet square, and contains a silo, a root cellar, a motor room, and separate quarters for horses, cattle, and sheep; also model storage divisions for hay, grain, and seeds. Connected with the barn are buildings for swine and horticultural implements, etc. A ten-horse power electric motor furnishes power for grain threshing, feed grinding and fodder shredding.

The Poultry Building is 125 feet long by 10 feet wide, built for experimental purposes. It contains twenty-four pens, with an outside yard attached to each.
The land occupied by the College and its several departments embraces about 105 acres. Of this, twenty acres constitute the Campus, which is tastefully laid out and adorned with flower-beds, and individual specimens and groups of ornamental shrubs and trees, both evergreen and deciduous. There are broad stretches of lawn, and wide drives and walks leading gracefully from various parts of the campus to the College buildings. During the summer the conservatory contributes its hardy plants for lawn decoration.

Adjoining the campus on the southeast, near the main College building, is the Athletic Field of about four acres, used for base ball, foot ball, and other athletic sports.

The Farm comprises 65 acres; the Orchards, the Vineyards, and the small fruit and vegetable Gardens, nine acres; and the Forestry, seven.

All parts of the College grounds are used by the professors in charge of instruction in Agriculture and Horticulture for the purpose of practical illustration in their respective departments; they are also used for the work of the Experiment Station.

**EQUIPMENT.**

The Mechanic Arts Department is well equipped for all of the courses offered. The bench room is provided with forty-five carpenters' benches with full equipment of tools. In the forge room are twenty-four power blast forges, with anvils and complete tool equipments; also hand-drills, cutting-off machines, tire upsetter, special swagebox, etc. The wood-working machine room is supplied with nine ordinary turning lathes, one large turning lathe, one jig-saw, one universal saw-table, one wood-planer, one new two-spindle shaper and edge moulder. In the iron-working machine room there are three large engine lathes, one speed lathe, one large drill press, one sensitive drill (made
by students), one large iron planer, one universal milling machine, one universal grinding machine, emery wheels, vises, and tool cutters of various kinds.

The Civil Engineering Department is provided with the necessary surveying instruments, such as solar and engineers' transits, levels, a plane table and all accessories, as well as smaller instruments, chains, tapes, etc. For hydrographic work there is an unusually large supply of apparatus; a book gage; water meters of various types, automatic registers, etc. These, together with the weirs, flumes, etc., on the experiment farm, and the large number of measuring stations on the canals and rivers in the immediate vicinity, afford an excellent opportunity for thorough training in this work. In addition to the ordinary equipment of the drawing room, there are available such handy instruments as the slide rule, planimeter, section liner, etc. The library facilities for this course consist of most of the standard books in the various lines of engineering, as well as the standard periodicals.

The Biological Laboratories are located on the second floor with east and north exposures. They are well equipped for experimental work in the various courses in which the department offers instruction. The equipment includes, high-power Leitz and Bausch and Lomb microscopes; dissecting microscopes; condensers; microtome; freezing apparatus; micrometers; micro-spectroscope; photo-micrographic camera; Thoma-Zeiss hæmacytometer; hot air and steam sterilizers; incubator; refrigerators; paper and plastic manikins; a series of plaster models (human); analytical balance; a varied collection of microscopic slides; a well selected stock of microscopic glass-ware; utensils, dissecting instruments, media, and reagents.

The Botanical Laboratory has a good supply of apparatus with which to do systematic and microscopic work. The herbarium contains 3,000 mounted and named specimens to which the students have access at all times. There
are 700 samples of economic seeds for use in economic botany. Among the general equipment may be mentioned a compound microscope for each student's use; 15 Bausch and Lomb dissecting microscopes; microtome; hand section cutters; stains; slides; and everything necessary for successful botanical work.

The orchard, with over 300 varieties of apples, pears, peaches, plums, apricots, and cherries; the vineyards, with 60 varieties of grapes, including the hardy and tender, or California, kinds; the forestry, containing many kinds of hardy trees and shrubs; and the small fruit and vegetable gardens are all used in connection with the work in botany and horticulture for practical illustrative purposes.

The Chemical Laboratories occupy the north part of the Mechanic Arts Building. They are well lighted and ventilated, and are provided with hoods, gas, water, and individual tables for the use of students. They are also supplied with the necessary chemicals, chemical glass-ware, reagents, etc., for all of the chemical work of the experiment station and of the College courses in chemistry.

The Mineralogical Laboratory and the Assaying Room are provided with gas, water, furnaces, and all necessary facilities for the work offered in mineralogy and assaying.

The Physical Laboratory occupies a suite of three rooms on the second floor, which are used for class purposes and for elementary laboratory work; and a room on the ground floor, used for electrical and magnetic measurements. The equipment is fairly complete, consisting of all the necessary pieces of apparatus for class demonstration; a set of apparatus for elementary laboratory work, sufficient for sixteen students working on the same experiment; and all pieces required for an experimental course in heat and electricity. Some of the more important pieces are balances and weights by Sartorius; platform balances; an Atwood machine, with aluminum friction wheels and electrical
attachments; centrifugal apparatus; working models of levers and pulleys; air pumps; thermometers in different scales; barometers; hydrometers; hydraulic press; porte lumiere; telescope; microscope; an assortment of lenses, mirrors, and prisms; spectroscope; sonometer; siren; tuning forks; organ pipes; Chladni's plates; electric static machine; Leyden jars; electroscope; electrophorus; magnetometer; galvanometers of tangent, sine, ballastic, astatic, and D'Arsonval types; Wheatstone bridges, both box and wire forms; resistance boxes; standard resistance and standard cell; primary and storage cells of various kinds; Ruhmkorff coils; electric generators and motors; Crooke's tubes; and Geissler tubes.

The Veterinary Laboratory is supplied with surgical instruments, a modern operating table, an operating room, box stalls for patients, the necessary medicine, etc. Among the more important surgical instruments are a complete set of dental instruments, mouth speculum, tracheal and roaring instruments, neurotomy set, thermo-cautery, castrating and spaying instruments, obstetrical and parturition instruments, postmortem and diagnostic instruments, and other material found in a well equipped hospital. In this laboratory the agricultural students have practice and observation in the treatment of animals.

The Domestic Arts Department is provided with a model kitchen with all accessories; a dining room; offices; and sewing and millinery rooms, with the necessary machines, etc., required for thorough and practical work.

The equipment of the Commercial Department consists of a number of hard wood counting-room desks, arranged in such a way that students may either sit or stand, with a seating capacity for forty students; a complete set of modern banking furniture equipped with permanent blank books, letter files, stamps, copying press, college currency, in fact everything necessary in conducting a regular banking
business; and wholesale, freight, real estate, and insurance offices provided with permanent blanks required in such offices.

The typewriting and stenographic room contains twelve machines,—four Smith Premiers, six Remingtons, one Underwood, and one Manhattan,—all provided with regular typewriter desks, and tables for stenographic practice.

The Dairy Department is equipped for all the operations of butter and cheese making, milk testing, pasteurizing, and detecting adulterations. For butter making, there are a receiving vat, capacity 1,000 lbs.; a milk heater, capacity 200 lbs.; a Standard Russian Separator, capacity 1,500 lbs.; a De La Val Separator for hand or power, capacity 450 lbs.; a combined churn and butter worker; a box churn; two styles of hand churns; a Mason Worker; a lever worker; an intermittent Pasteurizer; a Star Milk Cooler; and two cream vats. For cheese making, there are four small vats, capacity 300 lbs., for student practice; one larger vat for summer use; a Gang Press; two upright presses; and a curing room fitted with apparatus for determining temperature, moisture, etc. The Milk Testing Laboratory has four styles of Babcock Milk Testers; all the latest styles of milk, skim-milk, and cream test bottles; apparatus for detecting the adulterations of milk and milk products, and for testing acidity of milk and cream. The department has also an eight-horse power boiler and a six-horse power engine and a model cold storage for butter and cheese.

For the work in Agriculture, general use is made of the College farm, stock, etc. For illustrative and experimental purposes, the farm proper is divided into 385 plats which, by crop rotation, proper fertilization and irrigation, and the use of the most improved machinery, are kept in a high state of cultivation. The farm is well equipped with the best farming implements and machinery. The live stock consists of Clydesdale and Shire grade draft horses; Short Horn and Jersey cattle; Shropshire sheep; and Berkshire, Chester White, and Poland-China hogs. The Experiment
Station dairy herd consists of about thirty choice grade cows. Other representative breeds of stock will be added as rapidly as means and accommodations will permit. These animals are used in class illustration, and for the various experiments of the Experiment Station. There is a recitation room into which the live animal is brought before the class.

The Model Poultry House affords special facilities for illustrative and practical experimental work with poultry. Among the experiments in egg production that are being conducted are, the productive capacity of hens at different ages; the effect of exercise; the relative value of early and late hatched pullets; a comparison of six different breeds; the effect of varying treatment of breeding stock on egg fertility; a study of different methods in artificial incubation; the relative value of corn and wheat rations; a comparison of different nutritive ratios; the effect of caponizing.

The College Museum occupies rooms on the top floor of the main building. Each year the Museum is enlarged by the contributions of friends of the College. It is supplied with a large number of specimens illustrative of Geology and Palæontology, Vertebrate and Invertebrate Zoology, Mineralogy; also about four thousand five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grains representing the produce of Utah and other States. A small collection of Indian and Polynesian products and curiosities has been made.

Contributions of fossils, ores, animals, relics, or other material of value to the Museum will be highly appreciated. All gifts are labeled and preserved, and the name of the donor is kept on record.

The Library and Reading Rooms are on the first floor of the main building. The Library contains about eight thousand bound volumes and several thousand pamphlets. Additions are made from time to time to meet the require-
ments of the several departments. The subjects covered are general literature, including poetry and fiction, travel, history, biography, and criticism; political economy; sociology; metaphysics; general science; and such of the special sciences as are included in the courses of the several departments. The Professor of English, whose private library contains about two thousand eight hundred volumes, allows to advanced students in his department the privilege of the use of his library under his direction. Other professors also accord access to their private libraries as occasion may require. The Reading Rooms are open to the students and the general public every college day throughout the year. They are furnished with reading-slopes for current periodicals, and with reading-tables. Ninety of the best literary, scientific, technical, and agricultural periodicals are taken by subscription. Through the liberality of the publishers, forty-seven of the Utah newspapers are regularly received; and ninety-four of the best agricultural papers of the country are sent to the library in exchange for the publications of the Experiment Station. These are all placed upon the reading-slopes for the use of readers. The principal dictionaries and encyclopedias, including the Encyclopedia Britannica, American Cyclopediá, Appleton's Cyclopediá of American Biography, Allibone's Dictionary of Authors, Encyclopedic Dictionary, Century Dictionary, are kept in cases in one of the reading rooms within easy access of the readers.

STUDENT'S EXPENSES.

Tuition is free. All students pay an annual entrance fee of $5. The privileges of the library and the museum are free. In the physical, the chemical, and the biological laboratories, and in the workshops, and the cooking rooms, students are charged an incidental fee to cover the cost of materials used by them in their exercises. With proper care
this expense need not exceed from $2 to $5 per year in each laboratory or industrial course.

The fee charged for a certificate of graduation in the short courses is $2.50; the fee charged for a degree is $5. All the students are held responsible for any injury done by them to the College property.

Good board and rooms can be obtained in private houses for from $2.50 to $3.50 per week. By renting rooms and boarding themselves, students are able to reduce the cost of room and board to less than $2 per week.

The College Dormitory has accommodations for seventy. The second floor is used exclusively for women and the third floor for men, there being no communicating passage between the two. Two students may occupy one room, and by so doing the cost to each for board, room, and electric light, is $2.25 to $2.75 per week, according to the kind of room used. At these prices, students furnish their own carpets and bedding. The cost of furnished rooms and board, including fuel and light, is $3.50 per week.
Admission and Graduation.

CONDITIONS OF ADMISSION.

Candidates for admission to the Sub-Freshman Course and to the regular four-year courses must be at least fifteen years of age; to the Elementary Agricultural and the Preparatory and Manual Training courses, sixteen. Graduates of the district schools, and those who have completed the Preparatory Course of the College, are admitted without examination to the Sub-Freshman Course and to the Elementary Agricultural Course. Other applicants for admission to these courses must pass a satisfactory examination in the subjects of the Preparatory Course.* Those who have completed the work of the Sub-Freshman Course in the College are admitted without examination to the Agricultural, the Engineering (Civil and Mechanical), the Domestic Arts, the Commercial, and the General Science courses. Other applicants for admission to any of these courses must pass satisfactory examinations in the subjects of the Sub-Freshman Course.†

The classes in the Preparatory, Manual Training, and Five Months courses are divided into sections, which are graded in such a way as to be especially adapted to those who are not prepared to enter any of the more advanced courses. Students who are sixteen years of age or older are admitted to these courses without examination, except such as may be necessary in order to determine the section in which they can work to the best advantage.

*For a description of these subjects, see "Preparatory Course."
†For a description of these subjects, see "Sub-Freshman Course."
SPECIAL STUDENTS.

