Oregon Agricultural College

—1901-1902—

ANNUAL CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF THE

STATE OF OREGON

FOR

1901-02

AND

ANNOUNCEMENTS FOR 1902-1903

CORVALLIS, OREGON.

AGRICULTURAL COLLEGE PRINTING OFFICE.
GEO. B. KEADY, PRINTER.
1902.

Calendar--1902-1903.

SEPTEMBER.

S.	M.	T.	W.	T.	F.	S.
...	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	...	...	...	...
...	...	...	...	...	...	...

OCTOBER.

S.	M.	T.	W.	T.	F.	S.
...	...	...	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	...
...	...	...	...	...	...	...

NOVEMBER.

S.	M.	T	W.	T	F.	S.
...	...	...	...	...	...	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	...	...	...	...	...	...

DECEMBER.

S.	M.	T.	W.	T.	F.	S.
...	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	...	...	...

JANUARY.

S.	M.	T.	W.	T.	F.	S.
...	...	...	...	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
...	...	...	...	...	...	...

FEBRUARY.

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
...	...	...	...	...	...	...
...	...	...	...	...	...	...

MARCH.

S.	M.	T.	W.	T.	F.	S.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	...	...	...	...
...	...	...	...	...	...	...

APRIL.

S.	M.	T.	W.	T.	F.	S.
...	...	...	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	...	...

MAY.

S.	M.	T.	W.	T.	F.	S.
...	...	...	...	...	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	...	...	...	...	...	...

JUNE.

S.	M.	T.	W.	T.	F.	S.
...	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	...	...	...	...
...	...	...	...	...	...	...

JULY.

S.	M.	T.	W.	T.	F.	S.
...	...	...	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	...
...	...	...	...	...	...	...

AUGUST.

S.	M.	T.	W.	T.	F.	S.
...	...	...	...	...	...	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 30	24 31	25	26	27	28	29

CALENDAR.

FIRST TERM.

Entrance Examinations for Freshmen, Friday and Saturday, September 19–20, 1902.

Registration, Monday, September 22, 1902.

Recitations begin Tuesday, September 23, 1902.

Final Examinations, Monday and Tuesday, December 22–23, 1902.

SECOND TERM.

Registration, Monday, January 5, 1903.

Recitations begin Tuesday, January 6, 1903.

Final Examinations, Wednesday and Thursday, March 25–26, 1903.

THIRD TERM.

Registration, Monday, March 30, 1903.

Recitations begin Tuesday, March 31, 1903.

Baccalaureate Sermon, Sunday, June 14, 1903.

Final Examinations, Monday and Tuesday, June 15–16, 1803.

Commencement Day, Wednesday, June 17, 1903.

NOTE.—All absences will be charged from the first recitation of the term. The standings of students will be sent to parents or guardians on application to the President or the Registrar.

BOARD OF REGENTS

OF THE

OREGON AGRICULTURAL COLLEGE

AND

EXPERIMENT STATION.

OFFICERS.

HON. J. K. WEATHERFORD, *President*.....Albany.
HON. JOHN D. DALY, *Secretary*.....Corvallis.
HON. B. F. IRVINE, *Treasurer*.....Corvallis.

EX-OFFICIO MEMBERS.

HON. T. T. GEER, *Governor of the State*.....Salem.
HON. F. I. DUNBAR, *Secretary of State*.....Salem.
HON. J. H. ACKERMAN, *Supt. of Public Instruction*.....Salem.
HON. B. G. LEEDY, *Master of State Grange*.....Tigardville.

APPOINTED BY THE GOVERNOR.

	TERM EXPIRES.
HON. BENTON KILLIN	Portland, 1903.
HON. J. M CHURCH	La Grande, 1903.
HON. JOHN D. OLWELL	Central Point, 1903.
HON. WM. E. YATES	Corvallis, 1907.
HON. JOHN D. DALY	Corvallis, 1907.
HON. B. F. IRVINE	Corvallis, 1907.
HON. J. T. APPERSON	Parkplace, 1910.
HON. W. P. KEADY	Portland, 1910.
HON. J. K. WEATHERFORD	Albany, 1910.

STANDING COMMITTEES

OF THE

BOARD OF REGENTS.

EXECUTIVE COMMITTEE.

J. K. Weatherford, *Chairman*, J. T. Apperson, J. D. Daly, W. P. Keady, B. G. Leedy.

FINANCE COMMITTEE.

J. T. Apperson, *Chairman*, W. E. Yates, B. G. Leedy.

COLLEGE COMMITTEE.

B. F. Irvine, *Chairman*, W. P. Keady, J. M. Church.

STATION COMMITTEE.

Benton Killin, *Chairman*, J. M. Church, J. D. Olwell.

FACULTY AND INSTRUCTORS.

THOMAS MILTON GATCH, A. M., PH. D., President,
Political and Mental Science.

JAMES WITHYCOMBE, M. AGR., Director,
Professor of Agriculture.

FREDERICK BERCHTOLD, A. M.,
Professor of English and Literature.

MARGARET COMSTOCK SNELL, M. D.,
Professor of Household Science and Hygiene.

ELLEN JANET CHAMBERLIN, A. M., Dean of Women,
Professor of German and Instructor in English.

GRANT ADELBERT COVELL, M. E.,
Professor of Mechanics and Mechanical Engineering.

JOHN B. HORNER, A. M., LITT. D., Registrar,
Professor of History and Latin.

GORDON VERNON SKELTON, C. E.,
Professor of Mathematics and Engineering.

ARTHUR BURTON CORDLEY, M. S.,
Professor of Zoölogy.

EDWARD RALPH LAKE, M. S.,
Professor of Botany and Horticulture.

ABRAHAM LINCOLN KNISELY, M. S.,
Professor of Chemistry.

HELEN VIRGINIA CRAWFORD, B. S.,
Professor of Elocution.

GEORGE COOTE,
Professor of Floriculture and Gardening.

JOHN FULTON, B. S.,
Professor of Assaying and Assistant Professor of Chemistry.

IDA BURNETT CALLAHAN, B. S.,
Assistant Professor of English.

FRED LEROY KENT, B. AGR.,
Assistant Professor of Agriculture and Dairying.

ERNEST CHESNEY HAYWARD, E. E.,
Assistant Professor of Mechanical and Electrical Engineering.

CHARLES LESLIE JOHNSON, B. S.,
Instructor in Mathematics.

EMILE FRANCIS PERNOT,
Professor of Bacteriology.

CLARENCE MELVILLE McKELLIPS, PH. C.,
Assistant Chemist and Instructor in Pharmacy.

WILLIAM THOMAS SHAW, B. AGR., M. S.,
Instructor in Biology.

MARK CLYDE PHILLIPS, B. M. E.,
Instructor in Mechanical Drawing and Ironwork.

FARLEY DOTY McLOUTH, B. S.,
Director of the Art Department.

DANIEL WILLIAM PRICHARD,
Instructor in Woodwork.

MAJOR FRANK EDWARDS, B. M. E., Commandant,
Military Science and Tactics.

JACOB BRUCE PATTERSON, A. B.,
Physical Director.

MARY SMITH PHILBRICK,
Director of Music.

MARY ELIZABETH AVERY,
Instructor in Sewing.

THOMAS HENRY CRAWFORD, A. M.,
Commerce.

HELEN LUCILE HOLGATE, B. H. E.,
Stenography and Typewriting.

OTHER OFFICERS.

THOMAS HENRY CRAWFORD, A. M.,
Clerk and Purchasing Agent.

LEWIS WARREN OREN, B. M. E.,
Librarian.

GEORGE BRELSFORD KEADY,
Printer.

HELEN LUCILE HOLGATE, B. H. E.,
Stenographer.

WILLIAM THOMAS JOHNSON, B. S. A.,
Assistant Florist and Gardener.

WALTER GEORGE KEADY,
Assistant Printer.

WALTER JAMES KENT,
Foreman of the Farm.

JOHN ANDERSON SPANGLER,
Engineer.

ELLSWORTH ERWIN,
Janitor.

FACULTY COMMITTEES.

ACCREDITED SCHOOLS.—Pernot, Covell, McLouth.

ADVANCED STANDING.—Knisely, Kent, Shaw, Phillips.

ADVISORY COMMITTEE.—Covell, Chamberlin, Horner, Withycombe.

ATHLETICS.—Patterson, Hayward, Shaw, Fulton, McLouth.

DISCIPLINE.—Skelton, Horner, Chamberlin.

EMPLOYMENT.—Coote, Withycombe, Knisely, Edwards.

ENTRANCE EXAMINATIONS.—Dean Chamberlin, Skelton, Berchtold, Johnson, Callahan.

GRADUATES.—Berchtold, Kent, Phillips.

LECTURES AND LITERARY ENTERTAINMENTS.—Helen V. Crawford, Edwards, Horner.

LEGISLATION.—Withycombe, McLouth, Covell.

LIBRARY.—Callahan, Withycombe, Holgate, Horner.

LITERARY SOCIETIES.—Snell, Patterson, McKellips, Pernot.

MASTER'S DEGREE.—Lake, Skelton, Cordley.

MUSIC.—Philbrick, Thomas H. Crawford, Chamberlin, Fulton, Prichard.

PUBLICATIONS.—Horner, Berchtold, Lake, Cordley.

SOCIAL ENTERTAINMENTS.—Cordley, Chamberlin, Kent, Johnson.

TERM SCHEDULES.—Fulton, Horner, Johnson.

THE STATION STAFF.

THOMAS MILTON GATCH, M. A., PH. D.,
President.

JAMES WITHYCOMBE, M. AGR.,
Director and Agriculturist.

ARTHUR BURTON CORDLEY, M. S.,
Entomologist.

EDWARD RALPH LAKE, M. S.,
Botanist and Horticulturist.

GEORGE COOTE,
Florist and Gardener.

ABRAHAM LINCOLN KNISELY, M. S.,
Chemist.

JOHN FULTON, B. S.,
Assistant Chemist.

CLARENCE MELVILLE McKELLIPS, PH. C.,
Assistant Chemist.

FRED LEROY KENT, B. S., AGR.,
Assistant Agriculturist and Dairy Instructor.

EMILE FRANCIS PERNOT,
Bacteriologist.

THOMAS HENRY CRAWFORD, A. M.,
Clerk and Purchasing Agent.

HELEN LUCILE HOLGATE, B. H. E.,
Stenographer.

Oregon Agricultural College.

HISTORY.

By an act approved by President Lincoln, July 2, 1862, a grant of land was made by the United States to each state in the Union in the amount of thirty thousand acres, or its equivalent, for each Senator and Representative to which the state was entitled by the apportionment of the census of 1860.

The proceeds under this act were to constitute a perpetual fund the principal of which was to remain forever undiminished; but interest arising from said fund in each state, which should avail itself of the benefits of the act, was to be applied inviolably to the support and maintenance of a "College where the leading objects shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a 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 of life."

Ninety thousand acres of land were apportioned to Oregon, and by an Act approved October 9, 1862, the Legislative Assembly of Oregon accepted the provisions of the congressional law.

In 1868 the legislature appointed three commissioners to locate the land, which was done and the report submitted in 1870.

There were in 1868 no state colleges in Oregon, and the same legislature that provided for the location of the land gave the use of the funds that should arise from the sale of the land to the Corvallis College, in Benton county, an institution of learning under the control of the M. E. Church, South.

None of the land of the land grant having as yet been sold, the legislature made an annual appropriation to support the school until the fund to be derived from the grant should become sufficiently large for that purpose. The amount appropriated, while not large, accomplished the purpose: It kept "the feeble spark from expiring."

In 1885 the church voluntarily relinquished its claim on the funds of the Agricultural College, and the state resumed control vesting the general control of the college in a board of regents, granting full power to that end.

In the summer of 1887 the corner-stone of a brick structure was laid by the Governor of Oregon amid imposing ceremonies. This structure, the new Agricultural College, erected by citizens of Benton county on the Agricultural College farm, was the nucleus around which other buildings soon began to cluster as necessity and growing interests demanded.

For a year or two there was ample room; but like a healthy plant placed in good soil, the institution expanded, until the original thirty-five acres have increased to nearly two hundred, and the first structure now proudly surveys its eight descendants.

THE MORRILL ACT.

On August 30, 1890, "An Act" was passed by Congress "to apply a portion of the proceeds of the public lands to

the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July 2, 1862.

This act provided that in 1890, $15,000 should be paid to these land grant colleges and that the amount so appropriated should be increased by the sum of $1,000 annually for ten years, and that thereafter the amount annually appropriated should continue to be $25,000.

It is provided in this act that this money shall be "applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic sciences with special reference to their application in the industries of life, and to the facilities for such instruction." But it is provided that "no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

THE HATCH ACT.

In addition to the above, this college receives from the United States, under the "Hatch Bill" of 1887, the sum of $15,000 a year for experimenting in agriculture. With this sum it supports an agricultural experiment station in connection with the college. As this "Hatch Fund" is used entirely for experiment work, it adds nothing to the income available for educational purposes. But the experiment station is valuable to students in agriculture in giving them practical illustration in many agricultural and horticultural processes.

LOCATION.

The State Agricultural College is located at Corvallis, Oregon, near the head of navigation on the Willamette river. The city, as its name indicates, is in the heart of this beautiful valley. To the east, on the distant horizon, may be seen the Cascades, with their snow-capped peaks, while to the west, and near at hand, is the Coast range. Mary's Peak, the tallest in the range, is covered with snow for several months of the year, and, though twenty miles away, adds beauty to the scene.

Corvallis is located on high ground, is healthful, and has not been visited by any dangerous, epidemic diseases. It is accessible by rail from the east, west, north and south.

BUILDINGS AND GROUNDS.

CAMPUS AND FARM.

The college grounds comprise in all 184.32 acres. The campus of 39.57 acres is tastefully laid out and adorned with trees, shrubbery, flower gardens, walks, and drives, and is intended eventually to be ornamented with all the various kinds of trees and shrubs of the State. On the campus are the grounds for military drill, base ball, foot ball, lawn tennis, bicycle track, golf and general athletics. The college farm which is to the west of the administration building, consists of 144.75 acres. The farm is provided with barns, silos, piggery, tool house, implements and stock, sufficient for the purpose of practical instruction in agriculture. One hundred acres of the farm are devoted to a variety of farm crops, grassplats, orchards, berry and vegetable plats, illustrative of the studies and experiments in agriculture and horticulture.

ADMINISTRATION BUILDING.

The administration building stands on a pleasant elevation to the west of Corvallis, and is a large substantial brick structure. This building contains many class rooms, library, chapel, museum, and the offices of the President, Registrar, and Clerk of the College.

AGRICULTURAL HALL.

This building, which will be finished before the opening of the college year, will be the largest and in many respects the finest structure on the campus. It is to be a stone building 85x125 feet and three stories high. It will provide the offices of the director of the experiment station, a large assembly hall for agricultural and horticultural meetings, and laboratories and class rooms for the departments of agriculture, chemistry, zoölogy and entomology, botany and horticulture, and bacteriology. On the first floor will be a large stock-judging room and the dairy department; while the attic is to be used as a museum. This building, exclusive of fixtures, is to cost about $40,000.

ASSAY BUILDING.

The assay building is located to the south of, and quite near, the administration building, and is devoted exclusively to the subjects of assaying and mineralogy. The laboratories in this building are thoroughly equipped for the work in hand.

THE PHARMACY BUILDING

Occupying a position in the northwestern corner of the campus, is a neat two-story frame structure, which affords comfortable and ample accommodations for the teaching of the strictly pharmaceutical branches. Two laboratories and

a lecture room are located upon the first floor, while the upper story is used as a study.

GYMNASIUM AND ARMORY.

South of the mining building may be seen the very substantial structure of the gymnasium and armory, a building 70 x 120 feet, built of wood and stone. The basement, 12 feet high in the clear, contains the bowling alleys, physical culture rooms for men and women, and the physical director's quarters.

The main hall, which is 20 feet to the under side of the trusses, has an unobstructed floor area of 8000 square feet. It is encircled by a suspended gallery six feet wide. A stage, with dressing rooms for men and women, occupies the east end of the main hall.

This spacious building serves as a drill hall for the cadets, and the classes in physical culture.

HORTICULTURAL BUILDING.

This building stands north of the administration building, and contains a class room and laboratories for the department of floriculture and gardening.

Adjoining this building are spacious greenhouses which contain an extensive and typical collection of florist's plants.

POWER HOUSE.

To the west of the administration building is located the power house, a roomy, one story brick structure containing, in the north wing, one forty-five horse power engine with two electric generators of two hundred light capacity each, which furnish light for all the principal buildings, including the armory and the dormitories, as well as power for mechanical hall. The south wing, with cement floor, is all

one large blacksmith shop containing twenty forges for the use of students taking the mechanical and agricultural courses.

MECHANICAL HALL.

One of the most substantial, as well as elegant, structures on the campus is mechanical hall. With its solid stone walls and galvanized iron roof it is a fine example of modern architecture.

On the first floor are found the machine shops, the printing office, the physical laboratory and various recitation rooms and the office of the professor of mechanical engineering; while the rooms in the upper story are occupied by the departments of art, mathematics and civil engineering, and the classes in wood-working and mechanical drawing.

THE HEATING PLANT.

The heating plant, which has all the latest improved steam-heating appliances, has a capacity sufficient to keep the recitation rooms at a summer temperature on the coldest days. This building is made of brick and stone.

CAUTHORN HALL

Is a large and comfortable building, four stories high, amply provided with hot and cold water, steam heat, and electric lights.

The dining room, kitchen, and club rooms of this building are commodious, pleasant, and well furnished. This dormitory and boarding hall is sufficient to accommodate about one hundred students.

ALPHA HALL.

Is a cheerful and delightful home for the young women students. It is two stories high and contains rooms for

thirty young ladies, besides pleasant reception and music rooms and a commodious dining hall. It is lighted by electricity and provided with excellent water.

STUDENT LIFE.

CAUTHORN HALL.

Cauthorn Hall, commonly known as the Young Men's Hall, was built in 1891, for the use of young men who desire to live economically while attending school and at the same time enjoy the privileges and refining influences of the cultured home. The hall was named in honor of Senator Thomas Cauthorn, a friend and benefactor of the Oregon Agricultural College. The building, which is conveniently located and amply supplied with hot and cold water, bath rooms, steam heat and electric lights is sufficiently large to accommodate one hundred persons. The dining room, kitchen, and club rooms are pleasant and well furnished. Students' rooms are uniformly ten feet wide, and respectively fourteen, seventeen and twenty feet long.

The hall is under the management of Professor and Mrs. J. B. Horner, who conduct it on the co-operative plan.

To become a member of Cauthorn Hall Club it is necessary for the applicant to furnish satisfactory evidence that he does not use tobacco nor profane language, and that his conduct is gentlemanly at all times.

Inasmuch as it has been found practicable to provide a sinking fund for the large supply of wood and other necessaries constantly kept on hand, each member of the club is required to have on deposit with the club at the beginning of each fiscal month prior to January, twenty dollars; from January to April, eighteen dollars; after April, fifteen

dollars. The unexpended portion of this fee is returned to the depositor at the close of the school year or at the expiration of his membership.

The average cost of living at Cauthorn Hall, including rent, heat, board, etc., during the past three years has been about $2.30 per week.

Each student's room is furnished with a table, chairs, a chest with drawers; and each student is supplied with mattress, springs and a bedstead three feet wide and six feet long. The student is expected to furnish four sheets, two pillowcases, blankets, two napkins, quilt, pillow, window-blind 3 x 6½ feet, towels, broom, dustpan, washbowl and pitcher, mirror, comb, brushes, tumblers, carpet or matting, pictures and other ornaments that will make his room comfortable and homelike. He should bring a dictionary and such other books as are used for study, for reference, and for profitable entertainment.

The hall is furnished with a reading room which is supplied by the club with some choice current literature.

Relatives and visiting friends will be charged 15 cents per meal and 20 cents for lodging—tickets for meals and lodging being furnished by the book-keeper.

No reduction will be made during the term, save for prolonged absence caused by sickness, when one-half will be deducted.

Cauthorn Hall will be closed during the winter holidays.

For further information send for special circular.

ALPHA HALL.

It is the purpose of those having charge of the hall, to make it a comfortable and happy home for the young ladies, surrounding them with such influences as will, dur-

ing their college course, largely contribute to their welfare and progress.

During the summer vacation, the hall will be thoroughly renovated and improvements made which will add greatly to the convenience and pleasantness, not only of the sleeping apartments, but of the whole house.

The hall is provided with a piano, while the spacious grounds are supplied with tennis courts and croquet sets, for the amusement of the young ladies during hours of recreation.

Each room is furnished with mirror, chest with drawers, bedstead, spring mattress, pillow, two chairs and table. Each student should bring with her, table napkins, towels, bedroom crockery and bedding.

The board will be $2.50 per week.

Friends visiting students will be charged 15 cents per meal.

Those not willing to observe strictly the two rules of the house—quiet observance of study hours and promptness at all meals—will please not apply for rooms.

SOCIAL LIFE OF THE STUDENTS.

Literary contests are common events, the societies meeting in joint session, with prominent citizens as judges. The Y. M. C. A. and Y. W. C. A. hold their regular sessions at the college every Sunday afternoon. These gatherings aid materially in developing the social and spiritual life of the members. At the beginning of the school year these associations conduct a bureau of information and furnish Y. M. C. A. hand-books gratis to all students. Each year a popular course of lectures free to all students is given, under the direction of the faculty, by distinguished speak-

ers from various parts of the state. Vocal and instrumental music intersperse various features of the college work, so that a student in a career of four years may not leave the institution without the refining influences of this important art. Physical culture is encouraged in every way at the gymnasium and on the training grounds. Bowling, fencing, Indian-club swinging, dumb-bell exercises, foot ball, basket ball, base ball, golf and lawn tennis occupy the spare moments of the students in a happy commingling of all classes. These social affairs, although under the direction of a committee of the faculty, are managed by the students who thereby acquire a training in social life destined to be of great value to them.

Corvallis is pre-eminently a college town noted for social clubs, literary societies, and active churches which vie with each other in friendly interest and hospitality toward our young people. More and more as the institution progresses patrons of the college move hither that they may be with their children and at the same time enjoy the refining influences and cultured society of a college community.

SOCIETIES.

The students maintain several literary societies, four for young ladies and four for young gentlemen. These societies are of a semi-fraternal nature, offering to their members social as well as literary advantages. The exercises consist principally of essays, declamations, debates and music. Public and joint meetings are held by permission of the faculty. Many other features of college life, social and literary, are under their supervision. Students are elected to membership by those already belonging to the societies.

The following is a list of the different societies now in existence:

For young ladies: Sorosis, Pierian, Feronian, Utopian.

For young men: Amicitia, Jeffersonian, Philadelphian, Zetagathian.

The membership of each of these societies is limited to forty. They are all in a flourishing condition.

In March, 1896, the literary societies of the college began the publication of a monthly periodical, the "College Barometer." The enterprise met with marked success, and the paper, controlled entirely by students, now wields a strong influence in all college affairs. During the coming year every effort will be made to improve it and make it of interest not only to those directly connected with the school, but to all who are in touch with literary, scientific and industrial education. The editors will be pleased to receive news of alumni and other persons formerly connected with the college. Brief, pointed notes, accounts of scientific experiments and discoveries, and short, well-written and instructive literary articles are also solicited.

ATHLETIC ASSOCIATION.

The students of the college maintain an athletic association which is governed by the following rules and regulations:

1. The athletic union of the college shall have immediate charge of, and be responsible for, the proper conduct of all athletic games of the college, under the supervision of the athletic committee of the faculty.

2. A candidate for any position on an athletic team, bearing the colors and name of the Oregon Agricultural College, shall be of good moral character and shall not fall below a passing grade in more than one study.

3. No one shall be allowed to represent the Oregon Agricultural College in any public athletic contest, either individually or as a member of any team, unless he can satisfy the athletic committee of the faculty of the Oregon Agricultural College that he is, and intends to be throughout the college year, a *bona fide* member of the college, taking a full year's work.

4. No one who is not a *regular* student in the college, and no *regular* student who has ever played in any intercollegiate contest upon a

class or university team of any other college, shall play upon an Oregon Agricultural College team until he has resided one academic year at the college and passed the regular examinations upon a full year's work.

5. No student shall be allowed to represent the Oregon Agricultural College in any public athletic contest, either individually or as a member of any team, who, either before or since entering the college, shall have engaged for money in any athletic competition, whether for a stake, or a money prize, or a share of the entrance fees or admission money; or who shall have taught or engaged in any athletic exercise or sport as a means of livelihood; or who shall at any time have received for taking part in any athletic sport or contest any pecuniary gain or emolument whatever, direct or indirect, with the single exception that he may have received from the college organization, or from any permanent amateur association of which he was at the time a member, the amount by which the expenses necessarily incurred by him in representing his organization in athletic contests exceeded his ordinary expenses.

6. A committee on athletics, composed of five members of the faculty, shall have general supervision over all athletics of the college.

7. All actions of the athletic union must be referred to this committee for its approval.

8. All trainers employed by the clubs of the college must be of good moral character, and must be approved by the athletic committee.

GOVERNMENT.

The college does not undertake to prescribe in detail either its requirements or prohibitions. Students are met on a plane of mutual regard and helpfulness. Our appeal is to a proper sense of the proprieties of life and the necessity of organization on such a basis.

Established by a government that recognizes no distinction of religious belief, the Oregon Agricultural College seeks neither to promote any creed nor to exclude any; but it will always do everything in its power to promote the religious spirit and life.

Whenever the college life of any student is such that his influence, directly or indirectly, is injurious to the work of the institution, he will be relieved from further attendance at this college.

All absences will be charged from the first recitation of the term.

COURSE OF LECTURES.

In addition to the regular lectures given in the various departments by members of the faculty, a course of lectures by representative men, is delivered at convenient intervals during the year. These lectures bring young people in contact with leaders in the various departments of human endeavor; arouse investigation on current topics; stimulate students to emulate the achievements of specialists; give breadth of scholarship to the student and aid in developing the character of the institution. They rank among the most attractive features of college life and are free to all students.

CONDITIONS OF ADMISSION.

To enter the freshman year the applicant must be at least fifteen years of age, and must be able to pass a satisfactory examination in reading, spelling, geography, arithmetic (written and mental), United States history English grammar, and algebra to quadratics.

ADMISSION FROM OTHER COLLEGES.

Students from other colleges must show a certificate of good standing, or honorable dismissal. Such applicants will receive credit for studies pursued in any college authorized to confer degrees, so far as the two courses are equivalent, upon presenting a certificate of standing from the proper officers.

ADMISSION FROM ACCREDITED SCHOOLS.

Graduates from the following accredited schools will be admitted to the freshman year without examination, provided they have completed algebra to quadratics:

Albany,
Astoria,
Ashland,
Baker City,
Bandon (Major Course),
Bishop Scott Academy,
Burns,
Coquille Collegiate Institute,
Corvallis,
Cottage Grove,
Cove,
Elgin,
Eugene,
Forest Grove,
Fossil,
Garland Academy,
Grant's Pass,
Heppner,
Hillsboro High School,
Hill's Military Academy.
Hood River
Independence,
Jacksonville,
Klamath Falls,
Lafayette High School,
La Grande,
Lakeview,
Lebanon,
Marshfield,
McMinnville,
Medford,
Milton,
Moro,
North Yamhill,
Oregon City,
Ontario,
Parkplace,
Pendleton,
Portland,
Prineville,
Roseburg,
Salem,
Santiam Academy,
Silverton,
Summerville,
The Dalles,
Tillamook,
Union,
Wasco.
Woodburn.

The above list is subject to annual revision.

Those applicants who have completed a high school course will be given proper credit for work accomplished, upon presenting satisfactory evidence to the head professors of the departments concerned.

ADMISSION UPON CERTIFICATES AND STATEMENTS.

The holder of a certificate or statement signed by the county school board of examiners certifying that at a regular teachers' examination he received a satisfactory grade to entitle him to a teacher's certificate, may be admitted to all the freshman classes except algebra. He may remove such deficiency in algebra upon furnishing the President with a satisfactory statement from a teacher or school superintendent that the applicant is familiar with the sub-

ject of algebra to quadratics; or, upon arrival at the college, he may make good such deficiency by examination or by class recitation.

ADMISSION TO THE SUB-FRESHMAN CLASS.

The course of instruction offered under this head is intended for young people who live at considerable distance from an academy or high school, and are unable to attend such, but have finished the eighth grade in a good public school. No tuition is charged. The work is distributed in the three terms as follows:

SUB-FRESHMAN YEAR.

FIRST TERM.

English Grammar 5	English A
English Composition 5	English B
Arithmetic 5	Mathematics A
U. S. History 5	History A
Reading 1, 2	Elocution A
Military Drill 1½, 3 (young men)	Military A
Physical Culture 1½, 3 (young ladies)	Physical Culture A

SECOND TERM.

English Grammar 5	English C
English Composition 5	English D
Elementary Algebra 5	Mathematics B
U. S. History 5	History B
Elocution 1, 2	Elocution B
Military Drill 1½, 3	Military B
Physical Culture 1½, 3	Physical Culture B

THIRD TERM.

English Grammar 5	English E
English Composition 5	English F
Algebra 5	Mathematics C
Physical Geography 5	Geography A
Elocution 1, 2	Elocution C
Military Drill 1½, 3	Military C
Physical Culture 1½, 3	Physical Culture C

According to a regulation of the board of regents no students may be admitted to this class who come from towns or cities of more than fifteen hundred inhabitants, or from such as are supporting good high schools. To enter this class, students must be fifteen years of age.

ADMISSION OF SPECIAL STUDENTS.

None can be admitted as irregular or special students unless they belong to one of the following classes:

1. Those who desire to devote special attention to music and take at least two lessons a week in our department of music.
2. Those who on account of poor health certified by physicians cannot take a complement of studies.
3. Residents who are heads of families and have household duties to look after.
4. Residents who are engaged in regular business or profession and have time for only one or two studies.
5. Such persons as may be permitted to take special studies by vote of the Faculty at a regular monthly meeting.

SCOPE OF THE INSTITUTION.

The scope of the institution, as now organized, cannot be better stated than in the comprehensive words of the act of Congress defining the duty of this and similar colleges:

"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 legislature of the state may prescribe, *in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.*"

Based upon this broadened foundation, the special work of the Oregon Agricultural College is the training of youth in those branches of learning which lie at the foundation of modern industrial pursuits. In accordance with the purposes of its founders, and the terms of its original charter, it aims to give special and prominent attention to agriculture, both theoretical and experimental; but it also pro-

vides "a liberal and practical education" in the leading branches of mathematical, natural and physical sciences, in order to prepare youth "for the several pursuits and professions of life." It has increased its subjects and courses of study, and its teaching and illustrative equipment, to such an extent that now, "without excluding classical studies," its leading object is to teach the various sciences in such a manner as to show their applications in the more important industries, to combine with every branch of instruction such an amount of actual practice in the shop, the field, and the laboratory as will serve to illustrate and apply the theory, but without subordinating it. The course in agriculture, as now arranged, conforms very closely to the recommendations of the *Association of American Agricultural Colleges and Experiment Stations*. The range of work in the various courses is shown, as far as the limits of space will allow, in the following descriptive statements and schedule. It is confidently believed that few institutions in the country furnish opportunities for obtaining advanced scientific education to an equal extent and thoroughness at so moderate a cost and with so many incidental advantages.

DEGREES AND COURSES OF STUDY.

UNDERGRADUATE WORK.

The courses offered at the college are arranged under four general heads—Agriculture, Mechanical and Electrical Engineering, Household Science, Mining, Commerce and Pharmacy—all of which require training in English, mathematics, history, elocution, drawing and such other branches as are requisite to a practical education.

Graduation requires four years of college work; and all

the courses of study lead to the degree of Bachelor of Science. In order that the college may meet the needs of a greater number of people and the students intensify along special lines, much of the work is made elective, as may be seen by reference to the courses of study published elsewhere in this catalogue.

In addition to the above courses provision has been made for courses in Vocal and Instrumental Music, a two-year course in Mining, a two-year course in Commerce, and a short course in Agriculture.

GRADUATE WORK.

That students may be encouraged to continue their college work after graduation, the board of regents has made provision for courses leading to advanced degrees.

ADVANCED DEGREES.

Advanced degrees will be given to graduates of this college, or similar, approved colleges, upon the following conditions:—

An applicant for a higher degree must present himself for examination in one major and at least one minor study. Major and minor courses leading to the degree of Master of Science, to be selected from different departments, approved by the faculty, are provided for in the departments of Agriculture, Botany, Chemistry, Economics, Horticulture, Zoology, Mechanical and Electrical Engineering and Household Science. The minor, at the option of the student, may also be taken from the departments of Mathematics, English History or Modern Languages. The candidate must prepare a thesis, based upon original research, which shall show scholarly acquirements of a high order. This thesis must be printed or typewritten and bound, and two copies of it left in the college library. The candidate must spend at least one academic year, or its equivalent, as a resident student at this college in preparing for this degree.

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5 ..... Mathematics I.
English Composition 5 ..... English I
General History 5 ..... History I.
* { Freehand Drawing 1½, 3 ..... Drawing I.
{ Elocution 1, 2 ..... Elocution I.
* Woodwork 2½, 5 ..... Shopwork I.
Military Drill 2, 4 ..... Military I.

SECOND TERM.

Geometry 5 ..... Mathematics IV.
English Composition 5 ..... English II.
* General History 5 ..... History II.
Elocution 1, 2 ..... Elocution II.
Freehand Drawing 1½, 3 ..... Drawing II.
Woodwork 2½, 5 ..... Shopwork II.
Military Drill 1, 2 ..... Military II.
Physical Culture 1, 2 ..... Physical Culture I.

THIRD TERM.

Geometry 5 ..... Mathematics V.
Composition and Rhetoric 5 ..... English III.
Plant Morphology 5, 7 ..... Botany I.
Breeds of Stock 5 ..... Agriculture I.
* Freehand Drawing 2½, 5 ..... Drawing III.
Military Drill 2½, 5 ..... Military III

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7 ..... Chemistry I.
Trigonometry 5 ..... Mathematics VI.
Rhetoric 5 ..... English IV.
*Plant Histology 5, 7 ..... Botany II.
Blacksmithing 1½, 3 ..... Shopwork IV.
Military Drill 2, 4 ..... Military IV.

SECOND TERM.

Physics 5, 7 ..... Physics I.
Chemistry 5, 7 ..... Chemistry II.
Rhetoric 4 ..... English V.
Soils and Manures 2½ ..... Agriculture IV.
Dairying 2½ ..... Agriculture II.
*Blacksmithing 2½, 5 ..... Shopwork V.
Military Drill 1, 2 ..... Military V.
Physical Culture 1, 2 ..... Physical Culture II.

THIRD TERM.

*Physics 5, 7 ..... Physics II
Chemistry 2, 3 ..... Chemistry III.
Chemistry 3, 4 ..... Chemistry XI.
English Literature 5 ..... English VI.
Zoology 5, 7 ..... Zoology I.
Irrigation and Drainage 5 ..... Agriculture III.
Military Drill 2½, 5 ..... Military VI.

JUNIOR YEAR.

FIRST TERM.

English Literature 5 ..... English VII
*Entomology 5, 7 ..... Zoology II.
Agricultural Chemistry 5 ..... Chemistry IV.
Dairying 5 ..... Agriculture V.
Military Science 1½, 3 ..... Military VII.
Military Drill 1 ..... Military VIII.

SECOND TERM.

Plant Physiology 5, 7 ..... Botany III.
*Literature 5 ..... English VIII.
Vertebrate Anatomy 5, 7 ..... Zoology III.
Agricultural Chemistry 5 ..... Chemistry XXI.
Military Drill 1, 2 ..... Military IX.
Military Science 2 ..... Military X.

THIRD TERM.

American Literature 5 ..... English IX.
*Surveying 5, 7 ..... Mathematics X.
†Chemistry 5, 7 ..... Chemistry V.
Civics 5 ..... Political Science II.
Physiology 5, 7 ..... Zoology IV.
Steam Engine 1, 2 ..... Mechanics IV.
Military Drill 2½, 5 ..... Military XI.

† Required of students who elect thesis work in the department of chemistry.

SENIOR YEAR.

FIRST TERM.

Economics 5	Political Science I.
Soil Physics $2\frac{1}{2}$	Agriculture VII.
Horticulture $2\frac{1}{2}$	Horticulture I.
Military Drill $1\frac{1}{2}$, 3	Military XII.
Military Science 1	Military XIII.

†*Electives.*

German 5, or,	German X.
Latin 5	Latin X.
Chemistry 5, 7	Chemistry V.
Mineralogy 5, 7	Chemistry VI.
Forestry	Botany VIII.
Kitchen Gardening	Gardening I.
Botany 5, 7	Botany IV.
Zoology 5, 7	Zoology VI.
Bacteriology 5, 7	Bacteriology I.
Geology 5	Geology I.

SECOND TERM.

Psychology 5	Mental Science I.
Soil Physics $2\frac{1}{2}$	Agriculture VIII.
Horticulture $2\frac{1}{2}$	Horticulture II.
Military Drill 1, 2	Military XIV.
Military Science 2	Military XV.

†*Electives.*

German 5, or,	German XI.
Latin 5	Latin XI.
Botany 5, 7	Botany V.
Forestry 5	Botany IX.
Kitchen Gardening 5	Gardening II.
Chemistry 5, 7	Chemistry VII.
Zoology 5, 7	Zoology VII.
Bacteriology 5, 7	Bacteriology II.

Assaying 3, 6 ..... Chemistry IX.
Elocution 1, 2 ..... Elocution V.

THIRD TERM.

Veterinary Science 5 ..... Agriculture IX.
Horticulture 5 ..... Horticulture III.
Stock Feeding and Breeding 4 ..... Agriculture VI.

†*Electives.*

‡Military Drill $2\frac{1}{2}$, 5 ..... Military XVI.
American Literature 5 ..... English IX.
German 5, or, ... German VI.
Latin 5 ..... Latin VI.
Astronomy 5 ..... Mathematics XI.
Forestry 5 ..... Botany X.
Kitchen Gardening 5 ..... Gardening III.
Agricultural Engineering 5 ..... Mathematics XII.
Botany 5, 7 ..... Botany VI or VII.
Zoology 5, 7 ..... Zoology VIII.
Chemistry 5, 7 ..... Chemistry VIII.
Bacteriology 5, 7 ..... Bacteriology III.
Assaying 3, 6 ..... Chemistry X.

*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

†In addition to the required studies seniors must select from the electives a sufficient number of hours to form a full course of 22 hours.

‡Seniors who accept commissions as cadet officers are required to drill during the third term.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN HOUSEHOLD SCIENCE.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5 ..... Mathematics I.
English Composition 5 ..... English I.
General History 5 ..... History I.
* { Freehand Drawing 1½, 3 ..... Drawing I.
{ Elocution 1, 2 ..... Elocution I.
General Hygiene ½, 1 ..... Household Science I.
Sewing 2, 4 ..... Household Science II.
Physical Culture 1½, 3 ..... Physical Culture I.

SECOND TERM.

Geometry 5 ..... Mathematics IV.
English Composition 5 ..... English II.
* General History 5 ..... History II.
Elocution 1, 2 ..... Elocution II.
Freehand Drawing 1½, 3 ..... Drawing II.
Etiquette ½, 1 ..... Household Science III
Sewing 2, 4 ..... Household Science IV.
Physical Culture 1½, 3 ..... Physical Culture II.

THIRD TERM.

Geometry 5 ..... Mathematics V.
Composition and Rhetoric 5 ..... English III.
Plant Morphology 5, 7 ..... Botany I.
* Freehand Drawing 2½, 5 ..... Drawing III.
Sewing 2½, 5 ..... Household Science V.
Physical Culture 1½, 3 ..... Physical Culture III.

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7 ..... Chemistry I.
Plant Histology 5, 7 ..... Botany II.
Rhetoric 5 ..... English IV.
Dressmaking 2½, 5 ..... Household Science VI.
Elocution 1, 2 ..... Elocution III.
Physical Culture 1½, 3 ..... Physical Culture IV.
*Trigonometry 5 ..... Mathematics VI.

SECOND TERM.

*Floriculture 5 ..... Floriculture I.
History of Eastern Peoples 5 (half term) ..... History III.
Floriculture 5 (half term) ..... Floriculture I.
Chemistry 5, 7 ..... Chemistry II.
Rhetoric 4 ..... English V.
Dressmaking 2½, 5 ..... Household Science VII.
Physical Culture 1½, 3 ..... Physical Culture V.

THIRD TERM.

English Literature 5 ..... English VI.
Zoology 5, 7 ..... Zoology I.
Chemistry 2, 4 ..... Chemistry III
Chemistry 3 ..... Chemistry XI.
Modern History 5 ..... History IV.
* Dressmaking 2½, 5 ..... Household Science VIII.

JUNIOR YEAR.

FIRST TERM.

Literature 5	English VII.
Entomology 5, 7	Zoology II.
Floriculture 5	Floriculture II.
German 5, or,	German I.
Latin 5	Latin I.
Cookery 2½, 3	Household Science IX.

SECOND TERM.

Plant Physiology 5, 7	Botany III.
Literature 5	English VIII.
Floriculture 5	Floriculture III.
German 5, or,	German II.
Latin 5	Latin II.
Vertebrate Anatomy 5, 7	Zoology III.
Cookery 1½, 3	Household Science X.
Physical Culture 1½, 3	Physical Culture VI.

THIRD TERM.

Dairying 5, or,	Agriculture V.
American Literature 5	English IX.
German 5, or,	German III.
Latin 5	Latin III.
Physiology 5, 7	Zoology IV.
Civics 5	Political Science II.
Cookery 3	Household Science XI

Students desiring to elect thesis work in the department of chemistry must take Course V in chemistry in the Junior year.

SENIOR YEAR.

FIRST TERM.

Economics 5 ..... Political Science I.
Aesthetics 5 ..... Household Science XII.
German 5, or, ... German IV.
Latin 5 ..... Latin IV.

†*Electives.*

Literature 5 ..... English X.
Botany 5, 7 ..... Botany IV.
Zoology 5, 7 ..... Zoology V.
Bacteriology 5, 7 ..... Bacteriology I.
Elocution 1, 2 ..... Elocution IV.
Drawing 2½, 5 ..... Drawing IV.
Chemistry of Foods 5, 7 ..... Chemistry XII.
Geology 5 ..... Geology I.

SECOND TERM.

Psychology 5 ..... Mental Science I.
German 5, or, ... German V.
Latin 5 ..... Latin V.
Aesthetics 5 ..... Household Science XIII.