Persons of mature years who, for satisfactory reasons, desire to pursue a special line of study, may be admitted as special students, provided they give evidence of ability to do the work desired. Special students may be allowed to graduate in any of the courses, on condition that they complete the required work and pass the necessary examinations.

REGISTRATION.

All students register at the beginning of the collegiate year for the work of the whole year. Changes in registration, and credit for work not registered, will be allowed only by special permission of the faculty.

GRADUATION.

Students who complete the Elementary Agricultural Course, the Short Commercial Course, or the Manual Training Course in Mechanic Arts or in Domestic Arts, receive certificates of graduation. The degree of Bachelor of Science is conferred upon those who complete any of the four year courses.

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 the term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject on examination. In all four year courses, an average standing of not less than 75 per cent., with no grade less than 60 per cent., is required for graduation.
Courses of Study.

The College offers the following courses: (1) Agricultural Course, four years; (2) Mechanical Engineering Course, four years; (3) Civil Engineering Course, four years; (4) General Science Course, four years; (5) Domestic Arts Course, four years; (6) Commercial Course, four years; (7) Short Commercial Course, two years; (8) Elementary Agricultural Course, two years; (9) Manual Training Course in Domestic Arts, two years; (10) Manual Training Course in Mechanic Arts, three years; (11) Special Five Months Course; (12) Sub-Freshman Course, one year; (13) Preparatory Course, one year.

The Agricultural Course is arranged especially for the general education and scientific training of agriculturists. During the freshman and sophomore years, students take the necessary foundation work in chemistry, biology, botany, mathematics, and other subjects. No pretension, however, is made in this course to train specialists in any one particular branch of science. The agricultural work proper is given during the junior and senior years, and includes a variety of subjects that are related directly to the successful scientific pursuit of agriculture.

The aim of the Mechanical Engineering Course is to afford the student such training as will qualify him to deal intelligently with engineering problems in general and prepare him for a professional career. While the distinctive purpose of the course is to give instruction in the designing and construction of machinery, considerable instruction is given in municipal, irrigation, and general engineering, to form a basis for practice in these special branches. The instruction in all branches aims to blend the theoretical with the practical, so that the student may become familiar not only with the purely scientific phase of the work, but with its application to modern practice. As early as possible the student is brought into contact with practical problems, the
graphical as well as the analytical method being used throughout their solution. Besides the practical tendency of the course, it has a high disciplinary value, and is especially adapted to develop originality of thought and action. The more strictly professional work may be classified as mathematics, physics, applied mechanics, drawing, and shopwork. Sufficient work in English, history, and other general subjects is given throughout the course to meet all ordinary demands.

The Civil Engineering Course is designed to afford a training in those subjects which pertain to the profession of the civil engineer, in regard to different classes of structures and public works. The theoretical portion of the instruction is based largely on the courses given in the departments of Mathematics and Physics, and the results obtained are applied to practical problems in field work and engineering designs. The first two years are devoted to studies which belong naturally to the beginning years of undergraduate study; but the last two years are devoted largely to those subjects which have a more immediate relation to professional work. Unusual opportunities are afforded the student for practical hydrographic work by reason of the irrigation experiments on the station farm and the co-operation of the department with the Division of Hydrography of the United States Geological Survey and the United States Irrigation Investigations. Other prominent features of the course are the drawing room practice, and supplementary reading in the College library.

The General Science Course corresponds to the usual baccalaureate course in science in higher institutions of learning. It is designed to furnish a liberal and thorough education, embracing the broad field of general science, mathematics, language, history, and literature. Scientific subjects characterize the work of the course. During the freshman and sophomore years the students are thoroughly drilled in the subjects necessary to the more advanced special work of investigation. While the work of the junior
and senior years as announced for 1900-1901 is all prescribed, students who desire to specialize along any particular line of science may, by permission of the faculty, be allowed to do so.

The Domestic Arts Course is in general the same as the four-year course in agriculture, except in the hours devoted to the shop and the farm. In place of these there are special studies adapted to women'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 women move. If the place given to 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, as adapted to window gardening, in the preparation of the 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.

The object of the Commercial Course is to broaden the intelligence of accountants, and to prepare students for positions as business men, who form a large class having a direct and important relation to the material, social, and political life of the nation. They should have associated with their technical work a knowledge of those subjects that will give them an enlarged view of their varied relations as citizens of the state. The College, therefore, offers here a much broader general education than is common in com-
commercial courses. The technical feature of the course is a thorough training in penmanship, typewriting, stenography, commercial calculations, bookkeeping, business economics, political economy, history of commerce, and commercial law.

The Short Commercial Course is arranged for the accommodation of those who are unable to take the four-year course. It will qualify them fairly well for positions as accountants and stenographers.

The Elementary Agricultural Course, extending over a period of two years, is offered to those students whose time or means will not permit them to devote four years to a training for their future vocation. It is made as practical as possible in order to meet the demands of a numerous class.

The College also offers during the winter, a special course of lectures on practical agricultural topics, intended to reach those farmers who can leave their farms for a few short winter months only, but who appreciate the advantages of a knowledge of the fundamental principles underlying their business. The work for men includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated in a practical way, and continuing through one term to the end of March. For women, special work is given in sewing, household management, cooking, and such literary or other studies in addition thereto as the students are prepared to pursue.

The Manual Training Course in Domestic Arts extends through two years, and is offered for the benefit of those young women who do not wish to take the studies of the regular college course but desire to devote more time to the subjects of especial interest to women. Such other studies as the student is qualified to pursue may, with the consent of the faculty, be substituted for those offered in this course.

The Manual Training Course in Mechanic Arts extends through three years, during the whole of which the students spend four hours daily in the workshop. While
the general object is to give students taking the course a good elementary education, the special aim is to make tradesmen in the three branches, carpentry, forging, and machine work. In the assignment of exercises in the shop and draughting room, the application of these exercises to practical construction or design is constantly kept in mind. In the shop, the method of instruction is to perform each new process before the class with such explanation as shall render plain each step in the process. Then each student is supplied with material and scale drawing of the article to be made, and proceeds with his work under the constant supervision of the instructor. The principles of economy, neatness, and rigid accuracy are insisted upon in the construction of even the most trivial objects. Each student, whether specializing in wood or iron, is required to take one year in wood-work, with which he should begin. In all cases, students are required to do at least one year's work with hand tools before beginning machine work.

Many farmers' sons find it impossible to enter upon their studies at the beginning of the year. The last legislature therefore made special provision for a Five Months Course, beginning about the first of November and continuing until the spring vacation. The year is divided into two terms of two and three months respectively. The work of this course will be arranged, as far as possible, to suit the convenience of students.

In the Sub-Freshman Course students are thoroughly drilled in the subjects of English, history, mathematics, and drawing, required for admission to the four year College courses.

The Preparatory Course is arranged to accommodate those young men and women who have been deprived of educational advantages until they have reached an age when they cannot advantageously attend the district schools. The special aim is to prepare the students for admission to the more advanced courses of the College, and to provide such training as will be of most value to those who are unable to continue their educational work beyond this course.
AGRICULTURAL COURSE.

**Freshman Year.**

<table>
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<td>Physics</td>
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**Sophomore Year.**

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**Junior Year.**

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**Senior Year.**

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*Students spend six hours a week in shopwork, but it counts two hours on the basis of regular class work.*

†Students spend six hours a week in bookkeeping, but it counts three hours on the basis of regular class work.
# MECHANICAL ENGINEERING COURSE.

### Freshman Year

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<tr>
<th>Term</th>
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### Sophomore Year

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<tr>
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<th>English 6</th>
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<th>Shopwork</th>
<th>Civ. Gov. 5 C. E.*</th>
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<td>2 Physics 3</td>
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### Junior Year

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<th>Drawing 2 4</th>
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### Senior Year

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<th>M. E. 5, 7 6 M. E. 6, 7</th>
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*Civil Engineering.*

† *Mechanical Engineering.*
### CIVIL ENGINEERING COURSE.

**Freshman Year.** 1st Term. 2nd Term. 3rd Term.

<table>
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<td>Physics</td>
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**Sophomore Year.** 1st Term. 2nd Term. 3rd Term.

<table>
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**Junior Year.** 1st Term. 2nd Term. 3rd Term.

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**Senior Year.** 1st Term. 2nd Term. 3rd Term.

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<td>C. E. 6</td>
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18 18 18
### GENERAL SCIENCE COURSE.

#### Freshman Year.

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#### Sophomore Year.

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## DOMESTIC ARTS COURSE

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*Household Science.*
### COMMERCIAL COURSE.

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*Students who desire to do so, may omit Physics 2 and Chemistry 6, and take Stenography.

†Class in Penmanship meets daily.
**AGRICULTURAL COLLEGE OF UTAH.**

### SHORT COMMERCIAL COURSE.

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**ELEMENTARY AGRICULTURAL COURSE.**

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* Students who desire to do so, may omit Mathematics 4 (a), (b), and Botany 1, and take Stenography.

†The class in Drawing meets daily, but the work counts only two hours on the basis of regular class work.
### MANUAL TRAINING COURSE IN DOMESTIC ARTS.

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### MANUAL TRAINING COURSE IN MECHANIC ARTS.

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### SUB-FRESHMAN COURSE

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### PREPARATORY COURSE

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* Class meets daily.
Departments of Instruction.

AGRICULTURE.

1. Rural Engineering. The spring term of the junior year in the long course and the corresponding part of the first year of the short course are given to the various topics embraced in the general subject of rural engineering. The work covers in a general way the following topics:

(a) History, Drainage and Irrigation: History of Agriculture, showing the successive steps by which the art has attained its present position; farm drainage, its practical effects; land needing drainage, and the different problems involved in laying out and putting in a system of drains; practical questions relating to irrigation; road making; and the selection, arrangement and management of a farm with reference to special systems to be pursued.

(b) Buildings, Fences and Machinery: How to build cheap, substantial farm cottages, barns, stables and pens; location and interior arrangement of farm buildings; development, care and use of farm implements and machinery; the mechanical principles involved in their construction and different adjustments affecting draught; fences and gates, their necessity, cost, kinds and construction; wood for gates and fences, time to cut, conditions favorable to decay and how to prolong durability; discussion of Utah state fence laws.

Assistant Professor Merrill.

2. Stock Feeding. A portion of the senior year is devoted to a study of the principles underlying the profitable feeding of farm animals. The composition and requirements of animal bodies, the chemical compositions of foods
necessary to supply these wants, the general laws of animal nutrition and the chemical action and values of the different kinds of food are discussed. The German Standard Rations are given thorough study, special work being done in compounding Utah foods. The student calculates the nutritive ratios, showing in what proportions the several foods may be used to make properly balanced rations for the different purposes of feeding, without the loss of more than a small percentage of any of the nutrients. A consideration of the proper foods for each class of animals, whether fed for labor, growth, milk or meat production, is made prominent. The progress and results of the feeding experiments at the various Agricultural Experiment Stations are also carefully reviewed and discussed.

**Professor Linfield.**

3. **Agronomy.** During the spring term of the senior year the following sub-divisions of this subject are taken up:

   (a) *Soils:* Their origin, composition, physical and chemical properties, classification, amelioration and relation to climate; the general management of different soils and sub-soils with their relation to successful crop production.

   (b) *Manures:* General principles relating to the use of manures; natural and artificial manures; the sources and composition, differences in character, and the value of liquid and solid manures of different animals for different purposes; handling and preservation of natural manures; application of manures to different soils and for various crops; reclamation of alkali soils and worn out soils; preservation of original soil fertility.

   (c) *Farm Crops:* Their history, uses, composition and adaptability to climate, the cultivation, harvesting and preservation of different crops; the principle of rotation; the system of rotation best suited to this State, taking into consideration the distribution of labor, the production of manure, and the extermination of weeds; summer fallow; the management of meadows and pastures and the best kinds
of tame grasses for the State, as shown by experiments at the Station and in other parts of the State; tillage as a means of conserving soil moisture.

Assistant Professor Merrill.


(a) Breeds of Live Stock: This includes the history and description of the different breeds of stock found on the farm, their origin and development into the specialized animals of today; the effect of climate and management on the animals, and their adaptability to various localities and purposes.

(b) Breeding of Live Stock: This deals with the law of reproduction, heredity, reversion, cross-breeding, in-breeding, variation, selection; period of gestation, pedigree, etc.

(c) Management of Live Stock includes a practical discussion of the principles of breeding, with a full description of the methods of caring for the different classes of live stock from birth to final disposition.

(d) Judging of Live Stock or Animal Exterior aims to put in practice the knowledge gained in the classroom; the students tell from exterior points the relative values of the animals for special purposes, and, as far as possible, give reasons for the decisions rendered.

Professor Linfield.

5. Dairy Husbandry. Dairying, as taught, deals principally with milk, its care and manufacture, both in the factory and dairy. The farm problem of milk production is discussed under "Animal Industry".

(a) Milk: The elaboration, composition and fermentation of milk; the testing of milk, with a description of the methods used in paying for milk by test and in determining the worth of milk. A brief outline is also given of the fermentation of milk, or bacteriology as applied to milk and dairy products.