†*Electives.*

Physics 5, 7 ..... Physics I.
Chemistry of Foods 5, 7 ..... Chemistry XIII.
Zoology 5, 7 ..... Zoology VI.
Botany 5, 7 ..... Botany V.
Elocution 1, 2 ..... Elocution V.
Drawing 2½ 5 ..... Drawing V.
Bacteriology 5, 7 ..... Bacteriology II.
Literature 5 ..... English XI.

THIRD TERM.

Domestic Lectures 5 ..... Household Science XIV.
German 5, or, ... German VI.
Latin 5 ..... Latin VI.

† *Electives.*

Literature 5 ..... English XII.
Physics 5, 7 ..... Physics II.
Chemistry of Foods 5, 7 ..... Chemistry XIV.
Zoology 5, 7 ..... Zoology VII.
Botany 5, 7 ..... Botany VI.
Elocution 1, 2 ..... Elocution VI.
Drawing 2½, 5 ..... Drawing VI.
Astronomy 5 ..... Mathematics XI.
Bacteriology 5, 7 ..... Bacteriology III.
Landscape Gardening 5 ..... Horticulture III.

*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

†In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN MECHANICAL ENGINEERING

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
* Freehand Drawing 1½, 3	Drawing I.
* Elocution 1, 2	Elocution I.
Woodwork 2½, 5	Shopwork I.
Military Drill 2, 4	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
*General History 5	History II.
Elocution 1, 2	Elocution II.
Freehand Drawing 1½, 3	Drawing II.
Woodwork 2½, 5	Shopwork II.
Military Drill 1, 2	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Modern History 5	History IV.
*Freehand Drawing 2½, 5	Drawing III.
Woodwork 2½, 5	Shopwork III.
Military Drill 2½, 5	Military III.

SOPHOMORE YEAR.

FIRST TERM.

Trigonometry 5 ..... Mathematics VI.
Rhetoric 5 ..... English IV.
Mechanical Drawing 5, 10 ..... Mechanical Engineering I.
*Blacksmithing 2½, 5 ..... Shopwork IV.
Military Drill 2, 4 ..... Military IV.

SECOND TERM.

Algebra 5 ..... Mathematics II.
Physics 5, 7 ..... Physics I.
Rhetoric 4 ..... English V.
*Mechanical Drawing 2½, 5 .... Mechanical Engineering II.
Blacksmithing 2½, 5 ..... Shopwork V.
Military Drill 1½, 3 ..... Military V.
Physical Culture 1, 2 ..... Physical Culture II.

THIRD TERM.

Algebra 5 ..... Mathematics III.
Physics 5, 7 ..... Physics II.
English Literature 5 ..... English VI.
Mechanical Drawing 1½, 3 .... Mechanical Engineering III.
Blacksmithing 2½, 5 ..... Shopwork VI.
*Military Drill 2½, 5 ..... Military VI.

‡JUNIOR YEAR—MECHANICAL.

FIRST TERM.

Chemistry 5, 7.....Chemistry I.
*Literature 5.....English VII.
Analytical Geometry 5.....Mathematics VII.
Descriptive Geometry 5.....Mechanical Engineering V.
Machine Shop $2\frac{1}{2}$, 5.....Shopwork VII.
Military Drill $1\frac{1}{2}$, 3.....Military VII.
Military Science 1.....Military VIII.

SECOND TERM.

Chemistry 5, 7.....Chemistry II.
Physiology 5.....Zoology V.
*Descriptive Geometry 3.....Mechanical Engineering VI.
Calculus 5.....Mathematics VIII.
Machine Shop $2\frac{1}{2}$, 5.....Shopwork VIII.
Military Drill 1, 2.....Military IX.
Military Science 2.....Military X.

THIRD TERM.

Mechanism 5.....Mechanical Engineering IV.
Calculus 5.....Mathematics IX.
Steam Engines and Boilers 4, Mechanical Engineering VII.
Civics 5.....Political Science II.
*Machine Shop 2, 4.....Shopwork IX.
Military Drill $2\frac{1}{2}$, 5.....Military XI.

‡Students wishing to specialize in electrical engineering may elect to do so at the beginning of the junior year.
*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

SENIOR YEAR—MECHANICAL.

FIRST TERM.

Economics 5 ..... Political Science I.
Mechanics of Engineering 5, Mechanical Engineering VIII.
Thermodynamics 3 ..... Mechanical Engineering IX.
Physics 5, 7 ..... Physics III.
Military Drill 1½, 3 ..... Military XII.
Military Science 1 ..... Military XIII.

†*Electives.*

Literature 5 ..... English X.
German 5, or, ... German IV.
Latin 5 ..... Latin IV.
Woodwork 2½, 5 ..... Shopwork X.
Ironwork 2½, 5 ..... Shopwork XI.
Mechanical Drawing 2½, 5 ..... Mechanical Engineering X.
Mineralogy 3, 6 ..... Mineralogy I.

SECOND TERM.

Structure of Woods and Metals 5, 7 ..... Botany XI.
Psychology 5 ..... Mental Science I.
Machine Design 5, 7 ..... Mechanical Engineering XI.
Mechanics of Engineering 5, Mechanical Engineering XII.
Military Drill 1, 2 ..... Military XIV.
Military Science 2 ..... Military XV.

†*Electives.*

Literature 5 ..... English XI.
German 5, or, ... German V.
Latin 5 ..... Latin V.
Woodwork 2½, 5 ..... Shopwork XII.
Ironwork 2½, 5 ..... Shopwork XIII.
Mechanical Drawing 2½, 5 ... Mechanical Engineering XIII.
Assaying 3, 6 ..... Chemistry IX.
Elocution 1, 2 ..... Elocution V.

THIRD TERM.

Mechanics of Engineering 5 . . Mechanical Engineering XIV.
Machine Design 5, 7 . . . . . Mechanical Engineering XV.

†*Electives.*

German 5, or, ... German VI.
Latin 5 . . . . . Latin VI.
Astronomy 5. . . . . Mathematics XI.
American Literature 5 . . . . . English IX.
Surveying 5, 7 . . . . . Mathematics X.
Woodwork 2½, 5 . . . . . Shopwork XIV.
Ironwork 2½, 5 . . . . . Shopwork XV.
Mechanical Drawing 2½, 5 . . . Mechanical Engineering XVI.
Assaying 3, 6 . . . . . Chemistry X.
*Military Drill 2½, 5 . . . . . Military XVI.

†In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours.

*Seniors who accept commissions as cadet officers are required to drill during the third term.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

JUNIOR YEAR—ELECTRICAL.

FIRST TERM.

Electricity and Magnetism 6, 9 . . Electrical Engineering I.
Descriptive Geometry 5 . . . . . Mechanical Engineering V.
Analytical Geometry 5 . . . . . Mathematics VII.
*Literature 5 . . . . . English VII.
Machine Shop $2\frac{1}{2}$, 5 . . . . . Shopwork VII.
Military Drill 1, 2 . . . . . Military VII.
Military Science 1 . . . . . Military VIII.

SECOND TERM.

Electricity and Magnetism 5, 7 . . Electrical Engineering II.
* Literature 5 . . . . . English VIII.
Descriptive Geometry 3 . . . . . Mechanical Engineering VI.
Calculus 5 . . . . . Mathematics VIII.
Machine Shop $2\frac{1}{2}$, 5 . . . . . Shopwork VIII.
Military Drill 1, 2 . . . . . Military IX.
Military Science 2 . . . . . Military X.

THIRD TERM.

Calculus 5 . . . . . Mathematics IX.
Electricity and Magnetism 3 . . . Electrical Engineering III.
Steam Engines and Boilers 4. Mechanical Engineering VII.
* Civics 5 . . . . . Political Science II.
Mechanism 5 . . . . . Mechanical Engineering IV.
Machine Shop 2, 4 . . . . . Shopwork IX.
Military Drill $2\frac{1}{2}$, 5 . . . . . Military XI.

SENIOR YEAR—ELECTRICAL.

FIRST TERM.

Economics 5 ..... Political Science I.
Mechanics of Engineering 5. Mechanical Engineering VIII.
Alternating Currents and Dynamo Design 5, 7 ..... Electrical Engineering IV.
Physics $3\frac{1}{2}$, 7 ..... Physics III.
Military Drill 1, 2 ..... Military XII.
Military Science 1 ..... Military XIII.

† *Electives.*

Literature 5 ..... English X.
German 5, or, ... German IV.
Latin 5 ..... Latin X.
Woodwork $2\frac{1}{2}$, 5 ..... Shopwork X.
Ironwork $2\frac{1}{2}$, 5 ..... Shopwork XI.
Mechanical Drawing $2\frac{1}{2}$, 5 ..... Mechanical Engineering X.
Mineralogy 3, 6 ..... Mineralogy I.

SECOND TERM.

Psychology 5 ..... Mental Science I.
Machine Design 5, 7 ..... Mechanical Engineering XI.
Mechanics of Engineering 5. Mechanical Engineering XII.
Alternating Currents and Dynamo Design 5, 7 ..... Electrical Engineering V.
Military Drill 1, 2 ..... Military XIV.
Military Science 2 ..... Military XV.

† *Electives.*

German 5, or, ... German XI.
Latin 5 ..... Latin XI.
Woodwork $2\frac{1}{2}$, 5 ..... Shopwork XII.
Ironwork $2\frac{1}{2}$, 5 ..... Shopwork XIII.
Mechanical Drawing $2\frac{1}{2}$, 5 ... Mechanical Engineering XIII.

†Assaying 3, 6 ..... Chemistry IX.
Elocution 1, 2 ..... Elocution V.
Literature 5 ..... English XI.

THIRD TERM.

Mechanics of Engineering 5 .. Mechanical Engineering XIV.
Machine Design 5 ..... Mechanical Engineering XV.
Alternating Currents and Dynamo Design 5, 7 .... Electrical Engineering VI.

†*Electives.*

German 5, or, ... German XII.
Latin 5 ..... Latin XII.
Astronomy 5 ..... Mathematics XI.
American Literature, 5 ..... English IX.
Surveying 5, 7 ..... Mathematics X.
Woodwork 2½, 5 ..... Shopwork XIV.
Ironwork 2½, 5 ..... Shopwork XV.
Mechanical Drawing 2½, 5 .. Mechanical Engineering XIV.
Assaying 3, 6 ..... Chemistry X.
‡Military Drill 2½, 5 ..... Military XVI.

*Latin or German may be elected instead, but no credit will be given towards graduation for less than the full course of six terms.

† Students electing Assaying must have previously taken Mineralogy I.

‡ Seniors who accept commissions as cadet officers are required to drill during the third term.

In addition to the regular studies seniors must select from the electives enough hours to form a full course of 22 hours.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COURSE IN PHARMACY.

FRESHMAN YEAR.

FIRST TERM.

Algebra 5	Mathematics I.
English Composition 5	English I.
General History 5	History I.
Latin 5	Latin I.
Freehand Drawing 1½, 3	Drawing I.
Elocution 1, 2	Elocution I.
†Military Drill 2, 4	Military I.

SECOND TERM.

Geometry 5	Mathematics IV.
English Composition 5	English II.
Latin 5	Latin II.
General History 5	History II.
Freehand Drawing 1½, 3	Drawing II.
Elocution 1, 2	Elocution II.
Military Drill 1, 2	Military II.
Physical Culture 1, 2	Physical Culture I.

THIRD TERM.

Geometry 5	Mathematics V.
Composition and Rhetoric 5	English III.
Latin 5	Latin III.
Plant Morphology 5, 7	Botany I.
Military Drill 2½, 5	Military III.

†Throughout the course young ladies take Physical Culture instead.

SOPHOMORE YEAR.

FIRST TERM.

Chemistry 5, 7 ..... Chemistry I.
Rhetoric 5 ..... English IV.
German 5 ..... German I.
Plant Histology 5, 7 ..... Botany II.
Military Drill 2, 4 ..... Military IV.

SECOND TERM.

Physics 5, 7 ..... Physics I.
Rhetoric 4 ..... English V.
German 5 ..... German II.
Chemistry 5, 7 ..... Chemistry II.
Military Drill 1, 2 ..... Military V.
Physical Culture 1, 2 ..... Physical Culture I.

THIRD TERM.

German 5 ..... German III.
Zoology 5, 7 ..... Zoology I.
Chemistry 5, 10 ..... Chemistry XV.
Modern History 5 ..... History IV.
Military Drill 2½, 5 ..... Military VI.
Physics 5, 7 ..... Physics II.

JUNIOR YEAR.

FIRST TERM.

Literature 5 ..... English VII.
Medical Chemistry 5 ..... Chemistry XVI.
Therapeutics and Doses 2 ..... Pharmacy V.
Pharmacy 2 ..... Pharmacy II.
Military Drill 1, 2 ..... Military VII.
Military Science 1 ..... Military VIII.
Nomenclature 1 ..... Pharmacy VI.
German 5 ..... German IV.

SECOND TERM.

Medical Chemistry 5 ..... Chemistry XVII.
Pharmacognosy 2 ..... Pharmacy III.
Vertebrate Anatomy 5, 7 ..... Zoology III.
Pharmacy 3, 5 ..... Pharmacy IV.
Literature 5 ..... English VIII.
Military Drill 1, 2 ..... Military IX.
Military Science 2 ..... Military X.
German 5 ..... German V.

THIRD TERM.

Quantitative Chemistry 5, 7 ..... Chemistry V.
Physiology 5, 7 ..... Zoology IV.
Plant Classification 5, 7 ..... Botany VII.
Civics 5 ..... Political Science II.
Military Drill 2½ 5 ..... Military XI.
Pharmacognosy 2 ..... Pharmacy I.
Pharmacy 3, 5 ..... Pharmacy VII.
German 5 ..... German VI.

SENIOR YEAR.

FIRST TERM.

Materia Medica and Therapeutics 3 ..... Pharmacy VIII.
Operative Pharmacy 4, 6 ..... Pharmacy IX.
Pharmaceutical Analysis 5, 10 ..... Chemistry XVIII.
Military Drill 1, 2 ..... Military XII.
Military Science 2 ..... Military XIII.
Bacteriology 5, 7 ..... Bacteriology I.

SECOND TERM.

Materia Medica and Therapeutics 3 ..... Pharmacy XIV.
Prescription Practice 4½, 7 ..... Pharmacy X.
Pharmaceutical Analysis 5, 10 ..... Chemistry XIX.
Military Drill 1, 2 ..... Military XIV.
Military Science 2 ..... Military XV.
Bacteriology 5, 7 ..... Bacteriology II.

THIRD TERM.

Pharmacognosy and Synonyms 3 ..... Pharmacy XI.
Prescription Practice 5½, 8 ..... Pharmacy XV.
Toxicology 1 ..... Pharmacy XIII.
Pharmaceutical Analysis 5, 10 ..... Chemistry XX.
Military Drill 2½, 5 ..... Military XVI.
Bacteriology 5, 7 ..... Bacteriology III.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

*COURSE IN MINING.

FRESHMAN YEAR.

FIRST TERM.

†Algebra 5 ..... Mathematics I.
†English Composition 5 ..... English I.
†General History 5 ..... History I.
Freehand Drawing 1½, 3 ..... Drawing I.
Elocution 1, 2 ..... Elocution I.
†Woodwork 2½, 5 ..... Shopwork I.
†Military Drill 2, 4 ..... Military I.

SECOND TERM

Geometry 5 ..... Mathematics IV.
†English Composition 5 ..... English II.
†General History 5 ..... History II.
Freehand Drawing 1½, 3 ..... Drawing II.
Elocution 1, 2 ..... Elocution II.
†Woodwork 2½, 5 ..... Shopwork II.
†Military Drill 1, 2 ..... Military II.
†Physical Culture 1, 2 ..... Physical Culture I.

THIRD TERM.

Geometry 5 ..... Mathematics V.
†Composition and Rhetoric 5 ..... English III.
Modern History 5 ..... History III.
Freehand Drawing 2½, 5 ..... Drawing III.
†Physical Geography 5 ..... Physical Geography I.
†Military Drill 2½, 5 ..... Military III.

* Students desiring to take a short course in mining will be given a certificate in mining after completing the studies marked [†].

SOPHOMORE YEAR.

FIRST TERM.

Economics 5.....Political Science I.
Trigonometry 5.....Mathematics VI.
†Rhetoric 5.....English IV.
†Mechanical Drawing 5, 10.....Mechanical Engineering I.
†Blacksmithing $2\frac{1}{2}$, 5.....Shopwork IV.
†Military Drill 2, 4.....Military IV.

SECOND TERM.

Physics 5, 7.....Physics I.
Algebra 5.....Mathematics II.
†Rhetoric 4.....English V.
†Mechanical Drawing $2\frac{1}{2}$, 5....Mechanical Engineering II.
†Blacksmithing $2\frac{1}{2}$, 5.....Shopwork V.
†Military Drill 1, 2.....Military V.
Physical Culture 1, 2.....Physical Culture II.

THIRD TERM.

Physics 5, 7.....Physics II.
Algebra 5.....Mathematics III.
Surveying 5, 7.....Mathematics X.
†Mechanical Drawing $1\frac{1}{2}$, 3...Mechanical Engineering III.
†Tool Dressing $2\frac{1}{2}$, 5.....Shopwork VI.
†Military Drill $2\frac{1}{2}$, 5.....Military VI.

JUNIOR YEAR.

FIRST TERM.

†Chemistry 5, 7 ..... Chemistry I.
Mine Surveying 3 ..... Mathematics XIII.
Analytical Geometry 5 ..... Mathematics VII.
Descriptive Geometry 5 ..... Mechanical Engineering V.
†Machine Shop 1½, 2½ ..... Shopwork VII.
Military Drill 1, 2 ..... Military VII.
Military Science 1 ..... Military VIII.
†Geology 5 ..... Geology I.

SECOND TERM.

Tunneling, leveling, etc., 5 ..... Mathematics XIV.
†Chemistry 5, 7 ..... Chemistry II.
Descriptive Geometry 3 ..... Mechanical Engineering XI.
Calculus 5 ..... Mathematics VIII.
†Machine Shop 2½, 5 ..... Shopwork VIII.
Military Drill 1, 2 ..... Military IX.
Military Science 2 ..... Military X.

THIRD TERM.

Calculus 5 ..... Mathematics IX.
Steam Engines and Boilers 4 ..... Mech. Engineering VII.
Civics 5 ..... Political Science II.
Military Drill 2½, 5 ..... Military XI.
†Mechanism 5 ..... Mechanical Engineering IX.
†Qualitative Analysis 5, 10 ..... Chemistry XV.

SENIOR YEAR.

FIRST TERM.

†Mineralogy 3, 6 ..... Mineralogy I.
Mechanics of Engineering 5. Mechanical Engineering VIII.
Thermodynamics 3..... Mechanical Engineering IX.
†Physics 5, 7..... Physics III.
Military Drill 1, 2 ..... Military XII.
Military Science 1..... Military XIII.

SECOND TERM.

†Metallurgy 5, 7..... Mineralogy II.
†Assaying 3, 6..... Chemistry IX.
Psychology 5 ..... Mental Science I.
Mechanics of Engineering 5. . Mechanical Engineering XII.
Military Drill 1, 2..... Military XIV.
Military Science 2..... Military XV.

THIRD TERM.

Mining Engineering 5..... Mathematics XV.
Mining Hydraulics and Ventilation 5 } ..... Mechanical Engineering XVII.
†Assaying 3, 6..... Chemistry X.
Mechanics of Engineering 5. . Mechanical Engineering XIV.
‡Machine Design 5..... Mechanical Engineering XV.
Military Drill 2½, 5..... Military XVI.

‡Students cannot take machine design in third term without having same in second term.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

COMMERCE—LITERARY COURSE.

FRESHMAN YEAR.

FIRST TERM.

Bookkeeping 3	Bookkeeping I.
English Composition 5	English I.
Commercial Arithmetic 5	Arithmetic I.
Algebra 5	Mathematics I.
Penmanship 2	Penmanship I.
Military Drill 2, 4, or	Military I.
Physical Culture 1½, 3	Physical Culture I.

SECOND TERM.

Bookkeeping 7, 3	Bookkeeping II.
English Composition 5	English II.
Commercial Arithmetic 5	Arithmetic II.
Geometry 5	Mathematics IV.
Penmanship 2	Penmanship II.
Military Drill 1, 2, or	Military II.
Physical Culture 1½, 3	Physical Culture II.

THIRD TERM.

Bookkeeping 3	Bookkeeping III.
Composition and Rhetoric 5	English III.
Commercial Arithmetic 5	Arithmetic III.
Geometry 5	Mathematics V.
Penmanship 2	Penmanship III.
Military Drill 2½, 5, or	Military III.
Physical Culture 1½, 3	Physical Culture III.

SOPHOMORE YEAR.

FIRST TERM.

Bookkeeping 3	Bookkeeping IV.
Stenography 4, 5	Stenography I.
Typewriting 4, 5	Typewriting I.
Rhetoric 5	English IV.
Floriculture 2, 3	Floriculture I.
Military Drill 2, 4, or	Military IV.
Physical Culture 1½, 3	Physical Culture IV.

SECOND TERM.

Bookkeeping 3	Bookkeeping V.
Rhetoric 4	English V.
Stenography 5	Stenography II.
Typewriting 5	Typewriting II.
Algebra 5	Mathematics II.
Military Drill 1, 2, or	Military V.
Physical Culture 1, 2	Physical Culture V.

THIRD TERM.

Bookkeeping 3	Bookkeeping VI.
Stenography 5	Stenography III.
Typewriting 5	Typewriting III.
Algebra 5	Mathematics III.
Zoology 5, 7	Zoology I.
Military Drill 2½, 5, or	Military VI.
Physical Culture 1½, 3	Physical Culture VI.

JUNIOR YEAR.

FIRST TERM.

Commercial Law 3 ..... Commercial Law I.
Latin 5, or, ... Latin I.
German 5 ..... German I.
English 5 ..... English VII.
Entomology 5, 7 ..... Zoology II.
General History 5 ..... History I.
Military Drill 1, 2 ..... Military VII.
Military Science 1 ..... Military VIII.
Physical Culture $\frac{3}{4}$, $1\frac{1}{2}$ ..... Physical Culture VII.

SECOND TERM.

Commercial Law 3 ..... Commercial Law II.
Latin 5, or, ... Latin II.
German 5 ..... German II.
English 5 ..... English VIII.
General History 5 ..... History II.
Vertebrate Anatomy 5, 7 ..... Zoology III.
Military Drill 1, 2 ..... Military IX.
Military Science 2 ..... Military X.
Physical Culture $\frac{3}{4}$, $1\frac{1}{2}$ ..... Physical Culture VIII.

THIRD TERM.

Civics 5 ..... Civics I.
Latin 5, or, ... Latin III.
German 5 ..... German III.
English 5 ..... English IX.
Modern History 5 ..... History IV.
Military Drill $2\frac{1}{2}$, 5 ..... Military XI.
Physical Culture $2\frac{1}{2}$, 5 ..... Physical Culture IX.

SENIOR YEAR.

FIRST TERM.

Economics 5 ..... Political Science I.
Latin 5, or, ... Latin IV.
German 5 ..... German IV.
English 5 ..... English X.
Aesthetics 5 ..... Household Science XII.
Military Drill 1, 2 ..... Military XII.
Military Science 1 ..... Military XIII.
Physical Culture ¾, 1½ ..... Physical Culture X.

SECOND TERM.

Latin 5, or, ... Latin V.
German 5 ..... German V.
English 5 ..... English XI.
Aesthetics 5 ..... Household Science XIII.
Psychology 5 ..... Mental Science I.
Military Drill 1, 2 ..... Military XIV.
Military Science 2 ..... Military XVI.
Physical Culture ¾, 1½ ..... Physical Culture XI.

THIRD TERM.

Latin 5, or, ... Latin VI.
German 5 ..... German VI.
Astronomy 5 ..... Mathematics XI.
Geology 5 ..... Geology I.
Military Drill 2½, 5 ..... Military XV.
Physical Culture 2½, 5 ..... Physical Culture XII.

A student may upon obtaining written consent of the heads of departments interested, substitute higher mathematics for any other branch of study.

DEPARTMENT OF MUSIC.

MARY SMITH PHILBRICK, Director.

Pianoforte—Based on two lessons a week.

Grade I—Kohler, Bk. I. Easy pieces. One term. Course I.

Grade II—Czerny, arr. by Germer, Bk. I. Sonatinas by Clementi. Pieces. Two terms. Courses II, III.

Grade III—Czerny, arr. by Germer, Bk. II. Czerny Octave Studies. Sonatas by Haydn, Mozart, and Kuhlau. Raff 30 Etudes. Major and Minor Scales. Krause Trill Studies, Bk. I. Phrasing Studies by Heller and Bertini. Three terms. Courses IV, V, VI.

Grade IV—Czerny, arr. by Germer, op. 447. Twenty-five Studies by Cramer. Bach, Inventions and Preludes. Sonatas by Mozart and Beethoven. Pieces. Three terms. Courses VII, VIII, IX.

Grade V—Gradus Tausig. Bach two and three part inventions. Cramer Studies concluded. Concertos and difficult piano pieces for concert work. Three terms. Courses X, XI, XII.

Voice Culture—Based on two lessons a week.

Grade I—Vocal exercises for placing the voice. Vaccai Italian Studies. Bonaldi, Bk. I in part. One term. Course I.

Grade II—Bonaldi completed. Conconi 50 Studies. Lutgen Trill Studies, Bk. I. Sieber Elementary Exercises. Two terms. Courses II, III.

Grade III—Lutgen, Bk. II—Studies in phrasing by all composers. Bk. I, Scales and Exercises. Nava Studies,

Bk. I, op. 36 and op. 22. Three terms. Courses IV, V, VI.

Grade IV—Bordogni, Bk. I. Exercises in Bravura work and rapid scales by Lamperti. Oratorio and opera selections. Six terms. Courses VII, VIII, IX, X, XI, XII.

Pieces suited to the pupil with all studies.

Drill in part singing through 3d and 4th grades.

Three grades of the Pianoforte course are required for graduation.

Recitals, both public and private, will aid the students in obtaining mastery of themselves before an audience.

Harmony.

First Year—Simple Chords. Inversions. Modulation. Analysis.

Text-book: Gœtschius' Tone Relations.

Second Year—Polyphonic forms. Composition work.

Theory and History.

First Year—Elson's canons of String. The laws of Sound. The history of Orchestral Instruments. The history of Forms. Musical terms and Expressions.

Second Year—General History of the Scale. Jewish Music. The Grecian Tetrachord. The Gregorian Chant. The Folk Songs of Germany—of France. The rise of Opera 1600 A. D. The Period of Bach and Handel. The Modern Orchestra. The rise and development of pianoforte playing through the Golden and the Classic Age to the present day. America's history in early Boston and elsewhere.

Harmony, Theory and History are required for graduation in Pianoforte and Voice Culture.

The Choral Classes—Based on three lessons a week.

First Year—History of music in relation to national history. Tone relations. The major and minor second 3d and

6th. Practical work in reading and writing intervals. Chorus from Oratorio. Glees and simple chorus work. The Chant. Courses I, II, III.

Second Year—The history of the scale. The pitch of the orchestra. Perfect 4ths and 5ths. Practice in writing intervals. Keys. Chorus and quartet work. "Joan of Arc." The "St. Paul" Oratorio complete. Courses IV, V, VI.

Third Year—Musical terms and forms. The history of the German Folk Song, the English Ballad and the American Song. Lectures on Schubert, Wagner, Mozart, Beethoven. Practice with the 7th, all diminished, minor and augmented intervals. Brahm's "Vineta." Chorus from Mesiah, Elijah, The Holy City. Selections from the Operas. Courses VII, VIII, IX.

This course is designed to give those of limited time and means an intelligent understanding of the origin and development of song and instrumental music, as well as the ability to read at sight.

Graduation.—Upon completion of any course in music, the student will receive a certificate of graduation. While none of the regular college studies are required in the department of music, a broad, general education is earnestly recommended as necessary to success in the musical profession.

Terms.—Tuition in this department is payable to the College Clerk strictly in advance. Pianoforte or voice culture—private lessons of one-half hour, 50 cents each.

Choral Work.—Three dollars per year or $1.50 per term.

Students registering in music are expected to pursue the study throughout the term.

Piano rent, one hour per day, $1 per month. Books and music, $3 to $5 per term.

DEPARTMENTS OF INSTRUCTION.

MENTAL AND POLITICAL SCIENCE.
AGRICULTURE.
HISTORY AND LATIN.
HOUSEHOLD SCIENCE.
MODERN LANGUAGES.
MECHANICAL AND ELECTRICAL ENGINEERING
CHEMISTRY AND PHARMACY.
ENGLISH LANGUAGE AND LITERATURE.
MATHEMATICS AND ENGINEERING.
ZOOLOGY.
BOTANY AND HORTICULTURE.
ELOCUTION.
FLORICULTURE AND GARDENING.
BACTERIOLOGY.
DRAWING.
MILITARY.
PHYSICAL CULTURE.
MINING.
LITERARY COMMERCE.
MUSIC.

MENTAL AND POLITICAL SCIENCE.

THOMAS M. GATCH, A. M., PH. D.

Course I.—*Economics.*—Senior year; first term. During the first part of the term our aim is to familiarize the student with the principles of the science. The last part of the term is devoted principally to debates, informal discussions and theme work. Our library is well supplied with reference books in this department. Students are encouraged in original investigation. The labor question, socialism, taxation, money and tariff receive attention. Five hours a week. Ely's Introduction, with Lectures.

Course II.—*Civics.*—Junior year; third term. Practical information is presented as to the rights and duties which attach to American citizenship. Constant care is taken to give reasons as well as justification for each power exercised by our government, and to inculcate in every way the moral obligations of good citizenship. Five hours a week. Willoughby, "Rights and Duties of American Citizenship," with Lectures.

Course III.—*Psychology.*—Senior year; second term. This study presupposes a considerable acquaintance with the structure and functions of the brain and nervous system. Students acquire this knowledge in the laboratory under the direction of the professor of zoology. The intellectual faculties, the sensibilities and the will are carefully studied; the various schools of philosophy are criticised and compared and themes are often required from members of the class. Five hours a week. Halleck, with Lectures.

AGRICULTURE.

JAMES WITHYCOMBE, M. Agr., Professor of Agriculture.
F. L. KENT, B. Agr., Assistant Professor of Agriculture.
W. J. KENT, Foreman.

The object sought throughout the entire agricultural course is to familiarize the student with the art and science of agriculture. This embraces the study of zoology, botany, chemistry and bacteriology, the sciences related to agriculture; and the supplementary studies of mathematics, economics, physics, history, language and other cultural branches, all of which broaden the course of study and tend to elevate the educated farmer to the intellectual level of other professions.

The college laboratories are strictly modern in their appointments and are supplied with up-to-date equipments, which afford the student unusual opportunities for making a thorough study of all the sciences related to agriculture.

While the theory of agriculture, as based upon the sciences, is being taught, the industrial side is not overlooked. Instruction is given in wood and iron working in the carpenter and blacksmith shops under competent supervision. The student is also taught how to handle and care for steam machinery, and is made thoroughly familiar with the mechanism of the farm traction engine.

The instruction given in the class-room is directly supplemented by actual demonstrations of the best agricultural practice on the college farm, thus giving to the student an

opportunity to observe the methods employed, and enabling him to note from time to time the results of the practical applications of science to agricultural methods.

The college and station farm consists of 199 acres, 140 of which are devoted to farm crops, pasture, and experimental purposes. The farm is equipped with dairy building, horse-barn, cattle-barn, silos, piggery, tool-house, engine-house, etc., and with typical specimens of several breeds of stock.

Students laboring on the farm and in gardens, receive pay at the rate of 10 cents per hour. Only comparatively few persons can be so employed, as the amount of work to be done is limited. Those only who by their work prove to be valuable laborers will be employed.

DAIRYING.

One of the purposes of the Oregon Agricultural College is to advance the business industries of the state. It is believed that dairying is one of the most important lines of work that can now be undertaken in Oregon. There is a large body of land in the state which is especially adapted to this industry. For this reason dairying has been introduced as a branch of study in the agricultural course. A separate building has been provided for such instruction and it is fitted up with all the necessary machinery for carrying on the work in the most approved way. An expert dairyman is in charge of this work.

All students in the agricultural department will be required to study dairying not only as a science but as an art. Those taking the household science course will have the same opportunities as the agricultural students.

This is a line of practical work which, it is believed, will prove of great advantage both to the student and to the

state. The practical instruction includes both butter and cheese making.

A short course has been provided, as described elsewhere in the catalogue, whereby practical instruction in dairying may be obtained by those who can not avail themselves of a college course.

The instruction in applied agriculture extends through the freshman, sophomore, junior and senior years, as shown in the following synopsis of courses:

Course I.—*Breeds of Stock.*—Freshman year; third term. The study of the history of the different classes of farm stock, their origin and characteristics. By means of charts, in the class-room the student is made familiar with the different points of animal form preparatory to the use of the score-card system for judging farm animals. This is followed by a practical application of this system in judging dairy cows, beef cattle, mutton sheep and swine. In this manner the student obtains useful information relative to animal form and function, and thus becomes acquainted with the points of excellence in the typical pure bred, as well as the points of merit in the animal designed for the butcher's block. Five hours a week.

Course II —*Theoretical Dairying.*—Sophomore year; second term. The principles of modern dairy practice will be taught in the classroom. Instruction will be given by textbook and lectures. Five hours a week for one half term.

Course III.—*Irrigation and Drainage.*—Sophomore year; third term. In the discussion of this subject it will be the aim to deal with those relations of water to soils and to plants which must be grasped in order to permit of a rational practice of applying, removing or conserving soil moisture in crop production. The subject will be considered

from the standpoints of the farmer, the fruit grower and the gardener rather than from that of the engineer. The various methods of applying water; the laying out and construction of farm drains; and the effect of irrigation and drainage on the chemical and physical conditions of the soil will be considered. Five hours a week.

Course IV.—*Soils and Manures.*—Sophomore year; second term. The origin and formation of soils; soil tillage; management and application of manures; green manuring; organic and mineral manures; soil exhaustion; rotation of crops, and methods of improving worn-out soils. Five hours a week for one half term.

Course V.—*Dairying.*—Junior year; first term. (*a*) Practical work in the dairy for agricultural students. The principles taught in the sophomore year will be put into practice in the actual work of the manufacture of butter and cheese. The Babcock test, rennet tests, and curd tests, as well as the subjects of creamery accounting will receive due attention. Five hours a week.

(*b*) Practical work in the dairy for household science students. This work is practically the same as above. Wing's "Milk and its Products" will also be used as a text during a portion of the term. Five hours a week throughout the third term.

Course VI.—*Stock Feeding and Breeding.*—Senior year; third term. Stock feeding covers the subject of rations for milk and meat production; how best balanced for economical feeding. Stock breeding covers the subjects of atavism, heredity, in-and-in-breeding, variation, pre-potency and care of breeding animals. Opportunity is given for judging and scoring live stock, and for studying the essential points of breeds adapted to different purposes. Four hours a week.

Course VII.—*Soil Physics.*—Senior year; first term. The work will include a study of various types of soils as to their mechanical structure and analysis; of conditions influencing temperature, capillary action and water-holding capacity of soil; effects of drainage and cultivation upon the conservation of moisture in soils; the texture of soils; the use of fertilizers and amendments and their effects on soils. Class room and laboratory work, two and one half hours a week.

Course VIII.—*Soil Physics.*—Senior year; second term. This is a continuation of Course VII, Agriculture. Two and one half hours a week.

Course IX.—*Veterinary Science.*—Senior year; third term. This subject will be taught by lectures covering the anatomy of the horse, and taking up the diseases most common to domestic animals, giving causes, symptoms, and treatment for the same. Special stress is placed upon proper treatment to prevent disease in domestic animals. Five lectures a week.

Instruction is given largely by lectures, suitable books being selected for reference. Miles' book on drainage. Curtis' "Horses, Cattle, Sheep, and Swine." Warfield's "Cattle Breeding," Stewart's "Stock Feeding." Armsby's Manual of Cattle Feeding. Wing's "Milk and its Products." Shaw's "Study of Breeds." "Soil" by King. "Fertility of Soil" by I. P. Roberts. "Irrigation and Drainage" by King. "Physics of Agriculture" by King. "Feeds and Feeding" by Henry.

HISTORY AND LATIN.

J. B. HORNER, A. M., LITT. D., Professor.

HISTORY.

Course I.—*Greek and Roman History.*—Freshman year; first term. Includes the study of general Hellenic development; the Athenian leadership; the Hellenistic or Alexandrian conquests and kingdoms. The political organizations of republican Rome in the prae-and post-Punic periods. Study on the pagan empire; Teutonic migrations. The Christian empire under Roman control. Five hours a week.

Course II.—*Mediæval History.*—Freshman year; second term. A study of social and political institutions of the fifth to the fifteenth centuries. Five hours a week.

Course III.—*History of Eastern Peoples.*—Sophomore year; second term. A survey of the history of China, Japan and India. Religion, arts and general culture of Egypt, Chaldæa, Assyria, Babylonia, Persia. Five hours a week.

Course IV.—*Modern History.*—Sophomore year; third term. This is a study of the era of the reformation and renaissance. (1490-1648). A general study of the age of Louis XIV., Frederick the Great, Anne and the Georges, Maria Teresa, and Peter the Great. The great French revolution and the wars of Napoleon. The states-general of 1789 to the congress of Vienna, 1815. German and Italian freedom and unity. Discussions touching the material progress of the age; famous works of art; foundations, inventions, discoveries, enterprises, improvements and investigations. Five hours a week.

The college is supplied with maps, charts, and a good working library of historical reference books.

In addition to the individual work of the student, as outlined above, lectures are given on the more important periods, such as the great reformation, thirty years' war, the English reformation, and the French revolution. Textbook, Myers' General History.

LATIN.

As may be seen in the outline of the courses of study, Latin is offered as an elective to students in agriculture, household science, and mechanical and electrical engineering, but it is required of students in the pharmacy course.

Course I.—*Elementary Latin.*—Freshman year; first term. First three declensions and first and second conjugations. Numerous exercises in translating Latin into English as well as English into Latin. Latin reader: Collar's Via Latina.

Course II.—*Elementary Latin.*—Freshman year; second term. Declensions and regular conjugations finished. Review. Exercises in translating. Via Latina.

Course III.—*Elementary Latin.*—Freshman year; third term. Irregular verbs. Subjunctive mood. Ablative absolute. Sequence of tenses, etc. Exercises. Via Latina.

Courses IV to XII.—*Advanced Latin.*—Sophomore and succeeding years. The first year's instruction is largely grammatical, prominence being given to Latin writing as the best method of acquiring a mastery of the language, Latin composition is eminently helpful in scientific research, and it is suggestive to the student of English. This preliminary work done, the student is then trained to appreciate the literature. Attention is called, during the reading of various authors, to those numerous problems in the history, thought and institutions of the Romans which illustrate similar phenomena noticeable among ourselves. The contribution of the Romans to the language, literature, and institutions of our time is so great that a thorough acquaintance with their life is of the highest educational value.

HOUSEHOLD SCIENCE.

MARGARET C. SNELL, M. D., Professor.
MARY AVERY, Assistant in Sewing.

Self interest and public interest make it apparent to every intelligent person how greatly in need are subjects pertaining to the home of being "touched to fine issues;" hence their introduction as studies into college curricula.

We have been reviled as "the most common schooled, and least cultivated, among all civilized nations," and this largely through our deplorable indifference to, and ignorance of, the common facts and necessities of life.

The home as we find it to-day has scant warrant that anything born of its teaching is worth while to impart, yet the problem grows of how to get better results, how to lessen the labor of the farmer's wife, the washer-woman, the cook, the boarding-house keeper, the city missionary, the school teacher, the woman of fashion.

The solution requires something more than the knitting of the brow over theories; there must be actual testing of these theories by practice in the college laboratory, if they are to have value and permanence. The precious acquisition of the scholar who *knows*, must be further supplemented by that of the artist who *does*.

The various subjects pertaining to home life are taught under the following heads:

Course I.—*General Hygiene.*—Freshman year; first term. Good health is acknowledged as one of the prime factors of success in life; lectures and talks on this important subject are not neglected. The amenities of home, and readings on

kindred topics, give mental occupation to the sewing hour. One hour a week.

Courses II, IV, V.—*Sewing.*—Freshman year. During the first term there are sewing lectures and practice work, one hour a day, on sewing samples. Here are acquired and strengthened those invisible impulses: industry, dexterity, patience, exactness. Four hours a week.

Second term, sewing continued. Four hours a week.

During the third term sewing is combined with the making of simple garments. Readings, conversation. Five hours a week.

Courses VI, VII, VIII.—*Dressmaking.*—Sophomore year. Cleverness with scissors, tape line, and needle finds in dressmaking, millinery, home furnishing, a large field for the application of art principles to the living, moving canvas of actual life.

Instruction in dressmaking is an important branch of domestic science. Lectures will be given on the following subjects: The methods of manufacturing thread, cloths and other dressmaking material; hygienic principles of dressmaking; study and sketching of drapery; history of costume, etc.

During the first term the work includes draughting and making simple skirts, cutting, fitting and making lined waists from patterns; a study of the texture of goods. Five hours a week.

Throughout the second and third terms instruction is given in draughting and making lined waists, matching stripes and plaids, study of woolen textiles. Five hours a week.

Courses IX, X, XI.—*Cookery.*—Junior year. The first term's work includes instruction in canning of fruits, one-

half term; three lectures; one hour a day practice work in the kitchen laboratory; technological cookery; preparatory work in chemistry of foods.

The second and third terms' instruction includes practice work in cookery. Four hours a week throughout the year.

Course III.—*Etiquette.*—Freshman year; second term. Lectures and talks on social forms and usages; the art of entertaining; readings on the art of conversation. Mahaffy. One hour a week.

Course XII.—*Aesthetics.*—Senior year; first term. Lectures and recitations on the subject of aesthetics.

This term is given to the general subject of aesthetics in its relations to the subjective and objective world; the kinds and laws of beauty; class readings from various authors on aesthetics; the application of aesthetic principles to discourse as we find it illustrated in the great master pieces of literature. Five hours a week.

Course XIII.—*Aesthetics.*—Senior year; second term. Application of aesthetic principles to the fine arts, with a study of the best authors on these varied subjects. The two arts receiving especial attention during the coming year will be architecture and painting. Five hours a week.