(b) Buttermaking: The different methods of creaming
milk and getting the best results, are described; the handling and ripening of the cream, churning, salting, working, packing, and marketing the butter.

(c) Cheesemaking: Cheddar cheesemaking is described; the making of a uniform product and dealing with practical difficulties are fully illustrated; a brief description is also given of the manufacture of other kinds of cheese, particularly of such kinds as may be made in a home dairy.

(d) Factories: Factory organization; the building, equipment, and management of factories are fully treated.

(e) Practical Dairying: The college dairy is equipped with the best modern apparatus for practical dairy work, and from 1,300 to 3,000 pounds of milk are handled daily; factory and farm dairy methods are illustrated, and the student becomes familiar with all phases of dairy work by actual practice in the dairy, the aim being to familiarize him with the best methods of practice as discussed in the class room.


(a) Elementary Course: This course embraces a series of daily lectures extending through the winter term in both the Winter Course and the Elementary Agricultural Course. The work of this course embraces the science of health preservation. Attention is given to ideal sanitary conditions for different animals, pointing out common errors and suggesting corrections.

(b) Advanced Course: In the regular Agricultural Course the study of this science is begun the middle term of the senior year and continues during the rest of the year. The course includes: (1) Veterinary Anatomy, taught in part by lectures illustrated by charts, skeletons, etc., but mainly in the dissecting room, where various domestic animals are dissected and studied. During this term one or more horses are dissected. (2) Materia Medica. During
the spring term general pathology, therapeutics, and surgery receive attention. (3) *Special Pathology* and *Therapeutics* (contagious and infectious diseases) and principles of horse shoeing are discussed.

(c) *The Free Clinic:* In connection with the work of the Veterinary courses, a free clinic is maintained. A large number of animals are treated. Clinics will be held every Monday during the winter and spring terms, to which diseased animals may be brought for free treatment, the operations on such animals being performed by students as far as possible.

Assistant Professor Merrill.

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**CHEMISTRY.**

Professor Widtsoe.

Assistant.

1. *Elementary Chemistry.* This is 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 a careful consideration of the applications of chemistry in the arts and manufactures. Students taking this subject must also take the course in elementary practical chemistry. Three hours per week throughout the year.

2. *Elementary Practical Chemistry.* This course supplements the preceding course, 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 verified, and the facts and theories of the lecture room are tested by experiments. Six hours laboratory work per week throughout the year.

3. *Qualitative Analysis.* This course runs parallel with and supplements the descriptive study of the metals and their compounds. Under the direction of the instructor
in chemistry, the students apply with their own hands the re-agents 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. Laboratory work occupies six hours a week for two terms.

4. Quantitative Analysis. This is mainly a laboratory course, giving the student practice in the typical methods of proximate and ultimate quantitative chemical analysis. It aims also to give, in familiar talks, a due appreciation of the importance of accuracy and of the relation of quantitative analysis to theoretical chemistry. After the necessary introductory practice, samples of waters, soils, ores, agricultural products and foods are analyzed and reported upon. The work of the Experiment Station chemical laboratory furnishes a good opportunity for the study of methods of analysis.

5. Organic Chemistry. This course consists of a brief survey of the more important 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. Opportunity is given the student to prepare a number of organic compounds which illustrate in their preparation the processes of oxidation, reduction, substitution and synthesis.

6. Agricultural Chemistry. This course consists of lectures and assigned readings from the best available literature on the subject. The student will be required, from time to time, to prepare brief essays on given subjects. The aim is to make the student familiar with what is known of the composition of the plant, and of the relation of the soil and the atmosphere to plant development, together with some of the unsolved chemical problems of agricul-
ture. Some attention will also be given to the chemistry of animal nutrition and dairy products.

7. Chemistry of Foods. This is a laboratory course, and aims to make the students familiar with the constituents of the common foods. By the aid of the microscope and chemical re-agents, flour, bread, meats, peas, beans, spices, milk and other dairy products, and various vegetables, are separated into their components, and each component subjected to special tests. The study has an important bearing on the science of nutrition.

ANIMAL BIOLOGY.

Professor Gowans.

1. Elementary Anatomy and Physiology. Lectures, recitations and laboratory work during the second and third terms. The purpose of this course is to familiarize the student with the important principles of the science of physiology, and furnish a basis for the study of hygiene. The student is encouraged to make a practical application of the laws upon which his health and proper physical development depend. Brown’s Physiology for the laboratory and Martin’s Human Body.

2. Elementary Zoology. Lectures, recitations and laboratory work during the second and third terms. The work is based on the dissection of a number of types which are studied in considerable detail. The purpose is to give the student a knowledge of the important characteristics of the principal groups of animals, and to give him such a training as will enable him to pursue the more advanced work with profit. Kingsley’s Comparative Zoology.

3. Elementary Biology. Two lectures and three laboratory periods each week throughout the year. An introduction to the general principles of biology. (a) General biology, extending through the first half year. (b)
Elementary histology. (c) Elementary embryology. Divisions b and c taken together extend through the second half year. Either half year’s work may be taken separately if desired. This course is a prerequisite to courses 4, 5, 6, 7 and 8.

4. General Zoology. Two lectures and three laboratory periods each week throughout the year. Elective. Classification, comparative morphology, and embryology of vertebrates and invertebrates, together with practical laboratory training in anatomical and embryological technique. This course must be preceded by courses 2 and 3.

5. Advanced Physiology. Elective. Lectures, conferences and laboratory work throughout the year. The subjects discussed are, the phenomena of life; the physiology of the cell; chemical composition of the body; the physiology of nutrition; irritability and contractility; physiology of the circulation; physiology of the nervous system and sense organs. The laboratory work is an introduction to experimental physiology. Prerequisite, courses 1 and 3.

6. Histology. Two lectures and three laboratory periods each week during the first half year. Elective to those who have completed Course 3. A minute study of the elementary tissues, excepting the nervous system. Some time in the beginning is devoted to the preparation of stains, hardening, fixing and other fluids, each student being required to prepare the re-agents for his own use. A typical mammal is used for material. Prepared slides of human tissues are furnished the student. The course includes methods of fixing, dicalcifying, staining, imbedding, sectioning, mounting and drawing.

7. Mammalian Anatomy. Two lectures and two laboratory periods each week throughout the year. This course is a study of the osseous, muscular, digestive, circulatory, respiratory, eliminative, and nervous systems. The laboratory work consists of dissections of a dog, cat and rabbit. Prerequisite, course 3.
8. Neurology. Two lectures and three laboratory periods each week during the second half year. (a) A study of the comparative structure of the brain and nervous system of the higher and lower animals; (b) Histology of the nervous system and sense organs. The course includes general histological technique, as in Course 6, and some special neurological methods not included in that course. Prerequisite, courses 3 and 6.

9. Bacteriology. Ten hours laboratory work each week during the first term. Such practice in bacteriological technique as the time will permit, together with the study of the more important known species of bacteria.

__BOTANY.

Professor Close.

1. Structural Botany. Work in structural botany is required of the sophomores in the Agricultural Course, and of juniors in the General Science, Domestic Arts, and Commercial courses. The text book used is Gray's *Lessons in Botany*. The aim is to help students to become familiar with the higher plants, the terms used in describing them, and their classification. Students are provided with microscopes and dissecting instruments for laboratory work, but must furnish their own collecting and mounting outfits. Fifty mounted and named plants are required. The work is given five hours a week in the third term.

2. Physiological Botany. Juniors in the Agricultural Course and seniors in the General Science, Domestic Arts and Commercial courses spend three hours a week in recitation and four hours a week in the laboratory during the first term in physiological botany. Plant anatomy and the functions, growth and nutrition of plant organs are studied. Bessey's *Essentials in Botany* is used as a text book. All laboratory equipment and materials are furnished.
ENTOMOLOGY.
Professor Close.

The work in Entomology is required of juniors in the Agricultural Course; of seniors in the Domestic Arts Course; of seniors in the Elementary Agricultural Course, and is elective with seniors in the General Science Course. It consists of recitations five hours and laboratory work four hours a week during the third term. Comstock's Manual is used as the text book and guide for laboratory work. The students are expected to acquire a general knowledge of the structure and classification of insects, especially the common insect pests. Insecticides and methods of applying them are given some consideration.

HORTICULTURE.
Professor Close.

This subject occupies five hours a week during the second term of the junior year of the Agricultural Course. Three hours a week are also devoted to this subject during the first term of the senior year in the Agricultural, General Science and Elementary Agricultural courses.

1. Propagation and Care of Plants. During the first term's work Principles of Plant Culture, by Goff, is used as a guide in the study of the principles underlying an intelligent understanding of the care, growth and development of orchard and garden plants and trees. Instruction is also given in propagation by seeding, budding, grafting, layering, and by cuttings, and in the management of hotbeds and forcing houses.

2. Pomology and Orchard Management. In the second term the subjects of pomology and orchard management are taken up, including the choice of fruit lands, their cultivation, and the maintenance of fertility; the planting of orchards and other fruit plantations; choice of trees and
AGRICULTURAL COLLEGE OF UTAH.

selection of varieties; pruning; insect and fungus pests, and means of combating them.

3. FLORICULTURE. This is taught during the third term of the junior year in the Domestic Arts Course. It deals with the propagation and care of house plants, the flower garden and the planting and care of the home grounds. So far as possible, the work in the classroom is supplemented by actual practice in the greenhouse and on the College grounds. *Greenhouse Management*, by Taft, is used as a reference text book.

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GEOLGY AND MINERALOGY.

PROFESSOR WIDTSEOE.

1. MINERALOGY AND ASSAYING. A systematic study is made 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, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

2. GEOLOGY AND LITHOLOGY. A course is given in general and economic geology, in which particular attention is given to dynamical and structural geology. Along with the occurrence of rocks, their mineralogical composition is also studied. The instruction is based on a text book, but supplementary lectures are given. Weekly excursions give practice in geological field work, and material for reports.

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METEOROLOGY.

ASSISTANT PROFESSOR DRYDEN.

This is an optional course for junior and senior students, and includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of
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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.

[The College receives 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 displayed from the flagstaff 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 percentage of verifications of the forecasts of the Pacific coast division was 83.7. For Utah, which is part of this division, the percentage was likewise 83.7. Great value is placed upon these forecasts by the Department of Agriculture at Washington. From their timely warnings much property is saved both on sea and land. The Department considers that $10,000,000 is a conservative estimate of the value of property saved in 1895. Doubtless some means will be devised in the near future whereby these forecasts will be made more accessible to the farming community. An explanation of the flag signals is shown on the third page of the cover.]

PHYSICS.

PROFESSOR SNOW.

1. ELEMENTARY PHYSICS. Three hours lecture and recitation and four hours laboratory work per week throughout the year. The object of this course is to enable every student to obtain a practical acquaintance with laboratory methods of work, and with the elementary facts and laws which are the foundation of the science of physics. The lectures are illustrated by experiments performed by the instructor, and numerous problems are worked in and out of class. The laboratory work consists of about forty-five experiments, chiefly quantitative, performed by each student. The book used is Hall and Bergen’s Text-Book of Physics.
2. **Heat and Electricity.** Five hours lecture and recitation and four hours laboratory work per week during the first term. This course is given largely to meet the needs of engineering students, and considerable attention is paid to the problems involved in the transformation of heat and electricity into other forms of energy. The laboratory work consists of individual experiments in heat, and in electrical and magnetic measurements.

3. **Elementary Mechanics.** This involves an elementary consideration of the composition and resolution of forces, the measurement of forces, dynamics, hydrostatics, and pneumatics, supplemented with numerous problems selected from probable occurrences in the construction of buildings and machinery. 

   **Professor Jenson.**

Courses in advanced physics, including heat, steam engine, steam boilers, electricity, elements of mechanism, and other courses in higher and applied physics, are described under Civil and Mechanical Engineering.

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**MATHEMATICS AND ASTRONOMY.**

President Kerr.  
Assistant Professor Langton.  
Instructor Peterson.

The elective courses in mathematics are not all given each year, but vary from year to year to suit the convenience of students who desire to specialize in mathematical science. Any elective course not applied for at the beginning of the year by at least three students properly prepared may not be given. If applied for by the requisite number of students, additional courses in quaternions, determinants, theory of equations, projective geometry will be given.

1. **Arithmetic.** This course consists of a thorough treatment of elementary arithmetic, based on Cook and
Cropsey's *Lessons in Arithmetic*, supplemented by many practical problems. Required of all students in the Preparatory Course. Four sections, five hours per week throughout the year.

MR. PETERSON.

2. **ARITHMETIC AND ALGEBRA.** This course is required of all Sub-Freshman students. Four sections, five hours per week throughout the year.

ASSISTANT PROFESSOR LANGTON

and PROFESSOR GOWANS.

(a) **Advanced Arithmetic:** Special attention is given to the nature, origin, and development of number. The class recitation hour is devoted to thorough consideration of the fundamental processes of arithmetic, including contracted methods of multiplication and division, common and decimal fractions, factors and multiples, mensuration, the metric system of weights and measures, square and cube root, proportion, percentage and interest, and practical problems. Wells's *Academic Arithmetic*. First half-year.