Course XIV.—*Domestic Lectures.*—Senior year; third term. The term's work will include lectures on the following subjects: Special hygiene, including parentage, care of children, heredity, etc.; sanitation of the home; home furnishing; emergency lectures; fireside practice, etc. Five hours a week. Pomeroy's Ethics of Marriage.

MODERN LANGUAGES.

ELLEN J. CHAMBERLIN, A. M., Professor.

Opportunity to study German is offered throughout the different courses and is compulsory in the course in pharmacy during the sophomore and junior years. We teach in a large measure by the conversational method, and aim to bring the student so far that he can read with ease and facility, and understand so much of the language as will be most helpful to him in practical life. A knowledge of German is a business possession of undoubted value for any young man, or young woman.

Courses I to IV.—*Elementary German.*—Collar's Eysenbach—German grammar; First German Reader, Muller and Wenckbach's Gluck Auf. Hewett's German Reader. Constant practice in translating into German and in conversation.

Courses IV, V and VI.—*Advanced German*; Schiller's Wilhelm Tell; Jungfrau von Orleans; Marie Stuart. Lessing's Nathan der Weise; Seume's Mein Leben. Lectures on the life and works of Lessing, Gœthe and Schiller and some of the minor writers of the eighteenth century. Grammar reviewed; Compositon, Syntax.

MECHANICAL AND ELECTRICAL ENGINEERING.

GRANT A. COVELL, M. E., Professor.
E. C. HAYWARD, E. E., Assistant.
M. CLYDE PHILLIPS, B. M. E., Instructor in Ironwork and Drawing.
D. W. PRICHARD, Instructor in Woodwork.

Students in this department are allowed to choose either the course in mechanical engineering or the course in electrical engineering. Each course leads to the degree of Bachelor of Science, and the two courses are identical until the beginning of the junior year.

The course in mechanical engineering is intended especially for young men who expect to choose an industrial vocation and for those who are already, or expect to be, connected with some of the manufacturing establishments of the country.

The course in electrical engineering is designed to meet the needs of those who desire to turn their attention towards electrical science, the designing, the installation and the management of electric light and power plants, etc.

The shops are well equipped with tools and machinery from the best makers in the country; the idea being not only to have the shops well supplied with the necessary tools but also to make each shop a model as regards quality of equipment and systematic arrangement.

The uses of the various tools in the shop are taught by a series of exercise pieces which the student is required to make. After completing the exercises, the regular work consists in building and repairing machinery in the machine shop, mending farm implements, and making tools in the blacksmith shop, and other useful articles in the wood shop. So far as possible, all work in the shops is executed from drawings and blue prints, which must be followed accurately.

In the drafting room the student begins with linear drawing and follows a progressive course until he is able to make complete working drawings of whole machines, and finally he is encouraged to produce designs of his own and to make complete drawings and blue prints of them.

The scientific principles involved in machines and mechanical movements are taught in the class-room, as well as the application of mathematics to problems in mechanical engineering. The student is required to solve original problems and to depend upon his own judgment and ingenuity as far as possible.

EQUIPMENT.

The machine shop is equipped with one 24″ x 24″ iron planer, one universal milling machine, one universal tool grinder, one radial drill, one 20″ drill press, one 20″ engine lathe, one 16″ engine lathe, three 14″ engine lathes, one 15″ shaper, one emery grinder, two 10″ speed lathes, twelve bench vises, and numerous small tools, such as hammers, chisels, drills, reamers, taps and dies.

The blacksmith shop contains twenty stationary forges operated by an electric motor fan. Each forge is provided with anvil, hammers and tongs. The shop also contains two vises, a swedge block and a full set of swedges, fullers, and heading tools.

The woodshop contains one 4″ four-sided moulder, one 24″ surface planer, one iron saw table with rip and cut-off saws, one band saw, one jig saw, one 20″ pattern-maker's lathe, one post boring machine, four 12″ wood-turning lathes, and twenty hand benches, each equipped with a set of tools consisting of saws, planes, chisels and other small tools. Power is supplied by a 10 horse power electric motor.

The power house contains a 54 inch tubular boiler, pump, injector, feed water heater and a 40 horse power high speed automatic engine, belted direct to two 12½ kilowatt generators. These generators operate the motors in the machine shop, wood shop and blacksmith shop, and also furnish lights for the college buildings.

The steam, electrical and heating plants of the college furnish opportunity for much valuable experimental work in engineering, such as tests of boilers, engines, dynamos, motors, fans, pumps and injectors. The department is supplied with indicators, gauges, planimeters and other instruments to facilitate this work.

A Riehle testing machine of 50,000 pounds capacity, operated by an independent motor, affords means of testing the strength of metals, woods, stones or brick.

The following is an outline of the work done in the mechanical department:

SHOPWORK.

Courses I, II and III.—*Woodwork.*—Freshman year. A course in woodwork which includes carpentery, joinery and wood-turning, also the care and use of tools. Five hours a week throughout the year.

Courses IV, V and VI.—*Blacksmithing.*—Sophomore year. In this course the student is taught how to make and manage a forge fire; to shape iron by bending, drawing, upsetting and welding, and finally to make and temper cutting tools for the shops. Five hours a week.

Course VII.—*Machine Shop.*—Junior year; first term. This course is devoted principally to chipping, filing, polishing and hand work. Five hours a week.

Courses VIII and IX.—*Machine Shop.*—Junior year; second and third terms. These include a series of exercise

pieces in turning, shaping, milling and drilling which the student is required to make from drawings. Five and four hours a week respectively.

Courses X, XII and XIV—*Woodwork.*—Senior year. These courses are elective and are intended for students who desire to specialize in this branch. Particular attention is given to the care and management of wood-working machines and to pattern-making. Five hours a week throughout the year.

Courses XI, XIII and XV.—*Ironwork.*—Senior year. These are elective courses and follow course IX. The work consists of constructing parts of machines, repair work, and making tools for the shops. Five hours a week throughout the year.

MECHANICAL ENGINEERING.

Courses I, II and III.—*Mechanical Drawing.*—Sophomore year. In these courses the student begins at once to make mechanical drawings of simple objects and finally makes sketches of machines from which working drawings are made. Ten hours, the first term; five hours the second term and three hours the third term.

Course IV.—*Mechanism.*—Junior year; third term. This course treats of the motion of machine parts, and is introductory to the course in machine design. Five hours a week.

Courses V and VI.—*Descriptive Geometry.*—Junior year; first and second terms. The work in these courses is largely drawing. It involves the solution of problems in projection and intersection of lines, surfaces and solids. Five and three hours a week respectively.

Course VII.—*Steam Engines and Boilers.*—Junior year; third term. A study of the construction, care and operation of steam engines and boilers; recitations and lectures. Four hours a week.

Course IX.—*Thermodynamics.*—Senior year; first term. Steam and other engines considered as heat engines. Two hours a week.

Courses VIII, XII and XIV.—*Mechanics of Engineering.*—Senior year. A course in applied mechanics. The first two terms are occupied with a discussion of statical and dynamical problems. During the last term the strength of materials is studied with special reference to beams, girders and trusses; also the mechanics of fluids relating to pressure, flow and carrying capacity of pipes and open ditches. Open only to those who have completed Mathematics VIII and IX. Five hours a week throughout the year.

Courses XI and XV.—*Machine Design.*—Senior year; second and third terms. A course applying the principles brought out in the courses in mechanism and mechanics to the design and construction of machine parts. Numerous practical problems are solved, the data for many of them being taken from machines used in the college, so that the student may compare his results with those used in practice. Considerable draughting is done in connection with this course. Seven hours a week.

PHYSICS.

Courses I and II.—*Elementary Physics.*—Sophomore year; second and third terms. These courses cover the usual topics of mechanics, heat, electricity and magnetism, sound and light. Instruction is given by means of lectures and recitations, alternating with laboratory practice. Seven hours a week.

Course III.—*Physics.*—Senior year; first term. A laboratory course, which is a continuation of the preceding courses, and deals more especially with experiments in

heat, light, sound and electricity. Seven hours a week.

ELECTRICAL ENGINEERING.

Courses I, II and III.—*Electricity and Magnetism.*—Junior year; first, second and third terms. Dealing with the general theory of electricity and magnetism and their most common application; such as the telephone, telegraph, electro-plating, electric lighting, etc. In the laboratory the student becomes familiar with the usual measurements employed by the electrical engineer. Special attention is given to the calculation of magnetic circuits, thus leading up to the course in dynamo design. Lectures, recitation and laboratory work. Seven hours a week first and second terms; three hours third term.

Courses IV, V and VI.—(a) *Alternating currents.*—Senior year; first term. Being a brief development of the elementary theory of alternating currents, using both the graphical and analytical methods of calculation. A continuation of courses I, II and III. Open only to those who have completed Mathematics VIII and IX. Lectures and recitations. Three hours a week.

(b) *Dynamo Design.*—Second term.—Theory and practice of the design of direct and alternating current dynamos and motors, including calculation and construction of field magnets, armatures, commutators, etc. Lectures and recitations, supplemented by the making of models in the laboratory. Three hours a week.

(c) *Practical Electrical Engineering.*—Third term.—Considerable time will be devoted to practical engineering problems, such as the calculation of circuits, installation of lighting and power plants, power transmissions, etc. Three hours a week.

(d) *Laboratory.*—An advanced course, being a continuation of the laboratory work carried on in courses II and III, including, in addition to the more common measurements, the measurement of insulation resistance, location of faults in cables, and construction of apparatus. Four hours a week throughout the year.

CHEMISTRY AND PHARMACY.

A. L. KNISELY, M. S., Professor.
JOHN FULTON, B. S., Assistant Professor.
C. M. MCKELLIPS, PH. G., PH. C., Instructor.
FRANK E. EDWARDS, B. M. E., Instructor.

CHEMISTRY.

The study of chemistry is begun in the first term of the sophomore year.

Course I.—*General Inorganic Chemistry.*—Non-metals.—Sophomore year; first term. A daily exercise throughout the first term is devoted to recitations, lectures and laboratory practice. In this course special attention is given to the fundamental principles of the science, which are suitably illustrated either by experiments performed by the student in the laboratory, or, when too intricate and expensive of time, by the instructor before the class in the lecture room. The elements are discussed individually as well as their more important compounds.

The *practicum* of this course consists of a series of laboratory exercises dealing with the elements studied and is designed to introduce the student to chemical manipulation. Seven hours a week.

Course II.—*General Inorganic Chemistry.*—Sophomore year; second term. The study of the metals is entered upon in the second term and is conducted similarly to the study of the non-metals. The more important metals are individually discussed under the following heads: history, occurrence

in nature, properties, preparation, uses, tests, and compounds. Special attention is given to metals and their compounds which are of industrial importance.

The laboratory work of the second term consists of a study of the properties of the metals, being an introduction to qualitative analysis. This course must be preceded by Chemistry I. Seven hours a week.

Course III.—*Qualitative Analysis.*—Sophomore year; third term. The student is required to apply and study the reactions involved in the ordinary methods of separation and identification of substances. The study includes the reactions, ordinarily used in qualitative analysis, but deals with only those substances usually met with in chemical work. The student repeatedly works through a scheme of separation in making qualitative analyses of unknown substances. Prerequisite Chemistry I–II. Four hours a week.

Course IV.—*Agricultural Chemistry.*—Junior year; first term. This course deals with the more intimate relation of the science to agriculture. Such topics as soil composition, elements essential to plant growth, soil exhaustion, fertilizers; chemistry of cattle foods, nutrition, dairy products and food adulteration are dealt with as fully as time permits. Prerequisites, Chemistry I, II and III. Five hours a week.

Course XXI.—*Agricultural Chemistry.*—Junior year; second term. This is a continuation of course IV and extends through the second term. Five hours a week.

Course V.—*Quantitative Analysis.*—Junior year; third term. The student is required to make the ordinary fundamental determinations of moisture, aluminum, calcium, magnesium, copper, lead, potash, sulfuric acid, phosphoric acid, chlorin, and carbonic acid by gravimetric processes;

estimations by volumetric methods including alkalimetry, acidimetry, precipitation, and oxidation will be undertaken. The work is so planned as to familiarize the student with the standard gravimetric and volumetric methods. This is a required course for all pharmacy students and is elective for students who have completed chemistry I, II and III, or XV. Seven hours a week.

Courses VI, VII, VIII.—*Advanced Quantitative Analysis.* —Senior year; first, second and third terms. A continuation of course V. This work extends throughout the senior year and is arranged especially for students electing theses in the department of chemistry. Elective. Seven hours a week.

Course IX.—*Assaying.*—Senior year; second term. A course in practical assaying of gold, silver, iron, mercury and copper ores. Must be preceded by chemistry I, II, III, and mineralogy I. Elective. Six hours a week.

Course X.—*Assaying.* Senior year; third term. A continuation of course IX. Elective. Six hours a week.

Course XI.—*Chemistry of Common Life.*—Sophomore year; third term. This is a short course treating of organic compounds of common life. It alternates during the third term with course III. This work is required of all students in agricultural and household science courses. Prerequisites chemistry I–II. Three hours a week.

Courses XII, XIII and XIV.—*Chemistry of Foods.*—Senior year. An elective extending through the senior year in the household science course. It is an expansion of the work in course XI, but limited to a study of foods from a chemical and scientific standpoint. This work must be preceded by chemistry V. Seven hours a week.

Course XV.—*Qualitative Analysis.*—Sophomore year; third

term. This course is designed for pharmacy students. It gives practice in the analysis of unknown mixtures for both acids and bases with special reference to the needs of pharmacists. Prerequisites chemistry I–II. Ten hours a week.

Courses XVI, XVII.—*Medical Chemistry.*—Junior year; first and second terms. This subject is open only to students of the pharmacy course. It embraces inorganic and organic chemistry. Prerequisites I, II, XV. Five hours a week.

Courses XVIII, XIX, XX.—*Pharmaceutical Analysis.*—Senior year; first, second and third terms. This work consists of advanced qualitative and quantitative analysis, both organic and inorganic. Under this head is taken up the separation, identification and determination of the active constituents of alkaloidal drugs and galenical preparations. During the spring term practical laboratory work in Toxicology is given. Ten hours a week.

THESES.

Undergraduates desiring to elect theses in the department of chemistry and pharmacy must have passed in one course of quantitative analysis.

GRADUATE ELECTIVES.

Elective work in chemistry is offered as a major or a minor subject for two years to candidates for the degree of Master of Science.

Advanced Analysis.—This course is intended for those who may desire to specialize in chemical work. It provides a greater variety of analytical work than can be given in courses V, VI, VII, VIII. It offers the following: analysis

of limestone, coal, iron ores, milk, butter, cheese, water, urine, sugar, and various other materials. A student desiring to investigate along any particular line, as mineral, sanitary, or agricultural chemistry, may do so. This course is open as a major subject to students who have completed courses I, II, III, or XV and V, VI, VII and VIII. In addition, a parallel course of reading must be taken, upon which the student will be required to pass a satisfactory examination at the end of the year. The work of the last year will be left largely to the student's choice, subject to the approval of the head of the department, and will serve as the basis for a graduation thesis. Hours to be arranged with the instructor.

GEOLOGY.

Course I.—*Geology.*—Senior year; first term. The course opens with work designed to acquaint the student with the common rocks and minerals as to their physical characters and appearance. The geological and mineralogical cabinets offer abundant opportunity for the study of specimens. The remainder of the course consists in a study of the aqueous, atmospheric, igneous, and organic agents in the earth's history; the structure and arrangement of rocks and the order of succession of strata. Elective in the agricultural and household science courses. Five hours a week.

MINERALOGY.

Course I.—*Determinative Mineralogy.*—Senior year; first term. An elective laboratory course open to seniors in both agricultural and mechanical courses. The student will make use of the blowpipe and reagents to determine and

classify the more common metal-bearing rocks, and the ordinary gangues. Elective. Six hours a week.

Course II.—*Metallurgy*.—Senior year; second term. The first part of the term will be devoted to the study of refractory materials, such as fire clay, etc., and to furnace construction. In the second part special attention will be given to fuels and to the proper methods of working metals and alloys. Seven hours a week.

PHARMACY.

Courses I and III.—*Pharmacognosy*.—Junior year; second and third terms. In these courses are considered both the gross structure and characteristics of the crude drugs and chemicals. The student is taught the appearance, taste, color, odor, fracture and habitat of the various crude drugs, and also receives careful drill on their Latin and English names. Special attention is directed toward the learning of the scientific classification of the vegetable drugs. The student has access to the specimens for study, and special effort is made to train the senses to the recognition of each of the drugs considered.

The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations. Two hours a week, Spring term.

Courses II, IV and VII.—*Pharmacy*.—Junior year. By means of a series of lectures and recitations during the first term, the student is made familiar with the nature and objects of the practice of pharmacy, as well as with the scientific principles underlying it. His attention is directed particularly to the various classes of Pharmacopœial prepa-

rations, beginning with those of the more simple character and gradually advancing until a thorough understanding is acquired concerning those of the most complex formulae.

Definitions are introduced wherever admissible, being supplemented by descriptive and theoretical considerations when necessary for a better understanding of the subject.

The work of the second and third terms is devoted largely to laboratory practice, during which time the student has ample opportunity for the practical application of the knowledge gained in the lecture room, and in the acquirement of pharmaceutical technique.

The preparations of the Pharmacopœia receive special attention, each student being required to make, independently, a sufficient number of these preparations to insure a thorough understanding of the processes and manipulations involved in their manufacture. Various unofficial compounds are also considered from time to time, especially those of the National Formulary.

The laboratory work is under the direct supervision of an experienced pharmacist and each student receives considerable personal attention. The character of the instruction is such as will be of much practical benefit to the student in the subsequent event of his becoming a dispensing pharmacist. Two hours a week, first term, and five during second and third.

Course V.—*Therapeutics and Doses.*—Junior year; first term. The therapeutical uses of medicines serve as a basis for classifying them in a manner which will facilitate study. The definitions of medical terms are given special attention in the junior year. In this connection the student also learns the minimum and maximum doses of all

remedial agents in active use in the modern practice of medicine. Two hours a week.

Course VI.—*Nomenclature.*—Junior year. In this connection the student is shown the practical application and use of the Latin language in the professions of medicine and pharmacy.

The Latin titles of the Pharmacopœia, National Formulary and the more common terms that occur in the prescription are made the subject of a series of recitations. One hour a week, first term.

Courses VIII and XIV.—*Materia Medica and Therapeutics.*—Senior year; first and second terms. All substances which find use in medicine are here studied one by one as to source, Latin and English names, formulae (in the case of chemicals), compounds and preparations, properties, method of preservation, industrial and domestic use, impurities and adulterations, antidote (in case of poisons) and dose.

In the consideration of crude organic drugs, attention is especially directed to the constituents responsible for the medicinal activity of the drug, e. g., alkaloids, glucosides, volatile oils, etc. Three hours a week.

Course IX.—*Operative Pharmacy.*—Senior year; first term. This course is a continuation of that of the junior year and includes such preparations of the Pharmacopœia and of the newer classes of remedies as were not considered in the junior year. Attention is given to the manufacture of the more difficult preparations, both galenical and toilet, and to the correct methods of manipulation involved in preparing medicines for dispensing in cachets, soft capsules, etc.

The composition of the more important Pharmacopœial preparations, and of the percentage strength of the active constituents of each, are made the subject of close study.

The work of the term ends with a final review of the entire subject of pharmacy. Six hours a week.

Courses X and XV.—*Prescription Practice.*—Senior year. The recitation work consists of reading, interpreting, criticising prescriptions and calculating doses. During the third term a series of general quiz recitations is held. This is preparatory to the State Board examination. Special attention is given to incompatibilities and to the solubility of chemicals. Unsightly, dangerous and explosive mixtures are also considered under this head. In this laboratory course and that of operative pharmacy the student gains experience for the prescription counter, learning the difficulties there met with and how best to overcome them. He also gains in manipulative skill in making extemporaneous preparations.

Each student is required to personally perform the operations under the direct supervision of the instructor. The student works not from book prescriptions, but from prescriptions written in the ordinary practice of physicians and found on file in the drug stores. Seven hours a week second term and eight hours a week third term.

Course XI.—*Pharmacognosy and Synonyms.*—Senior year; third term. The pharmacognosy of the senior year consists in a thorough review of the work of the junior year and practice in the recognition of powders, liquids, chemicals, and pharmaceutical preparations.

In addition to the knowledge of the scientific classifications of the medicines already considered up to this time, the student is further instructed regarding many "common names," or synonyms, in general use in the ordinary practice of pharmacy. Three hours a week.

Course XIII.—*Toxicology.*—Senior year; third term. The

important active poisons—both mineral and vegetable—are studied. Their physiological action, characteristic symptoms that follow their use, treatment and antidote are noted and commented upon. Attention is directed to the conditions and regulations provided by the Oregon Pharmacy law for the handling and sale of poisons within the state. One hour a week.

From time to time special lectures are given on hygiene, pharmaceutical jurisprudence, etc.

STATE EXAMINATION AND REGISTRATION.

At its meeting held on December 14, 1898, the Oregon State Board of Pharmacy passed the following resolutions endorsing the course here offered:

WHEREAS, The Oregon State Agricultural College has established a course in pharmacy and chemistry that meets with the hearty approval of this Board, inasmuch as it offers a large proportion of practical work; therefore, be it

Resolved, That the Oregon State Board of Pharmacy acting in accordance with Sections 5 and 6 of the Oregon Pharmacy Law as amended, grant to students of the Oregon Agricultural College, who complete the full course and hold a diploma from said institution, after they shall have been subjected to such examination, at Corvallis, Oregon, as this Board may approve, on the completion of the senior year, a certificate to act as a registered pharmacist in this state.

Provided, That any student who may have taken the last two years of the course only and who does not hold the regular diploma from the said institution, on passing the examination aforesaid shall only be granted the certificate of a registered assistant.

The training in the pharmaceutical course is largely conducted in the laboratory for it is only by this means that the student can form an intimate personal acquaintance with the material and the best methods of manipulation. Thus it is that he receives systematic practice in dispensing, in the examination of drugs as to identity, purity, and strength, and in the manufacture of various preparations from crude drugs. The requirements of the U. S. Pharmacopœia are always kept in mind, and the student is always held strictly responsible for the purity of his prepa-

rations and the accuracy of his work. The course aims to teach students facts and principles of immediate use in the drug store, adapting the work to the needs of the practical pharmacist and manufacturing chemist. It is, however, further recognized that a thorough foundation must be laid for this work, and in view of this, two years of preparatory work are required in the college, or its equivalent in some other school. Students who have had equivalent work elsewhere can complete the course in pharmacy in two years.

EXPENSES.

Tuition is free at this institution, but to cover the cost of material used and wasted in the laboratories a small laboratory fee and a deposit for breakage will be charged in the chemical and pharmaceutical laboratories as is the custom in all institutions. These fees are payable each term strictly in advance.

Chemical laboratory: General Inorganic:

Material	$1.50
Deposit for breakage	1.50

Junior and Senior Years:

Material	$3.00
Deposit for breakage	2.00

Pharmaceutical Laboratory:

Material	$3.00
Deposit for breakage	2.00

Assaying Laboratory:

Material	$3.00
Deposit for breakage	2.00

Laboratory work accompanying theses:

Material	$3.00
Deposit for breakage	2.00

Text and reference books in chemistry: General Chemistry, Newell, Young; Qualitative Analysis, Johnson and Prescott, Irish; Quantitative Analysis, Smith and Cheever;

Agricultural Chemistry, Johnson; Organic Chemistry, Remsen; Roscoe and Schorlemmer, Watt's Dictionary of Chemistry, Thorpe's Dictionary of Applied Chemistry, Thorpe's Industrial Chemistry, Wiley's Principles of Agricultural Chemistry, Fresenius, Crooke's Select Methods, Sutton's Volumetric Analysis, Stillman Engineering Chemistry, Official Methods, etc.

Text and reference books in pharmacy and materia medica: Handbook of Pharmacy, Coblentz; Practice of Pharmacy, Remington; Quantitative Analysis, Sturmer and Vanderkleed; Organic Analysis, Prescott; The Art of Compounding, Scoville; Medical Chemistry, Barclay; Materia Medica, Culbreth; same, White and Wilcox; Dose Book, Hoak; U. S. Dispensatory; King's Dispensatory; U. S. Pharmacopœia; same, of Homœopathy; National Formulary. Numerous other books and trade journals are to be found in the college library and are accessible to students.

ENGLISH LANGUAGE AND LITERATURE.

F. BERCHTOLD, A. M., Professor.
IDA B. CALLAHAN, B. S., Assistant Professor.

English as a required study is found extending in most of our courses to, and including part of, the junior year. It is offered as an elective in two terms of the junior year, and in the senior year.

Courses S., B., F.—The course in preparatory English is designed to secure accuracy and freedom in expression. There is work in spelling, writing and simple grammatical constructions. Written exercises prepared under rules of form are constantly required to obtain practice and secure confidence in expression. Reed and Kellogg, "Higher Lessons in English." "Seventy Lessons in Spelling."

It is well understood that the art of using one's native tongue correctly and forcibly is acquired for the most part through imitation and practice, and is not so much a matter of knowledge as of habit. To become familiar with good use, we must read the best literature; a student familiar with the best language of reputable writers and speakers will use good English without conscious effort. Indeed, good reading is indispensable to good speaking or writing; and rules and dictionaries are of little benefit without it.

Throughout the courses, therefore, there is required an amount of collateral reading equivalent to two books per term, or six per scholastic year. The student prepares

condensive abstracts of these books, and supplements this work by selecting and memorizing from each book six short quotations embodying general truths.

The books to be read and studied in the Subfreshman year are: Defoe's "Robinson Crusoe;" Bunyan's "Pilgrim's Progress;" Hughes' "Tom Brown's School Days;" Edward Everett Hale's "The Man Without a Country;" R. D. Blackmore's "Lorna Doon;" G. W. Cable's "The Cavalier."

A printed list of one hundred selected books, intended for the use of the collegiate classes, may be obtained from the librarian. The books to be read will be chosen after consultation with the professor in charge.

Courses I, II, III.—*Composition and Rhetoric.*—Freshman year; first, second and third terms. Review of English grammar; review of punctuation. Description; narration. Collection of material for a theme. The study of words, the sentence, the paragraph. Figures of speech. The burden of these courses is description and narration. Extracts from classic literature are read and analyzed in class. Written reports are handed in, giving distinctive features in the description or method of movement in the narration. Short descriptions and narrations are written on demand in the class under limit. There are also constant recitations and exercises under grammatical rules and constructions to secure order and accuracy. The work, here as well as in all other courses in English, is done with a view to the increase of the student's vocabulary, and to develop ease and exactness of expression in his compositions. Lockwood and Emerson's "Composition and Rhetoric." Collateral reading.

Courses IV, V.—*Rhetoric.*—Sophomore year; first and second terms. This course is carried on co-ordinately with

Genung's Rhetoric. It emphasizes Criticism, Exposition and Argument.

Six formal papers are required during the year. The subjects are assigned and the methods follow principles laid down by Genung, and Lockwood. Much attention is given to definition of terms and to making clear expositions of ideas contained in paper.

By way of review many short exercises are also written under the simple fundamentals of composition and in study of sentence and paragraph structure. Collateral reading.

Course VI.—*English Literature.*—Sophomore year; third term. The long course of English literature necessitates the division of it into a number of periods marked by the presence of new and weighty influences. In each period there are a few writers that stand, by reason of their ability and enduring work, in positions of recognized preeminence. We aim to extend the study of the works of such writers —our classic authors—sufficiently far to include considerable fulness of biographical and critical detail.

Formative Period.—Chaucer, "Canterbury Tales:" Prologue and Knight's Tale.

First Creative Period.—Spencer, "Fairy Queene." Cantos I and II. Bacon, Essays. Shakespeare, "Merchant of Venice." Collateral reading.

Courses VII and VIII.—*English Literature.*—Junior year; first and second terms. Civil War Period: Of Milton's minor poems: "L'Allegro" and "Il Penseroso." The Restoration: Dryden, selections. Queen Anne Period: Addison, "Sir Roger De Coverley." Pope, selections. Age of Johnson: Burns, selections. Goldsmith, "The Deserted Village. The Nineteenth Century: Scott, Byron, Wordsworth, Tennyson. Selections from each. Collateral reading.

Courses IX and X.—*American Literature.*—Junior year; third term, and senior year, first term. A study of the leading periods and principal writers of American literature, with particular emphasis of what is usually termed the First National Period, representing such authors as Irving, Cooper, Bryant, Poe, Emerson, Hawthorne, Longfellow, Lowell, Whittier and Holmes. Collateral reading as in other courses in English.

Courses XI and XII.—*Elective Courses in English Literature.*—Senior year; second and third terms. A critical study of four or five representative plays of Shakespeare and selections from Wordsworth, Tennyson and Browning. Papers on assigned topics and reports upon collateral reading are required throughout the courses.

MATHEMATICS AND ENGINEERING.

GORDON V. SKELTON, C. E., Professor.
CHARLES L. JOHNSON, B. S., Instructor.

The course in Mathematics includes such of its branches as the distinctive aims of this institution require, and conforms itself, in general, to that in use in the most successful agricultural colleges.

That the study may to the fullest extent strengthen and discipline the mind for connected, logical thought, thoroughness and accuracy are insisted upon at all times. In the class-room all principles and demonstrations must be presented in an orderly and logical manner. The constant aim is to cultivate the powers of insight, judgment, and originality.

Course I—*Algebra*.—Freshman year; first term. From quadratic equations on. This course is open to students who have completed the sub-freshman work and to new students who can satisfy the department that they are prepared for the work. A review of about ten days will be devoted to the topics that precede quadratic equations. Five hours a week.

Course II—*University Algebra*.—Sophomore year; second term. From ratio and proportion to theory of numbers. This course is open to all students who have successfully passed course I. Five hours a week.

Course III—*University Algebra*.—Sophomore year; third term. From the theory of numbers on. This course is open

to students who have had courses I or II or their equivalent. Five hours a week.

Course IV—*Plane Geometry*—Freshman year; second term. This course includes all that is found in the first four books of plane geometry in any standard text, as Wentworth's. Special emphasis is laid upon definitions and principles. Original demonstrations are given and much time is devoted to "original" theorems and problems and at all times proofs and demonstrations are freely criticised and discussed in the class-room. Five hours a week.

Course V—*Plane, Solid and Spherical Geometry.*—Freshman year; third term. This course includes book V of plane geometry and all of solid and spherical geometry. Students must have had course IV before taking this. Five hours a week.

Course VI—*Trigonometry.*—Sophomore year; first term. Students must have had courses I, IV and V before taking this. Only enough time is given to spherical trigonometry to enable the student to solve the spherical triangle. Much time is devoted to practical triangulation and measurements. The department is supplied with all the necessary instruments which the students use under the direction of the instructor. The college has two most carefully measured base-lines, one 640 feet and the other 1000 feet long, which are used in the triangulations. Five hours a week.

Course VII—*Plane Analytical Geometry.*—Junior year; first term. This work is required of all students taking the mechanical and electrical engineering courses. The work embraces the subjects treated in Nichols' Analytics. Five hours a week.

Course VIII—*Differential Calculus.*—Junior year; second term. This course is required of the same students as is

course VII. Among the topics considered are differentiation and applications, evaluation of indeterminate forms, expansion of functions, Taylor's and Maclaurin's theorems, maxima and minima, points of inflection, curvature, change of independent variable, functions of two or more variables, asymptotes, curve tracing, etc. Five hours a week.

Course IX—*Integral Calculus.*—Junior year; third term. Among the topics considered are direct integration, definite integrals and applications, integration of rational fractions, integration by rationalization, integration by parts, integration of trigonometric forms, etc.; applications to finding the lengths and areas of curves, surfaces and volumes of solids of revolution, etc.; double and triple integration and applications. In this course, as in course VIII, great stress is laid upon practical applications, and a large number of practical problems are solved. Five hours a week.

Course X—*Surveying.*—Sophomore, Junior and Senior years; third term. The greater part of the time is spent by the student in the field with the various instruments. He is required to make surveys from descriptions given him as well as to write descriptions from surveys made by himself. In all cases notes must be carefully kept and worked up in the office.

The engineering department is equipped with the necessary instruments, including a railroad compass, two transits with solar attachments, plane-table, Y level, hand-level, rods, chains, tapes, etc.

Course XI.—*Astronomy.*—Senior year; third term. That this most elevating and refining subject may be open to a greater number of students, it will be confined to descriptive astronomy and may be taken by students who have com-

pleted courses I to V, inclusive. Much time will be devoted to uranography. Five hours a week.

Course XII.—*Agricultural Engineering*.—Senior year; third term. This course is open to students who have completed course X. Under this head will be given instruction in road location and construction, including consideration of various road materials; designing of highway bridges; inspection of existing structures; designing, locating and constructing agricultural drainage systems; laying out farm buildings, etc. Instruction given in the class-room will be applied wherever possible. Five hours a week.

Course XIII.—*Mine Surveying*.—Junior year; first term. The instruments and their adjustments, form of field notes, maps and their construction, methods of connecting underground surveys with the surface, methods of traversing underground, etc., will be considered. This work must be preceded by course X. Three hours a week.

Course XIV.—*Tunneling and Leveling*.—Junior year; second term. The various problems of alignment, grade, and constructive details of tunneling and underground work will be considered. Much time will be devoted to the survey, location and construction of hydraulic works. Five hours a week.

Course XV.—*Mining Engineering*.—Senior year; third term. The subjects treated are the planning and laying out of framed structures, power plants, roads, dams, reservoirs, and hydraulic engineering works, etc. Five hours a week.

ZOOLOGY.

A. B. CORDLEY, M. S., Professor.
W. T. SHAW, B. Agr., M. S., Assistant.

The work in this department is designed to give the student that knowledge of biological laws which is to-day regarded as an essential part of a liberal education. It aims to create a growing interest in the study of our native birds, insects and other animals and their interrelations with one another, with native and cultivated plants and with rural life; to give a knowledge of the foundation facts of morphology and physiology on which depend many of the principles of scientific stock breeding and feeding, of veterinary science and of human physiology and hygiene; and above all from an educational standpoint, it aims to train the student's perceptive faculties, to teach him to see, to do and to reason from observed facts.

The laboratories of the department occupy six rooms on the third floor of the agricultural building. They are well supplied with necessary apparatus including compound and dissecting microscopes, camera lucidas, eyepiece and stage micrometers, an automatic microtome, dissecting sets, dry and steam sterilizers, incubators, reagent sets and numerous smaller articles, all of which are for the use of students.

For the purpose of illustration there are in addition to the general museum and the entomological collection a set of the celebrated Leuchart zoological charts, enlarged dissectable models of the human ear, eye, heart, brain and larynx and a large series of microscopic mounts.

The general museum, which occupies the main part of the fourth floor of the agricultural building, also contains a small but typical collection of mounted mammal skins; a collection of mounted skins of native birds; a collection of mounted bird skins from Alaska; a collection of more than one hundred species of eggs of native birds; a small collection of fishes and reptiles; a considerable number of marine invertebrates, including a small but beautiful collection of Philippine shells; a small but interesting collection of skulls and disarticulated and articulated skeletons; and the largest collection of Oregon insects in existence.

Course I.—*Invertebrate Zoology.*—Sophomore year; third term. A course devoted principally to the morphology, physiology and ecology of invertebrates. Particular attention is given to the study of the single celled forms since it is believed that the student can thus best gain an insight into the structure and physiological activities of the higher animals. Some of the types studied are the amœba, paramæcium, vorticella, sponge, hydra, starfish, crawfish, earthworm, mussel and grasshopper. Required in the agricultural, household science, pharmacy and commercial literary courses. Seven hours a week. Laboratory deposit, $3.00.

Course II.—*Entomology.*—Junior year; first term. A study of the structure, classification and habits of insects, with particular reference to those which are beneficial or injurious. Instruction is given in methods of collecting, mounting and studying the life-histories of insects and in the preparation and use of insecticides. Required in the agricultural, household science and commercial literary courses. Prerequisite, course I. Seven hours a week. Laboratory deposit, $1.00.

Course III.—*Vertebrate Zoology.*—Junior year; second

term. A course devoted principally to the morphology and physiology of vertebrates. A careful comparative study is made by dissections of several vertebrate types, particular attention being given to the Guinea pig as a type of the mammalia. The relation of function to structure is kept constantly in mind throughout the course which thereby becomes valuable as an introduction to the study of human physiology and veterinary science. Required in the agricultural, household science, pharmacy and commercial literary courses. Seven hours a week. Prerequisite, course I. Laboratory deposit, $3.00.

Course IV.—*Physiology.*—Junior year; third term. A course in human physiology designed for students having a knowledge of general biology and of vertebrate anatomy. The student should also possess some knowledge of chemistry and physics. Required in courses in agriculture, household science and pharmacy. Prerequisites, courses I and III. Five hours a week.

Course V.—*Physiology.*—Junior year; second term. A course in the elements of human anatomy and physiology designed for students with no previous biological training. Text-book, lectures and demonstrations. Martin's Human Body. Required in the course in mechanical engineering. Five hours a week.

Course VI.—(*a*) *Evolution.*—Senior year; first term. A course of lectures and collateral reading on organic evolution; covering such topics as the evolution of evolution, variation, struggle for existence, heredity, etc. Prerequisites, courses I and III. Two hours a week. Elective.

(*b*) *Systematic Zoology.*—A discussion of the principles of zoological classification with particular reference to species

of economic importance. Prerequisites, courses I and III. Three hours a week. Elective.

(*c*) *Advanced Entomology.*—A laboratory study of some restricted group of insects, of some particular species of economic importance, or of the insects affecting some particular crop. In this course students have free access to the collections and the library and records of the experiment station. The course extends throughout the year. Prerequisites, courses I and II. Seven hours a week. Elective.

Course VII.—(*a*) *Histology.*—Senior year; second term. A course of laboratory practice in fixing, hardening, imbedding, sectioning, staining, mounting and studying the tissues of the higher animals. Prerequisites, courses I and III. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of course VI *c*.

Course VIII.—(*a*) *Embryology.*—Senior year; third term. Mainly a laboratory course in the study of the development of the frog and the chick, supplemented by a study of the general facts and principles of embryology. Prerequisites, courses I, III and VII *a*. Seven hours a week. Elective.

(*b*) *Advanced Entomology.*—A continuation of courses VI *c* and VII *b*. Seven hours a week. Elective.

BOTANY AND HORTICULTURE.

EDWARD R. LAKE, M. S., Professor.

BOTANY.

The aim of the regular course in botany is to give the student such a working knowledge of plants and plant-life as will enable him to intelligently consider the various problems of vegetable life on the farm, in the garden or forest.

The student is taught to observe plants; to become familiar with them through a working association; to ascertain by actual field work and observation what plants do, and what relations they bear to each other, and to other forms of life.

The chief features of the work in this subject are field and laboratory exercises, supplemented by lectures and recitations. Text and reference books are used merely as guides, or for the purpose of furnishing suggestions to the end that the student may be the better enabled to make the field, garden, greenhouse and laboratory work the more effective.

The department has a good working equipment for the courses outlined. Individual sets, comprising dissecting and compound microscopes, laboratory glassware and other apparatus are supplied each student at a moderate rental fee. The collection of mounted and unmounted plants, especially rich in Oregon types, together with charts, models and preserved specimens furnish ample material for both the regular and special advanced work in the several courses.

Course I.—*Plant Morphology.*—Freshman year; third term. Laboratory and field exercises, together with recitations. The gross structure of our common flowering plants is the main topic of the term's work, though incidentally germination, growth, fertilization and fructification are considered. Each student is required to collect, mount, label and classify a century of the common field plants, and 10–25 samples of seeds of native plants. Seven hours a week. Laboratory deposit, $1.00. Leavitt, Outlines of Botany; Coulter, Plants.

Course II.—*Plant Histology.*—Sophomore year; first term. Laboratory work with the dissecting and compound microscopes. The exercises of this course cover the minute structure of the higher plants, together with a brief consideration of the lower forms of plant life. Seven hours a week. Laboratory deposit, $2.50. Coulter, Plants; Strassburger and Hillhouse, Practical Botany.

Course III.—*Plant Physiology.*—Junior year; first term. Laboratory exercises and recitations. The subject is considered with special reference to the needs of the agriculturist and horticulturist. The principal part of the discussion is upon those phases of the subject that bear directly upon our cultivated crops. Seven hours a week. Laboratory deposit, $3.00. Sorauer, Physiology of Plants; McDougal, Plant Physiology.

Course IV.—*Plant Classification.*—Junior year; third term. This course is designed to meet the demands of the pharmacist for a working knowledge of plants in general. Much stress is laid upon field and laboratory work. Plant relationships, plant societies, regional types, plant products, the medicinal and poisonous species of our common plants, together with a discussion of the various parts of plants used

in pharmacy are some of the topics considered during the term's work. Required in the course in pharmacy. Seven hours a week. Laboratory deposit, $1.50.

Course V.—*Plant Pathology and Hygiene.*—Senior year; first term. Laboratory and field work supplemented by lectures and recitations. The common fungous foes of the cultivated field, orchard and garden crops, together with the means of prevention and remedy are considered at length. Seven hours a week. Elective. References, Lodeman, Weed and Massee.

Course VI.—*Plant Products.*—Senior year; second term. Economic plants and their various preparations and uses. History, development, and distribution of the plants that furnish the world with its chief supply of material for food, shelter, clothing, fuel, medicine and the arts. Elective. Seven hours a week.

Course VII.—*Systematic or Cryptogamic Botany.*—Senior year; third term. The work of this course is arranged to meet the needs of those electing it. In the systematic work, the student collects and classifies a hundred or more of the local plants, giving data as regards habitat, and distribution, and prepares a synopsis of the orders considered and species collected. Some time is also devoted to a study of current botanical literature.

In the cryptogamic work, the exercises are confined chiefly to a study of the comparative morphology of the fungi, algæ and other flowerless forms of plant life. Seven hours a week. Elective. Laboratory deposit, $2.50.

The laboratory deposits in courses I, II, III, IV, VII, VIII, IX, X and XI are required of all students, and are made to cover possible loss and breakage of apparatus used. At the close of each term such balance as may remain, is re-

turned to the student. All deposits are required to be made in advance.

Course VIII.—*Forestry.*—Senior year; first term. Lectures, laboratory exercises and field work. The topics of the course are: Pacific coast forests; areas, type trees, and products; forest trees, chief characteristics, particular uses, and identification. Five hours a week. Elective.

Course IX.—*Forestry.*—Senior year; second term. Lectures. Forest culture; forest management; forest protection; forest laws. Five hours a week. Elective.