(b) **Algebra:** This course includes a thorough treatment of the fundamental operations, use of parentheses, factoring, highest common factor, lowest common multiple, fractions, and simple equations. Wells's *Essentials of Algebra*. Second half-year.

3. **ALGEBRA, GEOMETRY.** Required of all Freshmen. Two sections, five hours per week throughout the year.

ASSISTANT PROFESSOR LANGTON.

(a) **Higher Algebra:** After a brief review of the subjects treated in Course 2 (b), the following subjects are considered: Simple equations, inequalities, involution and evolution, theory of exponents, radicals, quadratic equations, ratio and proportion, progressions, and binomial theorem. Wells's *Essentials of Algebra*. First half-year.

(b) **Plane Geometry:** This course includes the general properties of regular polygons, their construction, perimeters, and areas; regular polygons and circles, with problems for construction; maxima and minima; and methods for
determining the ratio of the circumference to the diameter. Wells's *Plane Geometry*. Second half-year.

4. **Geometry, Algebra, Trigonometry.** Required of Sophomores. Five hours per week throughout the year. 

   **Professor Snow.**

   (a) *Solid Geometry:* Phillips and Fishers' *Geometry*. First term.

   (b) *Advanced Algebra:* This course is based on Wells's *College Algebra*, and includes a thorough drill in the most important principles of higher algebra required in the engineering and other courses. First term.

   (c) *Trigonometry:* The deduction of general trigonometric formulæ, the solution of plane and spherical triangles, and practice in the use of logarithmic tables. Wells's *Trigonometry*. Second Term.

   (d) *Analytic Geometry:* General theory of co-ordinates; construction of loci; analytical geometry of the point, right line, circle, parabola, ellipse, and hyperbola; discussion of the general equation of the second degree between two variables; examples of transcendental and higher plane curves.

5. **Calculus.** Required of Juniors in the General Science and Engineering Courses. 

   **Professor Snow.**

   (a) *Differential Calculus:* Differentiations of algebraic and transcendental functions; development of the fundamental principles and formulæ of the differential calculus; applications to various problems in plane geometry and analysis, including indeterminate forms, maxima and minima, tangents, normals and asymptotes to plane curves; curvature, evolutes and involutes; expansion of functions in series; Taylor's and Maclaurin's theorems; use of infinitesimals of different orders; differentiation of a function of several variables; singularities of curves.

   (b) *Integral Calculus:* Elementary forms of integra-
tion of rational and irrational functions; development of the formulae of the integral calculus; successive integration; integrations of functions of two variables; application in determining lengths of curves, areas of plane curves, and of curved surfaces, and volumes of solids.

6. Descriptive Geometry. The representation of problems, and the solution of problems relating to geometrical magnitudes in space, including orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and shadows; construction of maps; solutions of problems relating to geometrical magnitudes.

Professor Jenson.

7. Modern Geometry. Elective to those who have completed course 5; five hours per week throughout the year. This course treats the most important theorems and examples connected with harmonics, anharmonics, involution, projection (including homology) and reciprocation, including the following: Harmonic ranges and pencils, conics and focal projections; anharmonic ratios; homographic ranges; anharmonic properties of points on a conic, of tangents of a conic; poles and polars, reciprocation; properties of triangles; Pascal's and Brianchon's theorems; homographic ranges on a conic; ranges and pencils in involution; involution of conjugate points and lines; involution range on the conic, of a quadrangle, of a quadrilateral; constructions of the first and second degree; the principle of continuity, circular points and lines; real and imaginary projection, generalization by projection, and homology. Cremona's Projective Geometry, Russell's Treatise on Pure Geometry, and Lachlan's Modern Pure Geometry.

President Kerr.

8. Plane and Solid Analytical Geometry, Advanced Course. Elective to students who have completed Course 6; five hours per week throughout the year. This course includes the equations and properties of the point, right line, and plane, of the sphere, cylinder and cone,
and of the paraboloids, ellipsoids, and hyperboloids; the modern algebraical methods of the conic sections; a short discussion of the general theory of higher plane curves and surfaces; applications of the differential and integral calculus to problems involving functions of two or more variables, such as development in series and transformation of functions, curvatures, areas of surfaces, volumes of solids, etc. The work of this course will consist in the discussion of portions of Salmon's *Conic Sections, Higher Plane Curves*, and *Analytic Geometry of Three Dimensions*.

**President Kerr.**

9. **Differential and Integral Calculus, Advanced Course.** Elective to students who have completed Course 5; five hours per week throughout the year. This course embraces the elements of the theory of functions of imaginary variables; the various methods of integration, systematically treated; the elements of the theory of the elliptic functions; the mechanical and geometrical applications of the calculus treated more fully than in Course 5; and some of the more important cases of Differential Equations. Todhunter's *Differential Calculus* and Williamson's *Integral Calculus*.

**President Kerr.**

10. **History and Philosophy of Mathematics.** Elective to students who have completed course 9; one hour per week throughout the year. This course deals with the origin, development, and logical relation of the various subjects of mathematical science, including a series of synoptic lectures, which may be roughly outlined as follows: Mathematics among the ancients; Descartes and the discovery of analytic geometry; Newton, Leibnitz and the calculus; Hamilton and the invention of quaternions; modern geometry; mathematics and mathematicians of the United States. Ball's *History of Mathematics*, Comte's and Bledsoe's *Philosophy of Mathematics*, the *Encyclopaedia Britannica*, and other works of reference.

**President Kerr.**
II. General Astronomy. Open to students who have completed course 4; two hours per week throughout the year. This course deals with the general facts and principles underlying the science of astronomy, with solutions of many problems, particularly those relating to the determination of latitude, longitude, and time. Instruction is given by means of recitations and lectures. Young's *General Astronomy*.

12. Practical Astronomy. Open to those who have completed courses 5 and 11; two hours per week throughout the year. A continuation and completion of course 11. Theory and use of instruments—sextant, transit instrument, zenith telescope, and equatorial; various methods of determining longitude and latitude; graphical methods of predicting eclipses, etc. Doolittle's *Practical Astronomy*; Clarke's *Geodesy*.

CIVIL ENGINEERING.

Professor Swendsen.

1. Hydraulics. This course is devoted to the study of the general theories of Hydraulics, such as the laws governing the flow of water through orifices, over weirs, through pipes, and in open channels. The methods of measurement of water by means of water-meters, floats, etc. The course is based on Merriman's *Hydraulics*, and extends through the last two terms of the Junior year.

2. Irrigation. This is a course dealing with the location, design construction, and operation of irrigation canals; the design and construction of flumes, headgates, dams, reservoirs, etc. The questions pertaining to duty of water, evaporation, and seepage are also discussed. Wilson's *Irrigation* is used as a text. The course is given during the second term.

3. Drawing and Designs. This course is a drawing room course intended to apply the theories developed in
Course 1, to problems in the design of weirs, pipes, flumes, etc. Estimates and working drawings are made of all designs considered. Two hours three times a week during the second term of the Junior year.

4. Hydrographic Surveying. In this course a complete hydrographic survey is made in a locality particularly adapted to the work. All the streams are measured, the grades and cross-sections determined, etc. The different methods of stream measurements are applied, and the mapping of results is also made a feature of the course. Two hours, three times a week, during the third term of the Junior year.

5. Elementary Surveying embraces the adjustment and care of instruments, and a treatment of the general methods of farm, city, railway, topographical, and hydrographical surveying. The practical work in the field and drawing room receives particular attention. Two hours per week recitation during the second and third terms, and four hours field work during the third term of the Sophomore year; and three hours recitation with six hours field work during the first term of the Junior year. Raymond’s Surveying and Searle’s Field Book. For reference, Wellington’s Railway Location.

6. Higher Surveying includes a treatment of triangulation systems, construction of stations, measurement of base lines, determination of the meridian, and the general application of precise methods in field and drawing-room practice. Two hours recitation and six hours field work per week during the first term of the senior year.

7. Roads and Pavements. Country roads are discussed along with highways, their location, construction, and maintenance; the pavement of city streets, and sidewalks; the materials used and the mode of construction. Three times a week during the second term of the junior year. Byrne’s Highway Construction.

8. Masonry Structures. Design and construction of
retaining walls, bridge piers, reservoir walls, arches, and chimneys; treatment of foundations under water, together with a careful study of cement, concrete, and building stones. Three hours per week during the second term of the senior year. Baker's *Masonry Construction*.

9. **Municipal Engineering.** A detailed study of the questions pertaining to public water supplies, reservoir construction, filtration, distributing systems, engines, etc.; drainage, construction and capacity of sewers, treatment and disposal of sewage, etc. Five hours per week during the third term of the senior year. Farming's *Water Supply Engineering*.

10. **Hydraulic Motors.** General theory of impulse and reaction turbines and water pressure engines; collection and supply of water for power; measurement of water power; discussion of questions pertaining to the work and efficiency of water motors. Five hours per week during the third term of the senior year.

11. **Thesis.** This may consist of some original engineering design, a paper on some branch of civil engineering, or a discussion of some past achievement in the profession. It is expected to be a somewhat exhaustive treatment of the problem considered.

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**MECHANICAL ENGINEERING.**

**Professor Jenson.**

1. **Elements of Mechanism.** This includes a consideration of the various forms of motion and its production; link motions, and their modifications as used in machinery; cam and wiper outlines; wheel trains and aggregate motions; design and construction of gear teeth; mechanism of special machinery. This subject deals with the purely geometrical relations of machinery, rather than with the form and design of articulating parts.
2. **Metallurgy of Iron and Steel.** This embraces a study of the principal iron ores and their reduction according to modern methods, and the processes employed in the preparation of the iron into the various forms used for general construction purposes.

3. **Steam Engineering.** This begins with a study of the various forms of valve gears now in common use, which is followed by the study of the various forms of engines; the principles of thermodynamics according to the mechanical theory of heat and its application to the steam and other vapor engines; boilers and boiler design and construction; also methods of testing steam engines and steam boilers. A careful study is made of such data as have been secured from reliable tests in lieu of making actual tests.

4. **Applied Mechanics.** A general discussion is given of the relation of forces and their effects in the production of stresses, strains, and motions; the derivation and application of formulae, based upon the strength of materials as determined from actual experiment on full sized pieces, and used in determining the size of parts to be used in all engineering structures; the constructive qualities of the various woods and metals used in engineering practice. Much stress is laid upon this subject as being the chief corner stone in the foundation of an engineering profession.

5. **Dynamics of Machines.** The general effects of the inertia of the moving parts of machines, calculation and designs of fly-wheels and governors, constitute the general work.

6. **Power Measurement and Transmission.** This is a study of theory of friction and suitable co-efficients for use with various materials and kinds of joints; friction brakes and dynamo meters; lubricators and their uses; transference of power by means of rigid contact, rope and belt driving, compressed fluids, and electrical transmission; power absorbed in driving the various machines in the shop.

7. **Machine Design.** In machine design each student
is required to make a certain number of designs carrying out the principles of applied mechanics and dynamics of machines in all calculations. Boilers, parts of engines, pulley and gear shafts, and hangers, form suitable examples for this work. The class work consists of lectures and drawing.

8. Dynamo Machinery. This course consists of lectures and assigned readings on the theory and practice of dynamo construction, special attention being given to forms and systems now in use. Shop methods will be illustrated as far as possible.

Professor Snow.

9. Thesis. In general a graduating thesis in this course should consist of the execution of an original design with a descriptive dissertation, or a discussion of some current engineering problem, or the result of some original research, experimental or theoretical.

For a description of courses in hydraulics, municipal and irrigation engineering, materials of engineering, see "Civil Engineering".

For a description of courses in mechanical drawing, see "Drawing".

For shopwork, see "Mechanic Arts".

For other courses, see "Physics," and "Mathematics and Astronomy".

MECHANIC ARTS.

Professor Jenson.
Instructor Hansen.
Instructor Griffin.

I. CARPENTRY.
Instructor Hansen.

1. (a) Rudimentary exercises in sawing, ripping, planing, mortising, dovetailing, and the application of these to simple articles of furniture, furnish the details of
this course. Correct methods of using and handling tools are emphasized. First term, first year.

(b) Sharpening and adjusting carpenter’s tools, and saw filing, followed by practice in making panels, doors, and sashes, constitute the work of this course. Second term, first year.

(c) This course consists of plain cabinet work, followed by the making of the standard carpenter’s tool chest. Third term, first year.

2. 

(a) This course embraces thorough practice in all the branches of ordinary wood turning and other machine work in wood. First term, second year.

(b) In this course the principles and practice gained in the foregoing courses are applied to frame house building. If possible, practice in building a regular house will be given, but when such opportunities can not be had, small scale building is done at the shops. Second term, second year.

(c) The work of this course consists of inside finish of frame house, casings, mantels, etc. Third term, second year.

3. 

(a) The work of this course consists of practice of modern methods of stair building. First term, third year.

(b) This course consists of special work in cabinet making, with some instruction and practice in surface finishing. Second term, third year.

(c) Each student in this, the final course, will make some elaborate piece of furniture or other article. The work must be original in selection and design, subject to the approval of the department staff. Third term, third year.

4. 

(a) This course consists of selected exercises from Course I (a) Taken by freshmen during the first term.
(b) This course consists of selected exercises from courses I (c) and 2 (a). Taken by freshmen during the second term.

5. This is an elementary course in pattern making. Patterns of pipe fittings, groove pulleys, hangers and core boxes are sample exercises of this course. Taken by sophomores in engineering courses during the second term.

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II. FORGING.

INSTRUCTOR GRIFFIN.

1. (a) This course consists of preliminary exercises, such as drawing, bending, twisting, and shaping, followed by exercises in iron welding and making iron tools. Accuracy in methods and results is insisted upon. First term, first year.

(b) The work of this course consists of practice in steel and iron welds, steel and steel welds and general work in steel tool forging and dressing. Chisels, punches, reamers, hammers, tin shears, nippers, etc., are sample exercises. Second term, first year.

(c) The work of this course consists of general vise work. Chipping, filing, hand polishing, and hand fitting of various kinds are sample exercises. Third term, first year.

2. (a) This course consists of horseshoeing, spring making and tempering, andirons, wicket gates, etc. First term, second year.

(b) The work of this course consists of making and repairing agricultural implements, plow points, cultivator teeth and frames, etc. Second term, second year.

(c) The work of this course consists of practice in wagon and carriage construction. Third term, second year.

3. This course consists of selected exercises from courses I (a) and I (b). Taken by freshmen during the third term.
4. This course consists of selected exercises from Course I (c). Taken by sophomores in engineering courses during the first term.

III. MACHINE WORK.

Professor Jenson.

1. (a) This course consists of preliminary exercises in straight and taper turning, drilling, planing, and milling, accompanied by instruction in the care and use of machinery. First term, second year.

(b) The work of this course consists of boring and chucking in the lathe, thread cutting, polishing, etc., and such other exercises on other machines as will be required in making shaft couplings, tap wrenches, etc. Second term, second year.

(c) The work of this course consists chiefly of making taps, spiral drills, fluted reamers, mandrils, with practice in finishing tempered articles on universal grinding machine. Third term, second year.

2. The work in this course consists of practice in actual machine construction. Speed lathes and sensitive drills may be taken as sample exercises. Third year.

3. This course is arranged for students in mechanical engineering, and consists of selected exercises from courses 1 (a), 1 (b), and 1 (c).

DOMESTIC ARTS.

I. HOUSEHOLD SCIENCE.

Professor Cotev.

Explanation. The course for young women gives the same general training in English, German, Mathematics and Science that is given in the other courses, together with special studies adapted to woman's work.
1. **Laundring** occupies the fall term and consists of practical work alternating with lectures. The practice includes plain white washing and removing stains, clear starching, best methods of doing up fine mull, of ironing shirts, cuffs and collars, washing flannels, and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used, and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, blueings and starch, are discussed in their scientific and practical relations to laundry work.

2. **Meats, Soups, Etc.** In this term the student receives instruction in selecting different cuts of meats and in the methods of cooking best adapted to them. Practice is given in roasting, braizing, broiling, in stews and pot roasts; in preparing fowls for cooking, and in making dressings; in boning, larding and skewering, in making croquets, scallops, etc. Instruction is given in preparing soup stocks, in making cream soups, vegetable soups and purées. Students are taught to prepare sauces suited to different kinds of meats and to make various meat pies, dumplings for stews and noodles for soups.

3. **Yeast and Bread Making** includes the making of various kinds of yeast, salt rising, wet and dry yeast; white and graham bread, corn bread, Boston brown bread; many varieties of rolls and buns. This work includes instruction in making baking powder and in making a great variety of the breakfast breads in which it is used; biscuits, muffins, gems, Johnny cake, pancakes and waffles. Part of this term is devoted to plain pastry cooking.

4. **Pastry Cooking** includes practice in a variety of layer and loaf cakes, sponges, cream puffs, cookies, jumbles and fancy cakes, plain pastry, puff paste, tarts, patties, etc. The student is also given practice in a great variety of baked, boiled and steamed puddings; custards, blancmanges, whips, creams, jellies, etc. Instruction is given in laying tables for dinner and lunch parties, and in waiting on
tables. A few lessons are given in making taffy and sugar candies with French cream fondant. Instruction is given in cooking vegetables and serving dinners during both winter terms.

5. **Fruit Work** includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chemical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human system; the causes of fruit fermentation, and a study of antiseptics. Young women in the sophomore class are required to make use of reference books in the library, and to write essays upon the food value of fruit.

6. **Cooking Lectures** treat of marketing and the selection of food; general rules of measuring and mixing; best methods of baking and boiling; deep and shallow frying; the general chemistry of cooking; carving and serving of food; the care of food before and after cooking, and the sanitary condition of the kitchen and store rooms. Cooking lectures given to the young women in the sophomore year take up advanced instruction on the above topics, and use *Chemistry of Cooking*, by Martien Williams; *Chemistry of Cooking*, by Ellen Richards; *The Rumford Kitchen Leaflets*, and other similar works, as references to further study of cooking.

7. **Cooking Practice** includes all kinds of plain and some fancy cooking, covering in a general way all the subjects with which a housekeeper in moderate circumstances needs to be familiar. Demonstration lessons are given at various times throughout the term on subjects difficult of treatment in the general practice. A three-course lunch is served daily during the winter term. Members of the class
take turns in presiding as hostess at the table, carving and serving plates and looking after the needs of the guests; they also take turns in waiting upon the table. The confidence and skill thus acquired are invaluable to them.

8. **Sanitation and Hygiene** treats of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instructions especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick.

9. **Science of Nutrition** is a study of foods, their chemical composition, characteristics, digestibility; the way in which they nourish the body; the effect of age, climate, and occupation on the amount and kind of food required. Books on foods by such authors as Yeo, Smith, Sir Henry Thompson, Green, Atkinson, Youmans, Parks and Hoy are used as references. Constant use is made of Government bulletins on the composition and digestibility of foods. A full set of charts and bottles illustrating the composition of food (used at Pratt Institute) are used as aids to the study.

10. **Dietetics and Invalid Cooking** teaches the best foods to be given in diseases with practice in their preparation and serving. The preparation of liquid diet, light diet and convalescent diet is taught the same as in hospital training schools. **Invalid Cooking**, by Mary Boland; **Food in Diseases**, by Yeo; **How to Feed the Sick**, by Dr. Gatchell, and other similar works, are used as texts.

11. **Hygiene and Home Nursing** is taught by lectures and references to such authorities as Parks, Dio Lewis, Florence Nightingale, Stoney, Hampton, Shaw, Canfield and Stockholm.

12. **Sanitation** is a study of the conditions necessary to a healthful home — fresh air, pure water, heating, lighting and drainage. **Household Sanitation**, issued by the Collegiate Alumni Association, is used as a text book, together with
the Sanitarian. Reports of various Boards of Health are used as references.

13. Household Management consists of lectures on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; duties of mistress and servants; entertainment of guests, and many other subjects of interest to the home-maker. Books by prominent writers on these subjects are found in the library, also a number of periodicals of especial value to students of this class.

II. SEWING.

Instructor Cook.

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

1. Hand Stitches. The work begins with hand sewing which consists of practice in the various stitches used in muslin and woolen goods; running, hemming, overhanding, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, backstitch, bast- ing, bands, bias cutting, blanket stitch, slip stitch, herring bone, chain and cross-stitch and feather stitch, French hem, French seam, etc.

2. Care of Machines and Machine Sewing. Regular practice is given in the care of the machine, and its mechanism is illustrated. Practice is given in running, hemming, tucking, ruffles, puffing, binding, etc.

3. Dressmaking. At least two muslin garments are made. A gown is cut out, basted and entirely made by the student.
4. Designing, Cutting and Fitting. Instruction is given by 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 make drawings of the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

5. Cutting and Fitting. The student learns to draft patterns from measurements of basques, skirts, sleeves, princess gowns, French coats, capes, circulars, etc.

6. Plain Dressmaking. Plain gowns are drafted, cut and basted, fitted, draped, trimmed and entirely finished by the student.

7. Fancy Work. This consists of hemstitching, drawn work, Kensington embroidery, Roman cut work, Spanish laid work, jeweled embroidery, Bulgarian embroidery and modern lace making.

COMMERCIAL BRANCHES.

Professor Faris.

Assistant Professor Dryden.

1. Bookkeeping. This subject includes the science of account-keeping, practical bookkeeping, business practice, business customs, and auditing and expert accounting. It is the major subject in the commercial course, and runs through two years.

(a) Science of Accounts. The course of instruction in the science of accounts embraces a careful study of the fundamental principles of bookkeeping. The principles of debit and credit are thoroughly developed by means of repeated drills and lectures. Journal and day-book entries are given careful attention. Much care and practice in penmanship, ruling, spacing, arrangement of work, etc., with special reference to figures, is exacted, thus giving
students, in addition to principles on which the work is based, that manual training necessary for neat, accurate and rapid bookkeeping.

(b) *Practical Bookkeeping.* In this work a regular laboratory method is used. Each student assumes the responsibility of a bookkeeper, and actually keeps books according to the shortest and most approved methods in various kinds of business—such as grocery, general merchandise, jobbing, commission, etc.—including a thorough course in corporation work, college currency, bills of exchange, notes, checks, deeds, leases, mortgages, receipts, invoices and all other forms of commercial paper incident to the several kinds of business are used. All banking is done directly with the college bank. The work is largely individual, and so arranged that no two students arrive at the same result. Every step in the progress of a student is carefully examined, and by a rigid system of checking accuracy is exacted.

(c) *Business Practice.* Students form a business community, and each one not only keeps books but conducts and manages a business. All transactions are made either by correspondence or face to face with members of the class. Well furnished offices are run for the accommodation of the business circle. Students conduct the several offices, first as bookkeeper and then as manager. Careful attention is paid to the laws of Utah, and all business forms and transactions are made to conform to the statute of the state. Among other features a corporation is organized and conducted as a General Mercantile Co., complying strictly with the laws of the state governing such institutions.

(d) *Business Customs.* The fundamental principles of bookkeeping are here applied according to modern ideas of business, with its complex and exacting requirements. The subjects of banking, securities, exporting and importing, railroading, business correspondence and every day business
transactions, are carefully examined from a practical point of view. Blanks and business forms of many kinds are placed in the hands of students for discussion and re-production.

(e) **Auditing and Expert Accounting.** The duties, qualifications and requirements of expert accountants, are carefully studied. Books suitable for different kinds of business with the most approved ruling, special columns, etc., are discussed. Much practical work is given in opening and closing sets of books used in various business enterprises.

2. **Commercial Calculations.** This consists of a drill in percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all problems that the average business man is called upon to solve. Short methods are studied, and practical devices presented.

3. **History of Commerce.** This work is done by recitations and lectures. The student makes 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 notes the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessaries and luxuries of life; he learns 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 are gathered showing the magnitude of the world's production. Practical commercial problems of the day are discussed in class.

4. **Commercial Law.** This embraces a study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contracts, including agency, partnership, corporation, bills, notes and checks, purchase
and sale of personal property, guarantee 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 and legal forms that are used to carry on trade.

5. Stenography. This is elective with bookkeeping in the senior year of the four year commercial course and in the second year of the short course. Graham's system of stenography is taught. The class is given instruction one hour daily throughout the year.

6. Typewriting. This is required of senior students in the four year commercial course and of the second year students in the short course. Three different kinds of machines are used, having the "universal" keyboard. One hour a day is devoted to practice throughout the year.

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**ENGLISH LANGUAGE AND LITERATURE.**

Professor MacEwan.
Principal Caine.
Instructor Moench.
Instructor Hill.
Instructor Baker.

1. Grammar and Composition I. In this course instruction is given in orthography; the parts of speech; the construction, analysis, and punctuation of sentences; the correction of common errors in language; and the writing of brief compositions. This course is correlated with the lessons in reading and in geography. Required of students in the Preparatory Course. Four sections, five hours per week throughout the year.

2. Reading and Spelling. In this course Pope's Homer's *Iliad*, four books, *The De Coverly Papers*, *The*
Vicar of Wakefield, Ivanhoe, The Princess, The Last of the Mohicans, The Vision of Sir Launfal, etc., and The Merchant of Venice are read. The purposes of the course are, the acquisition of a vocabulary, a knowledge of the contents of the books read, and correct oral expression. Special attention is given to spelling. Required of students in the Preparatory Course. Four sections, five hours per week throughout the year.

3. Grammar and Composition II. This is a more advanced course in grammar and composition, based on a text-book of the grade of the Whitney–Lockwood Grammar, or Miss Hyde's Practical Grammar, along with a book like Strang's Exercises in English. Subjects for essays and briefer written exercises are drawn from the books used in the reading and classics, and from the work in history. Required of students in the Sub-Freshman Course. Four sections, five hours per week throughout the year.

4. Reading and Classics. The reading of this course includes Macaulay's Essays on Milton and Addison, Burke's speech on Conciliation, Shakespeare's Macbeth, Milton's Paradise Lost, I.–III., and Minor Poems. These books are read with reference, first, to such oral expression as shall evince a general understanding of the thought; next, with reference to a more exact knowledge of the language—the meaning of words and sentences, the elementary qualities of style, the important allusions, and the general plan or structure of the production. Required of students in the Sub-Freshman Course. Four sections, five hours per week throughout the year.