Course X.—*Forestry.*—Senior year; third term. Lectures, laboratory exercises and field work. Plant diseases, especially those affecting forest trees. Fungous foes of timber. Timber preservation. Seven hours a week. Elective. Laboratory deposit, $2.50.

Course XI.—*Construction of Woods and Metals.*—Senior year; second term. A course designed to supply the student with a practical knowledge of the minute structure of the leading kinds of timber and metals used in construction. No better designs of structures for strenght, elasticity, buoyancy, compactness and rigidity are offered than those devised by nature for use in plant structures. The value of metals for constructive purposes depends very largely upon fibre, molecular structure and crystallinity. A microscopic examination of these features of metals gives the student an insight into the fundamental properties of these materials. Timber and metal diseases are considered at some length. Lectures and laboratory exercises. Seven hours a week. Elective. Laboratory deposit, $2.50.

HORTICULTURE.

The work in horticulture is so arranged as to give the

student a working knowledge of the principles and practices of modern horticulture, especially applicable to Pacific Coast conditions and requirements.

The experiment station orchard of over two thousand fruit trees, shrubs and vines furnishes ample material for all phases of the work of the several courses.

Course I.—*Plant Propagation.*—Senior year; first term. House and field exercises in seeding, grafting, cutting, layering, pruning and budding, together with recitations. Two and one-half, or five hours a week. Goff, Principles of Plant Culture.

Course II.—*Plant Culture.*—Senior year; second term. Lectures and recitations on orchard, garden and vineyard fruit crops, including selection of soils, planting, cultivating, pruning, harvesting, storing and marketing. Two and one-half, or five hours a week. Bailey, Principles of Fruit Growing.

Course III.—*Plant Evolution and Improvement.*—Senior year; third term. Lectures and recitations covering the various phases of evolution as bearing especially upon our cultivated plants, together with a discussion of the principles and practices of plant breeding, and improvement by selection and cross fertilization. Five hours a week. Bailey, Plant Breeding; Bailey, The Survival of the Unlike.

ELOCUTION.

HELEN V. CRAWFORD, B. S., Professor.

"There is one accomplishment, in particular, which I would earnestly recommend to you, Cultivate assiduously the ability to read well. Good reading is the natural exponent and vehicle of all good things. It seems to bring dead authors to life again, and makes us sit down familiarly with the great and good of all ages."

It is the purpose of this department to train the pupils to become thoughtful, intelligent, and agreeable readers. To give them the power to extract thought from the printed page, and by systematic drill both in physical culture and voice work to give them adequate vocal expression. To instil in the minds of pupils a love for good literature, and a genuine pleasure in interpreting and rendering the same.

Courses I and II.—*Elocution.*—Freshman year; first and second terms. Analysis and rendering. Voice culture, physical culture. Two hours a week. Evolution of Expression, Vol. I., C. W. Emerson.

Course III.—*Elocution.*—Sophomore year; first term. Voice culture, bodily expression, analysis and rendering. Two hours a week. Evolution of Expression, Vol. II., C. W. Emerson.

Junior year.—Rhetorical exercises will be required first term of junior year.

Courses IV, V and VI.—*Advanced Elocution.*—Senior year; first, second and third terms. Voice culture, rhythmic movements, literary analysis and rendering. Elective. Two hours a week. Evolution of Expression, Vol. III., C. W. Emerson.

FLORICULTURE AND GARDENING.

GEORGE COOTE, Professor.
W. T. JOHNSON, B. S. A., Assistant.

Instruction in floriculture is given to the classes in household science. Floriculture is intended to acquaint students with the habits and requirements of the many hardy plants for outside decoration and also with the propagation and management of tropical and subtropical varieties. Thus students are enabled to acquire considerable insight into the proper care of greenhouses. In order that this plan may be carried into effect, lectures supplemented by practical work in the propagation, potting and care of plants, are regularly given to the classes.

Course I.—Sophomore year; first term.—Propagation of spring and summer plants for adorning the home grounds.

Course II.—Senior year; third term.—Propagation of soft wooded plants, care of greenhouse, propagation and care of winter flowering plants.

Course III.—Senior year; first term.—Vegetable Gardening, elective.—Location and soil, irrigation and rotation of crops. Harvesting. Care of seeds; improvement of varieties.

The aim is to teach students to become successful cultivators. The instruction given is both practical and theoretical.

Course IV.—Senior year; second term.—Composting Manures. Application for early and late crops. Cultivation to develop plant food. Care of cold frames, and winter protection of young plants for early spring planting. The building of greenhouses for forcing vegetables.

Course V.—Senior year; third term.—Green's "Vegetable Gardening" will be used as a text-book.

Course VI.—Senior year; third term.—Landscape Gardening is treated as a fine art. Introductorily the arts of design in general are discussed. Then are discussed the principles, aims and methods of artistic gardening. The principles, when once understood, are applied to the embellishment of home grounds, cemeteries, parks and highways.

BACTERIOLOGY.

EMILE F. PERNOT, Professor.

Within the last decade bacteria have laid a very strong hold on the thought and imagination of the scientific world, and have come to be looked upon as playing a most important part, not only in the production of disease and in fermentation, but also in many everyday processes hitherto supposed to be dependent on very different causes.

In consequence of this, bacteriology has been raised to the dignity of a science, and its ramifications have become so numerous and widespread that many of the other sciences, and even some of the arts, have been freely pressed into the service of one or the other of its branches.

The study of bacteriology has made great strides both in the pathological and the technical branches of the subject; and just as investigations into the physiology of higher plants gave the first impetus to the establishment of agricultural experiment stations in all countries; so, in like manner, the physiology of fermentation and technical bacteriology have called into existence, within the last few years, a number of stations and laboratories for the development of those branches of industry wherein microörganisms play an important part.

This college has a well equipped bacteriological laboratory for the investigation and study of bacteriological diseases, both animal and vegetable.

The following courses of lectures and laboratory work have been added to the college curriculum as electives in the senior year.

Course I.—*Bacteriology.*—Senior year; first term. A course in the elements of bacteriology, including lectures, and laboratory practice in sterilizing, making culture media, inoculating and growing cultures, studying cultural characteristics of certain definite species of bacteria, mounting, staining and examining slides, classification.

Course II.—*Dairy Bacteriology.*—Senior year; second term. Study of the bacterial diseases of milk, bacteria in the dairy, study of bacteria in butter making, and in cheese making. Study of yeasts and ferments.

Course III.—*Bacteriology.*—Senior year; third term. Lectures and laboratory work in pathogenic germ diseases of stock and poultry; a study of vaccines, their manufacture and use; of the nitrifying bacteria in leguminous plants; of bacteria in the soil and the bacterial analysis of water.

DRAWING.

FARLEY D. MCLOUTH, B. S., Instructor.

Of the five senses, or gateways of knowledge, two, seeing and hearing, belong to the intellectual part of our nature, while the others chiefly supply our animal wants. The sense of seeing is at once the most active, the most comprehensive and the most intellectual of them all. It is the servant of the soul and through it we receive the richest ideas.

The chief aim of the course in drawing is to teach the student to see truly, to obtain quicker perceptions of the natural world and to preserve something of a true image of beautiful things that pass away Few among us see truly what we see and then only what we have been educated to see. While no teaching can make an artist in the full sense of the word, any more than the study of the forms and methods of poetry can make a poet, yet drawing, as surely as rhetoric, should form a part of any thorough education; for besides the general quickening of perception and the training of the eye to accuracy of sight, it affords the means of noting the forms of objects such as no written descriptions can secure. At its lowest estimate it is an accomplishment perhaps larger in resources of pleasure than any other, while at its highest, it affords a mode of expression second only to language itself.

In considering the study of drawing, its importance is too often lost sight of, and yet it may be safely said that not only is drawing a corner stone in the foundation of an industrial education, but of a scientific education as well. In engineering courses, for instance, a knowledge of drawing is one of the first requirements.

In the first and second terms of the freshman year the work is confined entirely to outline drawing, realizing that as an aid in other branches of study, careful outline is of more importance than shading. Exactness of outline and accuracy of proportions are the aim.

Course I.—*The Elements of Drawing.*—Freshman year; first term. The work includes the first principles of drawing and of freehand perspective, drawing from simple block casts. Lectures. Three hours a week.

Course II.—*The Elements of Drawing.*—Freshman year; second term. A continuation of course I, drawing from casts. Lectures. Three hours a week.

Course III.—*The Elements of Drawing.*—Freshman year; third term. Everything that is seen in the world around us presents itself to our eyes in an arrangement of spots or patches of different colors variously shaded, or patches of light and shade, and to this course III is shaped making a decided change. To one not having a knowledge of the work, it might seem as though it were carried far to the other extreme, for now we use no outlines at all, but work in patches or spots, and give our attention to areas and values of light and shade. The work is from casts of geometric figures and from simple still-life studies. Students taking the mechanical or mining engineering courses are given two hours a week in machine sketching and light and shade drawing of machine forms. Lectures. Three hours a week and course II continued two hours a week.

Courses IV, V and VI.—*Advanced Drawing.*—Senior year. Facilities for advanced work are offered as an elective throughout the senior year. The work includes still-life, cast drawing, carried to the antique and leading to work from life as the pupil exhibits ability. Lectures. Five hours a week.

MILITARY.

MAJOR FRANK E. EDWARDS, O. N. G., Commandant.

The object of this department is so to instruct the cadet that upon graduation he will be thoroughly competent to hold a commission as a company officer in the national guard or volunteer army. Military drill improves the habits and manners of the student, develops him physically and gives him that military knowledge which it is desirable every citizen should possess that he may render intelligent aid to his country or state in time of need. It cultivates a manly spirit, ready and implicit obedience, respect for authority and self-restraint—all qualities of inestimable value to a young man.

Instruction in the course is prescribed for all undergraduate male students. All claims for excuses from military duties on the ground of physical disability will be referred to the physical director. Students excused from active military work may be assigned some light duty by the head of the department. The instruction is both practical and theoretical.

The battalion band, with twenty instruments, is under the instruction of a competent cadet officer as leader. Ordinarily no cadet will be assigned to the band until he is well instructed in the "school of the soldier" and the "school of the company."

The armory contains a drill room 70 x 100 feet in extent, an office, and suitable rooms for storing guns and other ord-

nance. Three hundred Springfield cadet rifles with equipments, two light artillery field pieces, twenty cavalry sabers, and a liberal allowance of blank and ball cartridges are furnished by the ordnance department, U. S. army. The college has purchased the necessary band instruments, swords, bugles, colors, and signal apparatus for the thorough equipment of the department.

It is the intention to hold an encampment for two or three days annually when suitable camp equipage can be secured. The first annual encampment was held in June, 1900.

The commissioned officers are selected from the senior class, the non-commissioned officers from the senior, junior and sophomore classes. Appointment of officers and non-commissioned officers and their relative rank, are determined according to the military standing of cadets based upon a careful consideration of the following points: (1) Knowledge of drill and duties as determined by examination, practical application and recommendations of superior officers; (2) zeal, soldierly bearing and aptitude for command; (3) character; (4) military record; (5) general standing in the college.

Cadets are required to wear a uniform at all drills and other military exercises. This uniform costs about $16.50. It is of dark blue cloth of an excellent quality and makes a very neat and serviceable school suit.

Courses I, II, III, IV, V, VI, VII, IX, XI, XII, XIV, and XVI.—*Military Drill.*—Freshman, sophomore, junior and senior years. The practical course in infantry includes the schools of the soldier, company and battalion, in close and extended order; ceremonies; guard and outpost duty; target practice and battle tactics. In artillery it includes the schools of the soldier, cannoneer and platoon, dismount-

ed; the mechanism, nomenclature and care of the 3.2 inch breech-loading field pieces; the use of artillery in the field.

Those physically unable to bear arms, together with a limited number from the senior and junior classmen, may be assigned to the signal corps, and instructed in the usual methods employed in military signaling.

Courses VIII, X, XIII and XV.—*Military Science.*—Junior and senior years. The theoretical course embraces recitations in U. S. infantry and light artillery drill regulations, and outpost and guard duty manuals; instruction in reports and returns pertaining to a company; lectures on organization and administration of the U. S. army in peace and in war; the volunteers and militia; tactics, strategy and logistics, and other military subjects.

U. S. Infantry Drill Regulations; Blunt's Small Arms Firing Regulations; U. S. Light Artillery Drill Regulations; Gidding's Manual of Signaling; Burnham's Duties of Outposts and Manual of Guard Duty; Wagner's Elements of Military Science.

ROSTER.

Cadet Officers and Non-Commissioned Officers.

STAFF AND NON-COMMISSIONED STAFF.

W. E. Hanley.....First Lieutenant and Adjutant
L. E. Kurtichanof.....First Lieutenant and Quartermaster
V. C. Spencer.....Sergeant Major
A. Starr.....Quartermaster Sergeant

COLORS.

A. B. Bower.....Color Sergeant
H. G. Pugh.....Color Corporal
C. H. Lewis.....Color Corporal

BAND AND FIELD MUSIC.

F. Steiwer.....First Lieutenant and Leader
A. T. Bates.....Drum Major
E. W. Yates.....Chief Bugler

J. D. Zurcher.....Sergeant
J. H. Gault.....Sergeant
H. L. Fryer.....Corporal
G. W. Crume.....Corporal
G. Tuttle.....Corporal
C. H. Woodcock.....Bugler

ARTILLERY.

G. H. Thompson.....First Lieutenant
E. P. Jackson.....First Sergeant
I. P. Whitney.....Sergeant
M. McAllister.....Sergeant
F. M. Groshong.....Gunner Corporal
E. Hinrichs.....Gunner Corporal

INFANTRY.

"A" COMPANY.	"B" COMPANY.	"C" COMPANY.	"D" COMPANY.
Captain:	*Captain:*	*Captain:*	*Captain:*
A. E. Tulley.	C. W. Laughlin.	H. V. Tartar.	J. E. Smith.
Lieutenants:	*Lieutenants:*	*Lieutenants:*	*Lieutenants:*
L. G. Mattley,	H. L. Lusted,	T. Bilyeu,	N. W. Leadbetter,
F. C. Houston.	R. R. Howard.	A. M. Alspaugh.	A. E. McGillivray.
Sergeants:	*Sergeants:*	*Sergeants:*	*Sergeants:*
R. Billings,	E. H. Davis,	B. Mayfield,	E. B. Beaty,
J. E. Johnson,	E. Dyer,	W. S Wells,	J. R. Howard,
F. M. Dempsey,	A. D. Gerking,	F. Carnahan,	W. D. Jamieson,
B. W. Wilson,	J. Paulson,	I. M. Underwood,	F. C. Pate,
D. Hirstel.	P. E. Clarke.	S. L. Burnaugh.	E. G. Wicklund.
Corporals:	*Corporals:*	*Corporals:*	*Corporals:*
C. Buchanan,	J. M. Sweek,	V. C. Staats,	J. Withycombe,
F. Fischer,	A. E. Belknap,	J. C. Clark,	M. M. Meiser,
F. Wann,	C. C. Cate,	W. W. Henry,	M. Wilkes,
A. S. Hall,	C. L. Shepard,	P. E. Cupper,	J. T. Witty,
R. Simeral,	K. D. MacLean,	T. W. Scott,	P. Wells,
G. A Cathey.	B. G. Davidson.	A. E. King.	W. Weeks.

PHYSICAL CULTURE.

J. B. PATTERSON, A. B., Physical Director.

The aim of this department is to secure and maintain perfect health. To this end we strive to develop a symmetrical and graceful body. No pretense is made at developing actors, and no one is required to do what is known as "heavy work." However, there are always classes and special teams in various lines of artistic gymnastics, and those enjoying the work are welcome.

The chief aim is to benefit the weak and to guard against developing any tendencies to weakness or disease that so often exist. To this end every man entering the department is given a rigid physical examination. In these examinations the exact condition of the man is noted and special exercises are prescribed to meet his particular case. Records are kept making it possible by later examinations to note results of work and progress made.

The work is largely selected from the German and Swedish systems of gymnastics. A progressive course is followed. The class work which is carefully planned aims primarily to cure the common physical defects, such as narrow chest, stooping shoulders and weakened muscular system.

The gymnasium is well equipped for thorough work. The basement is provided with lockers and bath rooms for both men and women. The main floor is equipped with horizontal bar, parallel bars, buck, horse, rings, ladders, trapeze, dumb-bells, clubs, wands and other apparatus. East of the gymnasium is a large athletic field, with a quarter-mile track, 100-yard straight-away track, tennis courts and base-ball grounds.

MINES AND MINING.

JOHN FULTON, B. S., Mineralogy and Assaying,
GRANT A. COVELL, M. E., Mechanics and Mechanical Engineering.
GORDON V. SKELTON, C. E., Mathematics and Mining Engineering.
ABRAHAM LINCOLN KNISELY, M. S., Chemist.

Instruction is given in this department to familiarize the student with the most approved methods of successfully carrying on mining operations as practised on the Pacific coast. The student is taught the uses of the various surveying instruments and is given ample opportunity for practical application in both field and mine surveying.

For courses in mine surveying, leveling, tunneling, etc., see page 101.

The student is also taught how to care for and handle such machinery as boilers, engines, motors, pumps, hoists, etc., by practical study and use in the machine shops. Abundant facilities for such instruction are offered here.

For description of equipment of the mechanical department see pages 77 and 78.

The courses in chemistry are practically the same as those for the mechanical student, excepting that an additional term in qualitative analysis is required of the mining student.

The courses in mineralogy are largely laboratory practice, and consist to a great extent of blowpipe-analysis of most of the metal-bearing rocks. The student is also taught how to recognize specimens in the field by aid of simple instruments, such as the pocket knife, lens, and small acid bottle.

The study of economic geology is also fully considered in this department, and much assistance may be derived by study of specimens in the mineral cabinet.

The courses in assaying cover analysis of gold, silver, mercury and lead ores, by the fire or dry assay, and the estimation of copper, iron, and zinc, by the volumetric or wet assay.

Instruction in rapid estimations of various metals is also given when time permits.

The equipment of the assay laboratory consists of one simplex ore crusher, one wall cupel machine, one Becker button balance, one Spohrhaese button balance, two pulp scales, one bucking board, two crucible furnaces, two muffle furnaces, one combination muffle and crucible furnace. All above furnaces are heated by Hoskins' gasoline burners, supplied by pressure from one fifteen-gallon pressure tank. In addition, there are furnaces for coal or coke, both stationary and movable, anvils, moulds, tongs, scorifier-crucible and cupel-hand cupel machines, etc.

Nothing has been omitted in the equipment of a first class assay laboratory, so that students completing the full course will have no difficulty in taking up the duties usually incumbent upon the assayer.

LITERARY COMMERCE COURSE.

T. H. CRAWFORD, A. M., Professor.
J. B. HORNER, A. M., Penmanship.
HELEN L. HOLGATE, B. H. E., Stenography and Typewriting.

This course leads to the degree of B. S. Those who complete the first two years—freshman and sophomore—and in addition the subjects of commercial law, civics, and economics, will receive a certificate to that effect.

A small fee will be charged for the use of the College typewriting machines.

The requirments for entrance to this course are the same as those for entrance to any one of the Freshman years in other courses. See page 24.

One of the most attractive features of this course is the prominence given to English. Every term in the entire four years—with one exception—presents the subject of English—making this emphatically a literary course.

Along commercial lines, the subjects of book-keeping, stenography, typewriting and commercial arithmetic are made prominent in the freshman and sophomore years and in the junior and senior years commercial law, civics and economics are studied.

In mathematics—in addition to commercial arithmetic—there are algebra and geometry, All the mathematics come in the first two years.

During the junior and senior years either Latin or German is studied continuously. In these years will also be found the subjects of entomology, vertebrate anatomy, general and modern history, aesthetics, psychology and astronomy.

THE EXPERIMENT STATION.

The station bears an important relation to the college, as the scientific investigations conducted at the station strongly support the instruction given in the class-room. Aside from the original investigations of an economic significance to agriculture, the work of the station affords daily object lessons in good modern farming.

About one hundred acres of the college farm are devoted to scientific and experimental farming. Animal husbandry is an important feature of station work. For this branch of the work Shorthorn and Jersey cattle, Cotswold and Shropshire sheep, and Berkshire swine are maintained. Among these, animals can be found of rare individual excellence, thus offering to the student in agriculture an opportunity to study the highest types of the respective breeds.

Extensive field trials are made in the growing of many varieties of cereals, grasses and forage plants, which are utilized in various feeding experiments conducted for the purpose of determining their value as stock foods. This work embraces the study of plant environment and the correlated subject of animal nutrition, thus supporting in a practical manner the science of agriculture as taught in the college.

Dairying is also a prominent feature of the station work. For this purpose a herd of typical dairy cows and a well equipped creamery are maintained. Many problems of vital interest to practical dairymen are constantly being worked out along the lines of rations for cows and methods for handling the herd. The student himself frequently assists in the work and thus obtains tangible evidence of the practical utility of the sciences in dairy husbandry.

The horticultural work of the station affords the student an admirable opportunity for comparing the work of the class room with the practices of the field. Plant breeding, cross pollination of fruits, as well as modern methods of planting, pruning, grafting, spraying and cultivation are all brought immediately under the observation of the student, thus affording him an excellent opportunity to become thoroughly conversant with the science and practice of horticulture.

SHORT COURSE.

This course is designed to meet the requirements of a large number of men and women in the state who have not the time or the means to take a full college course, and yet are desirous of obtaining a better equipment for their life-work than they now possess.