5. (a) English Grammar. In this course, after a review of etymology, special attention being given 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. This work occupies the first term.

(b) Elementary Rhetoric. This includes 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 week, mostly reproductions, illustrating the laws of description and narration. The narrative poems from the text-book in literature, and The Iliad or The Odyssey, furnish matter for reproduction and study in versification. In connection with the study of literature during the third term, original essays in description and narration are required. This work occupies the second term.

(c) Literature. The first work in literature follows the elementary rhetoric, occupying the third term of the freshman year. It is a critical study of the 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 have been read:

Shakespeare's Merchant of Venice; Bacon's Essays; Milton's l'Allegro, Il Penseroso, Hymn, and Lycidas; Addison's Sir Roger de Coverly; Pope's Rape of the Lock; Gray's Elegy in a Country Churchyard; Goldsmith's Deserted Village and Traveller; Burn's Cotter's Saturday Night, and some other poems; Wordsworth's Ode on Immortality, and narratives from The Excursion; Irving's Sketch-Book; Tennyson's Ulysses, Locksley Hall, Enoch Arden; Dickens's Christmas Carols; selections from John Brown, Ruskin, Lamb, Macaulay, Huxley, Emerson, Bryant, Lowell, Holmes, Longfellow and Hawthorne.

6. Advanced Rhetoric. Instead of more advanced work in the general principles of style and composition, the rules of description, narration, exposition and argumentation are studied; and to illustrate and enforce these, some
masterpieces in each department are critically examined. Speeches of Burke and Webster furnish suitable material for the study of argument. Frequent oral and written exercises make the work entirely practical; during the last term debates, written and oral, are had on questions of general interest. Each student presents numerous written exercises. The work goes through the sophomore year—twice a week the first and third terms, and five times a week the second term.

7. HISTORY OF 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. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses, much of the study being reported in essays. This is the work of juniors and seniors for the first term.

8. LITERATURE. MASTERPIECES. The last term of the senior year is given to the study of longer masterpieces. Ordinarily all the important forms of literature have been laid under contribution—the drama, the epic, the lyric the novel, the essay, biographical and critical, the oration and history. One week is usually given to each piece selected. The work of the class-room is largely a report of students, either oral or written, on what they have done by themselves. The following texts, changing somewhat from year to year, have constituted the course:

Shakespeare, two of the great tragedies, Hamlet, Macbeth, Lear, Othello; Webster, Reply to Hayne; Burke, Conciliation with American Colonies; Macaulay, Essay on Milton, Essay on Johnson, and Essay on Addison; Milton, Paradise Lost, I., II.; Samson Agonistes; Carlyle, Essay on Johnson, Essay on Burns, Hero as Prophet; Tennyson, Princess, or selected poems; Motley, Peter the Great; Southey, Nelson; George Eliot, Silas Marner; Wordsworth, Selected Poems;
Byron, *Childe Harold*; Goldsmith, *Vicar of Wakefield*; De Quincy, *Revolt of the Tartars*; Defoe, *Journal of the Plague*; Addison, *Papers from the Spectator*; Browning, *Blot in the 'Scutcheon*, etc., or selected poems. The last two classes have had, instead of masterpieces, a term's study of the poems of Tennyson and Browning, respectively.

9. **ELOCUTION.** The course in elocution is open as an elective to those who have completed Reading and Classics. The principal aim in the course is to develop easy, natural readers, who will be able to express the thought of the author in a clear and impressive manner. It also includes practical work in recitation and impersonation. Each student is expected to learn and present a recitation to the class once each month, or as often as the number in the class will allow.

**GERMAN.**

**Assistant Professor Robinson.**

This is the only foreign language taught in the institution, and is in four courses, three hours a week, during both 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. 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; or such selections from classic German literature as are adapted to awaken an interest and stimulate further reading. Dippold's *Scientific German Reader*; Wilheln Tell, Nathan der Weise, Egmont, Hermann und Dorothea, Reisebilder, Ekkehart, Peter Schlemihl Das Kalte Herz, Soll und Haben.

**HISTORY AND CIVICS.**

**Professor Engle.**

1. **United States History.** In this course, careful attention is given to the political, constitutional, and industrial development of institutions of the United States. Social life, political parties, territorial expansion, and the biography of leading historical characters are emphasized. The history of other nations is studied only so far as it may be necessary to make clear United States history. Required of students in the Sub-Freshman Course, and in the second year of the Manual Training courses. Four sections, three hours per week throughout the year.

2. **English History.** This course opens with a review of the wanderings of the celtic and Teutonic races until the time of their settlement in the British Isles. The social, political, and constitutional aspects of English history are then studied with a view of showing the growth of civil liberty and evolution of modern institutions. The treatment of the Reformation includes the English and the German religious movements. In connection with modern English history a brief survey of the French Revolution and the rise of the German Empire is made. Supplementary reading is required from all the students in the course. Adams' *European History* and Montgomery's *Leading Facts in English History* are used as texts. Required of students in the freshman year of all the four year courses. Two sections, three hours per week throughout the year.

3. **Civil Government.** The work in this course is based on Fisher's *Civil Government* and Macy's *Bryce's American*
Commonwealth. Government, in its structure and mechanism, is carefully studied. Students are expected to read and interpret intelligently the constitution of the United States. Origin, development, and changes in governmental institutions receive careful attention. This work is closely correlated with United States history. Required of sophomores. Five hours per week during the first term.

4. Political Economy. Distribution, production, and exchange are the leading topics in Economics. They are treated so as to throw light upon the practical problems of commercial and agricultural life. Questions relating to finance, taxation, banking, and exchange are to receive a discussion wholly of an economic nature. Bullock's *Introduction to Economics*. Occasional lectures are given on questions now agitating the public mind.

**PSYCHOLOGY.**

In this course the life of the normal individual is considered. Especial attention is given to those problems that have a living interest for the student, and find illustration in his everyday life. The principal topics discussed are the relation of mind and body, habit, attention, memory, imagination, association of ideas, instinct, reasoning, emotion, will, and time and space phenomena. These and supplementary reading are required.

**GEOGRAPHY.**

Assistant Professor Robinson.

The study of geography runs through the entire year of the Preparatory Course. To get an intelligent conception of the natural resources of countries, the physical features receive special attention. Astronomical and geological features are presented as far as the course will permit. The principal changes that have wrought the present conditions...
are studied and the atmosphere and water receive attention. Map drawing and frequent reviews are features of the course. Commerce and its effect upon nations is considered, as are also the classifications of mankind, animals, and plants.

DRAWING.

1. Freehand Drawing. This consists in lessons and practice, perspective sketching from casts, and simple studies in light and shadow. Required of all freshmen, the exercises coming five times a week during the first term. It is made to include industrial design.

The junior students in the Domestic Arts Course have special training in designing and elementary art, suitable for young women.

Assistant Professor Robinson.

2. Mechanical Drawing is taught during the entire junior year. Students in this class are required to make working drawings, both detail and assembly, from measurement. Simple designs illustrating the principles taught in the class in mechanism form a prominent feature. Neatness and accuracy of execution determine largely the standard of marking.

Professor Jensen.
Assistant Pulley.

MILITARY SCIENCE AND TACTICS.

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 3-inch 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 students are required 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, the uniform prescribed by the College must be worn.

1. **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 signaling with flag, and in military telegraphy.

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

3. **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. Required of all students except juniors and seniors.

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**PENMANSHIP.**

**INSTRUCTOR MAUGHAN.**

The course in penmanship consists of blackboard and individual instruction. It is required of all students in the Preparatory Course. The class meets daily, but the work counts only two hours per week on the basis of regular class work.

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**VOCAL MUSIC.**

**INSTRUCTOR MITTON.**

A chorus of mixed voices, and also a male chorus, will be organized, composed of all students who wish to join;
and instructions in choral work of a high order will be given. Every effort will be made to cultivate a taste for music and to assist the students in acquiring a knowledge of the same.

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PHYSICAL CULTURE.

INSTRUCTOR MOENCH.

The chief aim in this department is not so much to develop muscle as to relieve the mental strain. Special attention, however, is given to any desiring a course for development or to overcome physical defects.

The exercises consist of military, fancy and calisthenic marching; Swedish and free gymnastics; light and heavy work with apparatus; Indian clubs, dumb-bells, wands, pulley weights, rings, parallel and horizontal bars, ladder, ropes, horse, etc.
Library and Museum Accessions.

LIBRARY ADDITIONS.

Among those to whom the Library is indebted for books and other favors received during the year 1899-1900 are: Hon. J. L. Rawlins, Hon. F. J. Cannon, Hon. W. H. King, the several National Departments and Bureaus at Washington, and the colleges and universities of the United States and Canada.

PERIODICALS CONTRIBUTED.

The following is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to college students and to the general public.

Agricultural Epitomist.
Agriculturist.
American Agriculturist, Middle and Western editions.
American Creamery.
American Cultivator.
American Fertilizer.
American Gardening.
American Grange Bulletin.
American Horticultural Review.
American Horticulturist.
American Poultry Journal.
American Sheep Breeder and Wool Grower.
American Swineherd.
Baltimore Weekly Sun.
California Cultivator and Poultry Keeper.
California Fruit Grower.
Chronique Agricole, Lausanne, Switzerland.
Clover Leaf.
Colman's Rural World.
Commercial Agriculture.
Connecticut Farmer.
Creamery Journal.
Cultivator.
Daily Public Ledger, Philadelphia.
Dairy World.
Dakota Farmer.
Elgin Dairy Report.
Farmers' Advocate.
Farm, Field and Fireside.
Farm and Fireside.
Farmers' Guide.
Farm and Home.
Farmer's Home.
Farmer's Journal.
Farmer's Call.
Farmer's Magazine.
Farming, Toronto, Ontario, Canada.
Farm News.
Farm and Orchard.
Farmers' Review.
Farm, Stock and Home.
Field and Farm.
Gardening.
Grange Visitor.
Hoard's Dairyman.
Holstein Friesian Register.
Hospodar.
Illustrated London News.
Indiana Farmer.
Industrial American.
Industrialist.
Irrigation Age.
Journal of Agriculture.
Jersey Bulletin.
Kansas Farmer.
Live Stock Indicator.
Live Stock Report.
L'Industrie Laitiere, Paris, France.
Louisiana Planter.
Milch Zeitung, Bremen, Germany.
Mirror and Farmer.
Montana Fruit Grower.
Nebraska Farmer.
Neue Zeitschrift fur Ruben-zucker Industrie, Berlin, Germany.
New England Farmer.
New England Florist.
Ohio Farmer.
Orange Judd Farmer.
Pacific Coast Dairyman.
Pacific Rural Press.
Practical Farmer.
Prairie Farmer.
Reliable Poultry Journal.
Revue Internationale des Falsifications, Amsterdam, Holland.
Rural Canadian, Toronto, Ontario, Canada.
Rural Life.
Rural Northwest.
Scottish Farmer, Glasgow, Scotland.
Southern Cultivator.
Stockman and Farmer.
Successful Farmer.
Sugar Beet.
Texas Farm and Ranch.
Ulster Agriculturist, Belfast, Ireland.
Wallace's Farmer.
Weekly Call, San Francisco.  
Weekly Tribune, New York.  
Western Agriculturist and Live Stock Journal.  

Western Rural.  
Wisconsin Agriculturist.  
Wool, Mutton and Pork.  
World, thrice a week.

The following Utah newspapers are also sent by the courtesy of the publishers:

Advocate, Price.  
Advocate, Richfield.  
American Eagle, Murray.  
American, Spanish Fork.  
Banner, Lehi.  
Beobachter, Salt Lake City.  
Blade, Deseret.  
Box Elder News, Brigham.  
Bulletin, Bingham.  
Clipper, Bountiful.  
Democrat, Eureka.  
Deseret News, Salt Lake City.  
Enterprise, Ephraim.  
Enquirer, Provo.  
Express, Vernal.  
Globe, Payson.  
Herald, Salt Lake City.  
Improvement Era.  
Independent, Sandy.  
Independent, Springville.  
Inter-Mountain Advocate, Salt Lake City.  
Item, American Fork.  
Journal, Logan.  
Mercury, Mercur.  
Messenger, Manti.  
Miner, Tintic.  
Nation, Logan.  
News, Beaver.  
Press, Ogden.  
Progress, Fillmore.  
Pyramid, Mount Pleasant.  
Record, Cedar City.  
Record, Park City.  
Republic, Nephi.  
Review, Clear Lake.  
Review, Ogden.  
Rich County News, Randolph.  
Round-up, Randolph.  
Sentinel, Manti.  
Southern Censor, Richfield.  
Standard, Ogden.  
Times, Coalville.  
Transcript, Tooele.  
Tribune, Salt Lake City.  
Utah Patriot, Park City.  
Utonian, Provo.  
Wasatch Wave, Heber.  
Weber County Times, Ogden.  
Women's Exponent.  
Young Woman's Journal.

PERIODICALS PURCHASED.

The list of periodicals placed in the reading room upon subscription is as follows:
LITERARY MAGAZINES.

Atlantic Monthly.
Book News.
Century.
Contemporary Review.
Cosmopolitan.
Critic.
Dial.
Eclectic Magazine.
Edinburgh Review.
Education.
Educational Review.
Fortnightly Review.
Forum.
Gentlewoman.
Harper's Bazar.
Harper's Weekly.
Journal of Education.

Ladies' Home Journal.
Literature.
Literary Digest.
Literary News.
Literary World.
McClure's Magazine.
Munsey's Magazine.
Nation.
Nineteenth Century.
North American Review.
Outlook.
Review of Reviews, Am. Ed.
Scribner's Magazine.
Student's Journal.
University Chronicle.
Westminster Review.
Youth's Companion.

SCIENTIFIC AND TECHNICAL MAGAZINES.

American Florist.
American Kitchen Magazine.
American Machinist.
American Historical Review.
American Naturalist.
American Veterinary Review.
Architectural Record.
Art Education.
Art Journal.
Botanical Gazette.
Delineator.
Dietetic Magazine.
Electrician.
Engineering Magazine.
Etude.

Good Housekeeping.
Home Art.
House, The Beautiful.
Johns-Hopkins University Studies.
Journal of American Folk Lore.
Journal of Association of Engineering Societies.
Journal of Veterinary Archives.
Le Bon Ton.
Library Magazine.
London Illustrated News.
Machinery.
Modern Art.
Music.
Nature.
Penman's Journal.
Political Science Quarterly.
Popular Science Monthly.
Public Libraries.
Publishers' Weekly.
Quarterly Journal of Economics.
Sanitarian.
School Review.
Science.
Scientific American — Supplement.
Studies in Historical and Political Science.
Table Talk.
Torrey Botanical Club.
Transactions of American Society of Mechanical Engineering.
Werner's Voice Magazine.

AGRICULTURAL MAGAZINES.

American Bee Journal.
American Gardening.
American Veterinary Review.
Breeder's Gazette.
Country Gentleman.
Farmer's Magazine.
Farm Poultry.
Forester.
Journal of Horticulture.
Pacific Rural Press.
Alumni Association.

The Alumni Association was organized in June, 1899. All those who hold degrees in any of the courses of the College are eligible to membership. In the first two classes, three students were graduated with the degree of Bachelor of Civil Engineering (B. C. E.) Since 1895, five prescribed courses have been offered, but the degree in each has been Bachelor of Science (B. S.), the particular course being specified in the diploma.

OFFICERS.

LEWIS A. MERRILL, President,
CHARLES A. JENSEN, First Vice-President,
JOHN S. BAKER, Second Vice-President,
ANNA BEERS, Secretary,
ARTHUR STOVER, Treasurer.

EXECUTIVE COMMITTEE.

JOEL HARRIS, OLLA BARKER, F. W. MERRILL,
ANNA BEERS, WILLIAM PETERSON.

ALUMNI.

1894.

Erwin, Robert W., B. S., Chemist . . . . Granite City, Ill.
Dougall, Bernard, B. C. E.* . . . . . . Springville.
Larsen, —, B. C. E., Railroad Mail Clerk, Salt Lake City.
Hoyt, Martha, B. S., Manager Creamery, Hoytsville.

1995.

Culmer, Will Fred, B. C. E., Civil Engineer . . . . . . . . . Salt Lake City.
Merrill, Lewis A., B. S., Assistant Professor of Agriculture and Veterinary Science, A. C. U. . . . . . . . . . . . . . . . . . . . Logan.

*Deceased.
1896.
Langton, Willard S., B. S., Assistant Professor of Mathematics and Astronomy, A. C. U. ................. Logan.
Larsen, Christian, B. S., Teacher ........ Logan.
McLaughlin, Walter W., B. S., Assayer.. Silver City.
Merrill, Amos N., B. S., Dairyman' ..... Richmond.
Merrill, Lorin A., B. S., Dairyman........ Murray.
Rhead, Josiah L., B. S., Civil Engineer.. Corinne.
Thomson, Joseph R., B. S., Teacher .... Richmond.

1898.
Atkinson, Frederick H., Bookkeeper... Baker City, Oregon.
Beers, Anna, B. S. ...................... Logan, Utah.
Bullen, Mabel, B. S. .................... Richmond.
Harris, Joel J., B. S., Teacher ........ Logan.
Irvine, Alexander Ray, B. S., Teacher .. Logan.

1899.
Baker, John S., B. S., County Surveyer .. Logan.
Beers, William Duke, B. S., Civil Engineer ................ Antelope, Idaho.
Bullen, Ethel, B. S., Teacher ............ Richmond.
Gordon, Robert J., B. S., Civil Engineer.. Cardston, Canada.
Hogensen, John Christian, B. S., County Fruit Tree Inspector .............. Newton.
Merrill, Fred W., B. S., Dairyman ...... Preston, Idaho.
Peterson, Joseph H., B. S., Farmer..... Huntsville.
Peterson, William, B. S., Instructor in Mathematics, A. C. U. ........ Logan.
Simmonds, Walter W., B. S., Bookkeeper ...................... Lewiston.
Catalogue of Students.

POST GRADUATES.

Beers, Anna...................... Logan.
Foster, Clara...................... Logan.

SENIORS.

Crawford, Stanley................. Manti, Utah.
Fleming, Burton Percival........ Logan, Utah.
Homer, Rose...................... Oxford, Idaho.
Jensen, Joseph William........... Newton, Utah.
Maughan, Elizabeth Collins....... Petersboro, Utah.
Nelson, William.................. Newton, Utah.
Taylor, George Francis........... Plain City, Utah.

JUNIORS.

Bithell, Joseph James............. Salt Lake City, Utah.
Cooper, Blanche................. McCammon, Idaho.
Crane, Bert...................... Soda Springs, Idaho.
Evans, Esther................... Malad, Idaho.
Perry, Alma...................... Vernal, Utah.
Pulley, Edward Parley........... Logan, Utah.
Smith, Charles Bailey........... Boise, Idaho.
Stover, Mattie Eva.............. Logan, Utah.

SOPHOMORES.

Christensen, Mary Ida............ Hyrum.
Culmer, Arthur Basil............. Salt Lake City.
Davis, Edna Alma................ Salmon, Idaho.
Foster, Elizabeth Curtis........ Logan.
Goodwin, Margaret ................ Pocatello, Idaho.
Holmgren, Amanda .................. Brigham City.
Howell, William Maughan .......... Wellsville.
Irvine, Robert Leo ................. Logan.
Judah, Thomas Nelson .............. Lancaster, Kansas.
Miner, Idalah ...................... Logan.
Neeley, Parley Hugh ............... Kamas, Idaho.
Stoddard, Leon Buckley .......... Sumpter, Oregon.
Williams, Arthur .................. Peterson.

FRESHMEN.

Adams, Hugh Robert ............... Logan.
Barrack, James Edward ........... Salmon City, Idaho.
Bennett, Harry .................... Blackfoot, Idaho.
Boley, Warren Chipman ........... American Fork.
Bybee, Maud ..................... Lewiston.
Bybee, Harret Emma ............... Lewiston.
Caine, John Thomas ............... Logan.
Christensen, Amelia .............. Henry, Idaho.
Christensen, George A. .......... Newton.
Christensen, Jennie .............. Hyrum.
Cohn, Max D. .................... Oneida, Idaho.
Cole, Horatius ................... Willard.
Crane, Elliot Simon .............. Soda Springs, Idaho.
Crockett, Fred Waldo ............ Logan.
Crosby, Jesse Edward ............ Springerville, Ariz.
Crozier, Harry Cullen ........... Point Lookout.
Dodds, William Bovee ............ Tooele.
Davis, Daisy Deane ............... Soda Springs, Idaho.
Davis, Mrs. Mary Violet .......... Logan.
Dudley, Mamie Eliza ............. Clifton, Idaho.
Eagar, George Albert .......... Springerville, Ariz.
Fjeldsted, Estella ............... Logan.
Fryar, George Reed .......... Soda Springs, Idaho.
Fryar, Allen Porter ............. Soda Springs, Idaho.
Groesbeck, Marian .............. Logan.
Grundy, William Jefferson ........... Loa.
Hess, Charles E. ....................... Georgetown, Idaho.
Howell, Joseph Maughan ............... Wellsville.
Jenson, Bertha Lenora .................. Newton.
Knight, Harry Charles .................. Castle Gate.
Larsen, Bertie Marie ................... Mt. Pleasant.
Lunt, John Edgar ....................... Nephi.
Maughan, Josephine Farnes ............ Petersboro.
Maughan, May .......................... Logan.
Merrill, Ambrose Pond ................. Richmond.
Merrill, Preston Reynolds ............. Richmond.
Montrose, Ollie ......................... Smithfield.
Morgan, Samuel Perry ................. Franklin, Idaho.
Morgan, Thomas Oliver ................. Franklin, Idaho.
Nebeker, Aquila Chauncey .......... Lake Town.
Olson, Aaron ........................... Logan.
Peterson, Sern Peter ................... Newton.
Peterson, Thyra Louisa ............... Hyrum.
Rose, Anna Beatrice ................. Soda Springs, Idaho.
Santschi, Eugene ...................... Castle Gate.
Stewart, Robert ........................ Plain City.
Simmonds, Etta ........................ Trenton.
Skeen, William Riley ................... Plain City.
Tarbet, Joseph Abner .................. Logan.
Taylor, Apollos Benjamin ............. Willard,
Tebbs, Fielding Burnes ............... Panguitch.
Tuttle, John Henry ..................... Manti.
Valentine, Ezra Anthony .............. Brigham City.
Valentine, Hyrum Washington ......... Brigham City.
Wittich, Charles Earnest .............. Mercur.

SPECIAL.

Brangham, Irving Lewis ............. Logan.
Cantwell, Harriet ..................... Logan.
Cranny, Adelbert Ezra ................... Logan.
Eames, Ezra ............................. Logan.
Fisher, Thomas Lyon ..................... Bountiful.
Groesbeck, Abby ......................... Logan.
Hansen, Mathias .......................... Bear River City.
Hart, Mrs. Adelia ........................ Logan.
Holm gren, Lydia .......................... Brigham City.
Larsen, David ............................ Collinston.
Monson, E. P. ............................ Franklin, Idaho.
Morrell, Joseph Roland ................. Logan.
Nielsen, Niels Peter ..................... Logan.
Petersen, John Adolph ................... Logan.
Parker, Harry Cooper ..................... Wellsville.
Senter, Clyde Almon ..................... Shoshone, Idaho.
Tanner, Arthur Leroy .................... Provo.
Thomas, Nathan Abner ................... Logan.
Webster, Gertrude ......................... Montpelier, Idaho.
Wilson, Amy Elizabeth ................... Logan.

SUB-FRESHMEN.

Adams, Samuel Joseph ................... Layton.
Affleck, Adam Alonzo .................... Logan.
Aitken, Charles ......................... Kemmerer, Wyoming.
Ajax, Emrys .............................. Centre.
Anderson, Louis Julius .......................... Brigham City.
Andrews, John Montgomery ............. Logan.
Andrews, Bella Montgomery ............. Logan.
Barker, Violet ............................ Willard.
Barratt, James Hunter .................... American Fork.
Basset, Harold .......................... Lago, Idaho.
Basset, Royal Clarence ................. Logan.
Batt, George ............................. Logan.
Beckstead, Bertie ....................... Swan Lake, Idaho.
Beckstead, Leo Samuel .................. Swan Lake, Idaho.
Beckstead, Estella ....................... Whitney, Idaho.
Bigler, George .......................... Collinston.
Bennett, Nellie ................... Lago, Idaho.
Blythe, Lula Annie ................. Salt Lake City.
Blythe, Florence Jane .............. Salt Lake City.
Boyle, Alexander .................. Lost River, Idaho.
Bunce, John ........................ Logan.
Burton, William James ............. Custer, Idaho.
Bybee, Ruth ........................ Lewiston.
Cahoon, Lerona Alice .............. Murray.
Caine, Blanche Elise .............. Logan.
Campbell, James Grant ............. Fairview, Wyoming.
Campbell, William George .......... Fairview, Wyoming.
Cazier, Henry Hallowell .......... Toano, Nevada.
Cazier, Mrs. Eliza Jane .......... Afton, Wyo.
Cazier, Nellie ...................... Toano, Nevada.
Child, Effie Uvinda .............. Fairview, Wyoming.
Christensen, Joseph Adolph ...... Newton.
Christensen, Walter ............... Richmond.
Christensen, Arthur Eugene ...... Newton.
Christofferson, Joseph .......... Newton.
Clawson, Leo Budge ............... Providence.
Connor, Annie Louisa ........... Park City.
Connor, Mary ...................... Park City.
Cooper, Coral ........................ McCammon, Idaho.
Cooper, Robert McEwan ............. Nephi.
Cordon, Edwin Voss ................ Willard.
Coy, Walter James .................. Plain City.
Crane, Elliot Simon ............... Soda Springs, Idaho.
Crawford, Edmund .................. Manti.
Crockett, Ella ........................ Logan.
Cotterell, Archie S ................ Farmington.
Davidson, William Maughan ....... Greenville.
Davis, Cynthia ..................... Auburn, Wyoming.
Davis, John Taylor ................ Soda Springs, Idaho.
<table>
<thead>
<tr>
<th>Name</th>
<th>City or Location</th>
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<tbody>
<tr>
<td>Davis, Dora May</td>
<td>Clifton, Idaho</td>
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<td>Davis, Richard Bowen</td>
<td>Cherry Creek, Idaho</td>
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<td>Dewey, Charles Jesse</td>
<td>Deweyville</td>
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<td>Dudley, Allen</td>
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<td>Dudley, Perney Jane</td>
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<td>Duncan, Leonard Ellsworth</td>
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<td>Eakins, Darlene Lorena</td>
<td>Red Canyon, Wyoming</td>
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<td>Eakins, James Adolphus</td>
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<td>Egbert, Samuel Roy</td>
<td>Logan</td>
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<td>Emeis, Harry Prescott</td>
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<td>Farnsworth, Karl</td>
<td>Beaver</td>
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<td>Farrell, Lewis Steele</td>
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<td>Ferris, Arthur Leslie</td>
<td>Arco, Idaho</td>
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<td>Flack, James Milton</td>
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<td>Fonnesbeck, Amy</td>
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<td>Ford, Parley</td>
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<td>Foster, Thora Alice Lutie</td>
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<td>Fridal, Knud, Jr.</td>
<td>Bear River City</td>
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<td>Fryar, Alfred Gilbert</td>
<td>Soda Springs, Idaho</td>
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<td>Fredrickson, Fred Peter</td>
<td>Brigham</td>
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<td>Fife, Lewis</td>
<td>Providence</td>
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<td>Gamet, Dezza Irene</td>
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<td>Gardiner, Roy William</td>
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<td>Geddes, David</td>
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<td>Gessel, Carl</td>
<td>Providence</td>
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<td>Grace, Mary</td>
<td>Weston, Idaho</td>
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<td>Greaves, Joseph Eames</td>
<td>Preston, Idaho</td>
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<td>Gulley, Clarence</td>
<td>Georgetown, Idaho</td>
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<td>Hanks, Alfred Lyman</td>
<td>Tooele</td>
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<td>Haight, George Hector</td>
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<td>Haight, Jacob Clawson</td>
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<td>Halvorson, Joseph</td>
<td>Castle Gate</td>
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<td>Hanson, Oliver</td>
<td>Logan</td>
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<td>Harris, Selden</td>
<td>Beaver</td>
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<tr>
<td>Harrison, Eliza H.</td>
<td>Liberty, Idaho</td>
</tr>
</tbody>
</table>
Agricultural College of Utah.

Head, Joseph .................... Preston, Idaho.
Head, Dora Ella .................. Plymouth, Idaho.
Henderson, Minnie Blanche ...... Clifton, Idaho.
Henderson, Seth .................. Clifton, Idaho.
Henderson, Laura ................ Clifton, Idaho.
Hepworth, James Edward ....... Salt Lake City.
Hiltbrand, John .................. Logan.
Hogan, Harriet .................. Smithfield.
Holladay, Carrie Mabel ......... Santaquin.
Hooker, Simon Sidney .......... Clifton, Idaho.
Howard, Charles Ashby .......... Rockland, Idaho.
Howell, Sarah Hettie .......... Yost.
Huber, Nephi ................... Midway.
Hugie, William Christian ...... Logan.
Hunsaker, Israel, Jr .......... Honeyville.
Hunsaker, Orpha ............... Honeyville.
Hunt, Vendella ................ Richmond.
Iverson, Orlando .............. Brigham City.
Izatt, Katherine Sproul ....... Logan.
Jacobsen, Christian ............ Logan.
Jacques, Norman Albert ....... Logan.
James, Garfield Clayton ...... Marysville.
James, Henry Robert .......... Logan.
James, Christofferson George .. Providence.
James, Joseph Ralph .......... Providence.
Jarvis, Thomas William ...... Bloomington, Idaho.
Jenkins, John Lewis .......... Malad, Idaho.
Jenson, Peter .................. Logan.
Jenson, Alfred ................. Bear River City.
Jeppson, Severin Thatcher .... Logan.
Johnson, James William ...... Logan.
Johns, Thomas L ................ Bloomington, Idaho.
Johnson, Hans Chris .......... Logan.
Johnson, Caroline Elize ....... Preston, Idaho.
Jones, Marion William ....... Toano, Nevada.
Jones, Benjamin Franklin ...... Willard.
Jones, Robert Alexander .............. Ranesville.
Jorgensen, Arthur Rasmus ............ Bloomington, Idaho.
Judd, James Henry .................... Upton.
Kearl, Mary Emma .................... Laketown.
Kearl, George ....................... Laketown.
Knight, George ....................... Salt Lake City.
Koehler, August Carl ................. Midway.
La Fever, Ralph ...................... Blackfoot, Idaho.
La Fount, Arthur Charles ............ Logan.
Laughney, Clarence .................. Ogden.
Leu, Henry .......................... Willard.
Lish, Emma .......................... Deweyville
Lloyd, John Lea ...................... Sterling
Lowe, William Walker ................. Providence.
Loveland, George Elmer ............. Collinston.
Malstrom, Willard ................... Mapleton, Idaho.
Mathews, Eugene Denton ............. Providence.
Mathews, William .................... Grantsville.
Mattson, Ephraim ................... Logan.
Maughan, George .................... Greenville.
Maughan, Ida Lloyd .................. Wellsville.
Maughan, Ella ....................... Logan.
Merrill, Bertha ...................... Red Rock, Idaho.
Merrill, Frank Thomas .............. Mapleton, Idaho.
Merrill, Harrison ................... Mapleton, Idaho.
Miles, Jennie Mahuldah ............. Peoa
Miles, Mary Iscavinda ............... Peoa.
Moffatt, Joseph Smith ............... Meadowville.
Moore, Thomas Ellis ................ Castle Rock.
Morehead, Milton ................... Logan.
Morris, May ........................ Kemmerer, Wyo.
Morrison, Hyrum ..................... Franklin, Idaho.
Munk, Elizabeth ..................... Logan.
McFall, Nellie Helen ............... Park City.
McKelvey, James .................... Houston, Idaho.
Nebeker, Laurena .................... Lake Town.
Neeley, Parley......................Franklin, Idaho.
Newberger, Helena Emma............Logan.
Norton, Mary Marie................Weston, Idaho.
Nyman, Andrew B......................Greenville.
Olafson, Oscar Peter................Logan.
Olsen, Wilford........................Weston, Idaho.
Osmond, James Arthur................Afton, Wyo.
Owens, Madison Samuel.................Billings, Mont.
Pattersen, Joseph Peter...............Bloomington, Idaho.
Poulsen, Nels Peter..................Logan.
Petersen, Sadie Holladay............Santaquin.
Pope, John Williams..................Vernal.
Rawson, Elsa Sabra..................Ogden.
Rawson, William Wilkinsen...........Ogden.
Redford, Robert Lloyd................Sterling.
Richardson, George P................Antelope, Idaho.
Richardson, Parley Cornelius........Plain City.
Riley, Roscoe........................Sumpter, Oregon.
Roberts, Earnest Peter..............Afton, Wyo.
Robinson, Thomas Arnold..............Richmond.
Robinson, Alma.......................Logan.
Sampson, Irving......................American Falls, Idaho.
Schvaneveldt, Alonzo...............Preston, Idaho.
Sjoberg, Hulda Sophia..............Millville.
Smith, Annie Elaine...............Providence.
Spiers, Edwin........................Dillon, Mont.
Smith, Joseph Alastor, Jr.........Providence.
Siggard, Joseph......................Brigham City.
Stallings, Mary Christena............Eden.
Stallings, John Arthur...............Eden.
Stephens, John......................Malad, Idaho.
Sparks, Earl Franklin...............Nephi.
Starks, Leonard Elias.................Marysvale.
Stoddard, Archibald W..............Spencer, Idaho.
Stoddard, Delbert Chase.............Georgetown, Idaho.
Stowell, Dan Absalom...............Shelley, Idaho.
Swasey, Rodney Degass .......... Mona.
Spidell, Ira Ossian .............. Riverdale.
Spidell, Bessie Ray .............. Riverdale.
Stephenson, Susan Marie .......... Mapleton, Idaho.
Talbot, George Lehi ............. Layton.
Talbot, Alfred .................. Layton.
Tarbet, William ................. Logan.
Taylor, Ella .................... Mapleton, Idaho.
Taylor, David Mathew .......... Payson.
Taylor, Charles Ezra .......... Plain City.
Taylor, Ulysses Carl ........... Willard.
Thomas, Daniel Preston ........ Bloomington, Idaho.
Thomas, William ................. Logan.
Thompson, Junius ............... Bear River City.
Titensor, Rose ................. Coveville.
Tibbets, George Samuel .......... Providence.
Toombs, Eliza Cordon ........... Willard.
Toombs, Roy Chandler .......... Carlin, Nev.
Trevethan, Thomas ............. Salt Lake City.
Tuttle, Lawrence Austin ........ Manti.
Waldron, Lucy Emmeline ....... Morgan.
Waldron, Levi Elias ............ Morgan.
Walton, Parley Pratt ........... Monida, Mont.
Weber, Jacob .................. Logan.
Watson, Milton Thomas .......... Park City.
Watt, Lynne .................... Mercur.
Webster, Ella Lillian .......... Montpelier, Idaho.
Welker, Abraham ............... Bloomington, Idaho.
Welker, Ray ................... Bloomington, Idaho.
Whitmore, Roscoe Phillip ...... Nephi.
Wilkinson, George Henry ....... Park City.
Williams, Manassa Woodville ... Soda Springs, Idaho.
Williams, Christena ........... Salt Lake City.
Williams, Warren Sidney ...... Soda Springs, Idaho.
Wilson, Abigail ............... Logan.
Wilson, Margaret Helen ...... Eden.
Wilson, John Arthur ............... Providence.
Woodall, James Franklin ............ Soda Springs, Idaho.
Wright, Wallace Bruce ................ Franklin, Idaho.
Wright, George William .............. Franklin, Idaho.
Wenger, Elias Justin ................ Ogden.
Wheeler, Beniah ...................... Mapleton, Idaho.
Wheeler, John Andrew ................. Mapleton, Idaho.
Young, Helen Annie .................. Park City.

MANUAL TRAINING.
MECHANIC ARTS.

Third Year.

Hansen, James P ...................... Spring City.
Linford, James Wesley ............... St. Charles, Idaho.
Thomas, Burton Lewis ................. Bloomington, Idaho.

Second Year.

Brown, Joel Thomas .................. Loa.
Grundy, Marion ...................... Loa.
Howell, Elmer Vernon ................. Clifton, Idaho.
Lamb, James H ........................ Coalville.
McCulloch, Oliver .................... Logan.
Tarbet, Loyal ........................ Logan.
Zundell, Joseph Michael .............. Willard.

First Year.

Allred, William Edsil ............... Lewiston.
Anderson, Hyrum ..................... Meadow.
Atkinsen, James Alvin .............. Card, Idaho.
Bailey, Albert Jr .................... Honeyville.
Bennett, Calvin ...................... Lago, Idaho.
Bens, Edmund ........................ Soda Springs, Idaho.
Birchell, James Joshua .............. Fort Chesne.
Brough, William George .............. Porterville.
Bybee, Amasa Marion ............... Lewiston.
Christensen, Frederick ............. Cove, Idaho.
Chugg, William Hyrum ............. Providence.
Crockwell, Earl Maderia ........... Salt Lake City.
Crookston, Robert Young ........... Logan.
Dahle, Frederick ................... Logan.
Davidson, Joseph Reid ............. Logan.
Dearden, Henry ..................... Garrison.
Dickson, Able Joshua .............. Morgan.
Dickson, William Henderson ....... Morgan.
Dickson, John Henry ............... Morgan.
Ecklund, Fritz ..................... Newton.
Erickson, James .................... Logan.
Fisher, John Ira ................... Bountiful.
Frank, Anthony Cole ............... West Weber.
Griffiths, Evan John ............... Diamondville, Wyo.
Hague, Jay Henry .................. Ketchum, Idaho.
Hansen, James Rudolph ............. Weston, Idaho.
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Edwards, Etta ....................... Willard.
Greaves, Hattie ..................... Preston, Idaho.
Groesbeck, Susie .................... Logan.
Harding, Clarice .................... Willard.
Harrison, Lilian Clara ............. Auburn, Wyo.
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Hendrickson, Cora Blanche ......... Collinston.
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La Fount, Elsie....................................Logan.
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Merrill, Jessie.....................................Mapleton, Idaho.
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Parkinson, Susie Smart............................Franklin, Idaho.
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Pratt, Clara Parkinson.........................Logan.
Skeen, Mary Ellen.................................Plain City.
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Gull, Albert .................................. Meadow.
Hansen, Eugene ................................. Collinston.
Jones, Wiley ................................... Lost River, Idaho.
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Stranger, George ................................. American Fork.
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