The course is given in the winter, for at this season the time can be better spared from the farm and orchard than at any other period. While the time will be subject to change to fit the regular college work, yet the course will be arranged to begin about the second week in January of each year, and extend over a period of from four to six weeks.

No special preparation is necessary as the instruction will be given by lectures and laboratory work. No examination is required to enter the course and no textbooks are used. It is the aim of this course to give to the student the largest possible amount of practical information regarding the various phases of agriculture and horticulture. Special attention is given to practical dairying.

The institution is well equipped for work in these lines. Laboratories, dairy building, green houses, and farm, all afford efficient means for illustration and work.

In addition to the course outlined, there are provided special lectures by practical men who have achieved success in some particular branch of agriculture or horticulture, or some other important industry of the state. These special lectures are provided without extra cost to the student, and are highly instructive and beneficial.

No tuition fee will be charged in this course. Those who attend will be expected to secure boarding places in the city or in the boarding halls of the college, provided the latter are not fully occupied by regular college students. Board and rooms can be had at $2.50 to $3.00 per week.

Reduced fare on all railroads in the state will be secured for those who attend this course.

For further information regarding this course application should be made to the president of the institution, or to the director.

FARMERS' INSTITUTES.

One of the most useful methods of diffusing agricultural education is the farmers' institute. These institutes are especially helpful both to the farmer and the experiment station worker. The former secures scientific information upon topics of immediate interest to him and is instructed in its practical application to the farm; while the latter is brought to realize more vividly the needs and perplexities of the farmer. It is gratifying to note the growing demand for more of these institutes, and while the station is ever ready to accede to these demands, it is, however, becoming annually more difficult on the part of the station officials to fulfill these obligations, owing to the constant increase in the work of the station.

LIBRARY.

LEWIS WARREN OREN, B. M. E., Librarian.

The library occupies a large, well-lighted room on the first floor of the administration building, and contains nearly 3000 bound volumes of standard works on history, literature, arts, sciences, general subjects and fiction; as many more bound volumes of U. S. government publications and about 5000 pamphlets and bulletins. Care has been exercised in the selection of books in order that each department may have proper works of reference at the disposal of the student.

A card catalogue is used and the books are indexed according to subject by the decimal system, and alphabetically according to title and author, so that the use of the library is greatly facilitated and its resources upon any subject easily ascertained.

The library receives the leading literary and scientific magazines and journals, all of which are kept on file.

The library is open for the issuing of books every school-day from 8 a. m. to 5 p. m., and during that time the librarian is in constant attendance. Books, excepting cyclopedias and works of general reference, may be drawn out by students for a period not exceeding two weeks.

LIST OF STUDENTS.

GRADUATES.

NAME.	†POSTOFFICE.	COUNTY.
Danneman, Carrie	Clem	Gilliam.
Finley, Ross Cauthorn	Baker City	Baker.
Getty, Fanny	Empire	Coos.
Holden, Hulda	Oregon City	Clackamas.
Jones, Mary	Corvallis	Benton.
Kyle, Ethel	Norton	Lincoln.
Morrison, Archibald David	Joseph	Wallowa.
Smith, Bessie Gertrude	Lincoln	Polk.
Withycombe, Mabel	Hillsboro	Washington.
Withycombe, Robert	Hillsboro	Washington.

SENIORS.

NAMES.	COURSE.	POSTOFFICE.	COUNTY.
Allen, Ina Pearl	H. S.	Amity	Yamhill.
Alspaugh, Augustus Marshall	Elec.	Currinsville	Clackamas.
Belknap, Frances Edna	H. S.	Corvallis	Benton.
Bilyeu, Thomas	Mech.	Athena	Umatilla.
Billings, Ralph	Agri.	Ashland	Jackson.
Bridgess, Marion Forrest	Elec.	Portland	Multnomah.
Davis, Eugene Harold	Elec.	Yaquina	Lincoln.
Ewing, Gertrude Elizabeth	H. S.	Fulton	Multnomah.
*Fruit, Dick Alec	Mech.	Peoria	Linn.
Garret, Rena Jane	H. S.	Philomath	Benton.
Hanley, Wilfred Edmond	Agri.	Hillsboro	Washington.
Houston, Fred Chancey	Agri.	Springfield	Lane.
Howard, Edith Slayton	H. S.	Prineville	Crook.
Howard, Roy Raymond	Mech.	Prineville	Crook.
Kurtichanof, Leonard	Elec.	Chitwood	Lincoln.
Laughlin, Chester Willis	Mech.	North Yamhill	Yamhill.
Leadbetter, Noble William	Mech.	Corvallis	Benton.
Lusted, Harry Linden	Mech.	Troutdale	Multnomah.
MacLean, Kirby A. H. D.	Mech.	Vancouver	Wash. State.
Mattley, Leroy Garfield	Agri.	Lewisville	Polk.
Mattley, Maud	H. S.	Lewisville	Polk.
McGillivray, Alexander E.	Phar.	Shaw	Marion.
Miner, Christal	H. S.	Buena Vista	Polk.
Rosendorf, Edward	Phar.	Independence	Polk.

† Address before coming to Corvallis for school purposes.
* Deceased.

Scott, James Franklin	Elec.	Shedd	Linn.
Sharp, Walter Lindsey	Elec.	Tangent	Linn.
Small, Malinda Alice	H. S.	Silver Lake	Lake.
Smith, Ethel Florence	Phar.	Salem	Marion.
Smith, John Eliphalet	Agri.	Amity	Polk.
Spencer, Victor Cleveland	Phar.	Corvallis	Benton.
Steiwer, Fred	Mech.	Jefferson	Marion.
St. Germain, Elizabeth Ney	H. S.	Corvallis	Benton.
Sturgeon, Maude	Phar.	Tillamook	Tillamook.
Tartar, Herman Vance	Agri.	Airlie	Polk.
Thompson, George Harris	Agri.	Macleay	Marion.
Thompson, Orla	H. S.	Macleay	Marion.
Tulley, Arthur Edgar	Agri.	Wallowa	Wallowa.
Van Groos, William	Agri.	Turner	Marion.

JUNIORS.

NAMES.	COURSE.	POSTOFFICE.	COUNTY.
Abbe, Mabel Maud	H. S.	Nashville	Lincoln.
Anderson, Clauda Leola	H. S.	Lents	Multnomah.
Applegate, Rachel Lindsay	H. S.	Yoncalla	Douglas.
Beaty, Edward Benjamin	Elec.	Walkerton	Indiana.
Berthold, Edith Jane	H. S.	Oakville	Linn.
Bogue, Floyd Ellis	Mech.	Corvallis	Benton.
Burnaugh, Samuel Lewie	Phar.	Elgin	Union.
Canfield, Elsie May	H. S.	La Fayette	Yamhill.
Chipman, Laura Lillian	H. S.	Tillamook	Tillamook.
Chipman, Rosamond Leolene	H. S.	Tillamook	Tillamook.
Cockerel, Mortimer Jay	Phar.	Oregon City	Clackamas.
Dyer, Edward Leverett	Mech.	Albany	Linn.
Finley, Ada Eudora	H. S.	Corvallis	Benton.
Harden, Beulah Bethsheba	H. S.	Stayton	Marion.
Hirstel, Dave	Elec.	Portland	Multnomah.
Jamieson, Willliam Daniel	Elec.	Raleigh	Washington.
Johnson, John Edwin	Agri.	Vale	Malheur.
Johnson, Lillian	H. S.	Vale	Malheur.
Johnson, Viola Ethel	H. S.	Vale	Malheur.
Linville, Ethel Elenor	H. S.	Corvallis	Benton.
Mayfield, Byram	Phar.	Elgin	Union.
Millhollen, Lloyd Francis	Phar.	Oakville	Linn.
Pugh, Harvey Garfield	Elec.	Shedd	Linn.
Rinehart, Jackson Carle	Elec.	The Dalles	Wasco.
Smith, Minnie Grace	Agri.	Latourell Falls,	Multnomah.
Smith, Ida Mae	H. S.	Salem	Marion.
St. Germain, Inez	H. S.	Corvallis	Benton.
Underwood, Irving Melville	Mech.	Sherar's Bridge.	Wasco.
Whiteman, Grace	H. S.	Jefferson	Marion.
Wells, Walter Stanley	Phar.	Corvallis	Benton.

SOPHOMORES.

NAME.	COURSE.	POSTOFFICE.	COUNTY.
Baxter, Elmer Elbert	Mech.	Dayton	Yamhill.
Belknap, Arthur Edward	Mech.	Corvallis	Benton.
Bower, Albert Burton	Mech.	Silverton	Marion.
Buchanan, Claud	Agri.	Corvallis	Benton.
Burns, John Charles	Agri.	Rockwood	Multnomah.
Buster, John William	Phar.	Sheridan	Yamhill.
Byerlee, Carrie Ann	H. S.	Hood River	Wasco.
Carnahan, Frank	Agri.	Astoria	Clatsop.
Cate, Claude Cliffton	Agri.	Lenox	Washington.
Chambers, James Ralph	Mech.	King's Valley	Benton.
Clark, Percy Elmo	Phar.	San Francisco, Calif.	
Cochran, Maud Elizabeth	H. S.	Needy	Clackamas.
Crume, George W.	Mech.	Shedd	Linn.
Cummings, Carroll Elwood	Agri.	Shaw	Marion.
Cummings, Sibyl Alice	H. S.	Shaw	Marion.
Cupper, Percy Alfred	Mech.	Monument	Grant.
Davidson, Barton Green	Mech.	Hood River	Wasco.
Dempsey, Fred Marion	Phar.	Portland	Multnomah.
Dickey, Walter Thompson	Mech.	Hood River	Wasco.
Dilley, Lucy Aramintha	H. S.	Wren	Benton.
Dunlap, William James	Mech.	Shedd	Linn.
Espy, Thomas Willard	Min.	Oysterville	Wash. State.
Fowells, Margaret Belle	H. S.	Fayette,	Iowa.
Fryer, Harry Lee	Mech.	Carlton	Yamhill.
Fuller, Clara Etta	H. S.	Corvallis	Benton.
Gault, John Homan	Mech.	Salem	Marion.
Hagelstein, Henry	Mech.	Marshfield	Coos.
Hall, Albert Sidney	Mech.	Cleone	Multnomah.
Hartley, Warren Benson	Min.	Bohemia	Lane.
Hartley, Sophie Marguerite	H. S.	Bohemia	Lane.
Harden, Delbert Leightner	Mech.	Stayton	Marion.
Henkle, Joseph Clare	Mech.	Corvallis	Benton.
Hinrichs, Ernest	Mech.	Hood River	Wasco.
Herbert, Violet Philendia	H. S.	Corvallis	Benton.
Hershner, Edna Blanche	Phar.	Corvallis	Benton.
Horton, Walter Ralph	Mech.	Bridal Veil	Multnomah.
Horning, Alice Odalite	H. S.	Silver Lake	Lake.
Howard, John Ransom	Agri.	Prineville	Crook.
Hunsaker, Ethel Lenore	H. S.	Turner	Marion.
Ingram, Rose Mildred	H. S.	Monroe	Benton.
Irvine, Gertrude Edna	H. S.	Corvallis	Benton.
Jenks, Enoch Marion	Agri.	Tangent	Linn.
Junkin, James Blaine	Agri.	Oakville	Linn.
Keady, Mabel Bee	H. S.	Corvallis	Benton.

Leighton, Harry Milton	Agri.	Portland	Multnomah.
Lewis, Cecil Howell	Mech.	Astoria	Clatsop.
Little, David Charles	Mech.	Houlton	Columbia.
MacLean, Charles Edward	Min.	Vancouver	Wash. State.
Mann, Smith James	Phar.	Roseburg	Douglas.
Marsh, Maude Ethel	H. S.	Centerville	Washington.
Mattley, Belle Kate	H. S.	Lewisville	Polk.
McGhee, Clyde Harold	Mech.	Albany	Linn.
Meiser, Martin McClure	Mech.	Albany	Linn.
Michael, Effie Laura	H. S.	Lebanon	Linn.
Moore, Guy Erwin	Agri.	Prineville	Crook.
Pate, Frank Caleb	Agri.	Jefferson	Marion.
Pate, Nellie Lillian	H. S.	Jefferson	Marion.
Paulson, Joseph	Mech.	University Park	Multnomah.
Proebstel, Chester Lloyd	Min.	Portland	Multnomah.
Rinehart, Harvey Earle	Agri.	The Dalles	Wasco.
Rusk, Alyce Leena	Phar.	Milwaukie	Clackamas.
Scott, Teroah Winfield	Phar.	Carson	Wash. State.
Shepard, Claiborne Lockley	Agri.	Salem	Marion.
Skelton, Nellie Vernon	H. S	Mt. Vernon	Wash. State.
Smith, Benjamin Trueblood	Agri.	Salem	Marion.
Smith, Ray Marie	H. S.	Salem	Marion.
Staats, Vivian Cecil	Agri.	Airlie	Polk.
Starr, Artie	Mech.	Monroe	Benton.
Steiwer, Helen	H. S.	Jefferson	Marion.
Sutherland, Mary Elizabeth	H. S.	Shedd	Linn.
Sweek, John Matthew	Agri.	Burns	Harney.
Tartar, Lena Belle	H. S.	Airlie	Polk.
Tedrow, Albert Edward	Agri.	Monmouth	Polk.
Wann, Erwin Fred	Mech.	Waldport	Lincoln.
Weber, Otto Adam	Phar.	Corvallis	Benton.
Weeks, Wilbur	Agri.	Salem	Marion.
Wells, Albert Sidney	Min.	Portland	Multnomah.
Whitby, Isabel Harris	H. S.	Corvallis	Benton.
Whitney, Ira Parker	Agri.	Chitwood	Lincoln.
Wicklund, Elmer Gifford	Agri.	Vale	Malheur.
Wilson, Bushrod Washington	Mech.	Corvallis	Benton.
Yates, Elbert William	Agri.	Corvallis	Benton.
Zurcher, James Drummond	Mech.	Enterprise	Wallowa.

FRESHMEN.

NAME.	COURSE.	POSTOFFICE.	COUNTY.
Abraham, William Gustave	Mech.	Granger	Benton.
Abrams, Chester Witten	Mech.	Lincoln	Polk
Adams, Percival Lysander	Mech.	Hood River	Wasco.
Adamson, Albert Wilbert	Phar.	Rowland	Linn.

Airth, Henry Allen	Mech.	Astoria	Clatsop.
Alexander, Ethel May	H. S.	Corvallis	Benton.
Alexander, Alice Mary	L. C.	Corvallis	Benton.
Alspaugh, Willie Emma	H. S.	Eagle Creek	Clackamas.
Alspaugh, John Wesley	Mech.	Eagle Creek	Clackamas.
Alspaugh, Ernest Lawrence	Mech.	Eagle Creek	Clackamas.
Allingham, Ralph	Agri.	Shedd	Linn.
Allen Thomas Jefferson	L. C.	Kings Valley	Benton.
Anderson, George Anthon	Mech.	Harrisburg	Linn.
Andrews, Henry Villard	Agri.	Mount Tabor	Multnomah.
Applegate, Eva	H. S.	Youcalla	Douglas.
Applegate, Evea	H. S.	Youcalla	Douglas.
Applewhite, Avery	Agri.	Tillamook	Tillamook.
Bates, Allen Thomas	Phar.	La Fayette	Yamhill.
Bates, Howard Wilson	Mech.	Portland	Multnomah.
Baker, Ralph Ernest	Mech.	Cleveland	Wash. State.
Ban, Rocks	Agri.	Tokio	Japan.
Bareinger, Ada Lucetta	L. C.	Fern	Benton.
Berman, Ethel Alberta	H. S.	Corvallis	Benton.
Belden, Miles Bebee	Min.	Cove	Union.
Bilyeu, Hamon Shelley	L. C.	Athena	Umatilla.
Boorman, Mabelle Hazel	H. S.	Hood River	Wasco.
Boyd, James Edward	Mech.	Halsey	Linn.
Boyd, William Willis	Mech.	Halsey	Linn.
Brooke, Ethel Amelia	H. S.	Crestin	Iowa.
Brumfield, Olive Maude	H. S.	Toledo	Lincoln.
Brandon, Hugh Franklin	Phar.	Halsey	Linn.
Brock, Roy Cecil	Phar.	Wasco	Sherman.
Bryant, Albert Melvin	Phar.	Heppner	Morrow.
Brigham, George Chase	Agri.	Portland	Multnomah.
Buxton, Maud	H. S.	Forest Grove	Washington.
Bunn, Wilbur Ray	Mech.	North Yamhill	Yamhill.
Burnaugh, Andrew Jackson	L. C.	Elgin	Union.
Cady, Ray Bruce	Agri.	Holbrook	Nebraska.
Cathey, George Andrew	Phar.	Woodburn	Marion.
Canfield, Kathleen Mavoureen	L. C.	La Fayette	Yamhill.
Carlson, John Will	Mech.	Portland	Multnomah.
Carter, Etta Belle	L. C.	Halsey	Linn.
Castle, Mac	Mech.	Saginaw	Lane.
Cate, Rufus Henry	Mech.	Portland	Multnomah.
Cecil, James Carrol	Agri.	Burns	Harney.
Chapman, William Frederick	Phar.	Roseburg	Douglas.
Clark, Jesse Claude	Agri.	Newberg	Yamhill.
Colbert, Waldo Whitney	Phar.	Fayette	Iowa.
Colbert, Wallace Welcome	Phar.	Fayette	Iowa.
Connor, Charles	Mech.	Ione	Morrow.
Cooper, James Abraham	L. C.	Corvallis	Benton.
Cumming, Walter Griffin	Mech.	Hilgard	Union.

Daniel, Kathryn Blanche	Phar.	Grants Pass	Josephine.
Darby, Henry Clay	Phar.	Lewisburg	Marion.
Davidson, Ralph Leonard	Mech.	Independence	Polk.
Davis, Floyd Bushnell	Mech.	Yaquina	Lincoln.
Day, Fred Raymond	Agri.	Yoncalla	Douglas.
Day, Robert George	Agri.	Lake	South Dakota.
Danneman, Mary Cecil	L. C	Clem	Gilliam.
Davis, Zella May	L. C.	Shedd	Linn.
DeHaven, Clara Myrtle	H. S.	Peoria	Linn.
Dixon, Sadie Madge	L. C.	Yaquina	Lincoln.
Driver, Thomas Franklin	L. C.	Warnic	Wasco.
Dukes, Maltie	Phar.	Hood River	Wasco.
Dunlap, Mary Iva	Phar.	Shedd	Linn.
Edwards, Ernest Lee	L. C.	Junction	Lane.
Eddy, Earnest	L. C.	Kings Valley	Benton.
Elgin, Sophie Dell	H. S.	Suver	Polk.
Elgin, Benjamin Franklin	Phar.	Suver	Polk.
Emily, Joel	Mech.	Hurlburt	Multnomah.
Engle, Clyde	L. C.	Molalla	Clackamas.
Evans, Harry Benton	Mech.	Estrup	Lane.
Fawk, Seth Lee	Mech.	Rickreall	Polk.
Ferguson, Hope	L. C.	Astoria	Clatsop.
Finley, Percy Marvin	Agri.	Corvallis	Benton.
Fischer, Fred Solomon	L. C.	Corvallis	Benton.
Flemming, Alice Anna	H. S.	Newport	Lincoln.
Fowells, Frank La Verne	Mech.	Fayette	Iowa.
Fox, Josiah Thomas	L. C.	Halsey	Linn.
French, Margaret Isabel	H. S.	Corvallis	Benton.
Fulton, Annettie	H. S.	La Fayette	Yamhill.
Galloway, Frank Asberry	L. C.	Elgin	Union.
Garfield, Eunice Evelyn	H. S.	Oswego	Clackamas.
Gardiner, Clifford Le Mont	Min.	Astoria	Clatsop.
Garrow, Theodore Alexander	Mech.	Oregon City	Clackamas.
Gellatly, David Neal	L. C.	Philomath	Benton.
Gellatly, Frances Violet	L. C.	Philomath	Benton.
Gerking, Albert David	Agri.	Stayton	Marion.
Gibson, Thomas Masson	Min.	Chemainus	B. C.
Glassford, Nell Loris	L. C.	Kings Valley	Benton.
Goldson, George William	L. C.	Goldson	Lane.
Graham, Donald Hamilton	Mech.	San Antonio	Texas.
Graham, John Maxfield	L. C.	Kings Valley	Benton.
Groshong, Fred Monroe	Agri.	Hoskins	Benton.
Haberlach, William Fred	Agri.	Clackamas	Clackamas.
Haenel, Otto Anthony	Mech.	Monroe	Benton.
Hale, Claude	L. C.	Brownsville	Linn.
Hall, Frank Edward	Min.	Payn	Clackamas.
Harlan, Le Roy	L. C.	Republican Cy	Nebraska.
Hays, Maggie Maude	H. S.	Tangent	Linn.

Healy, Leonard Bert	Phar.	Sodaville	Linn.
Henry, Worth Wellington	L. C.	Zena	Polk.
Herbert, Georgia Ellen	H. S.	Corvallis	Benton.
Hills, Fred Austin	Agri.	Jasper	Lane.
Hinrichs. Max	Mech.	Hood River	Wasco.
Holt, Nellie Eudora	H. S.	Thomas	Lincoln.
Horton, Alva Otis	Phar.	Bridal Veil	Multnomah.
Hunsaker, Alice Cressie	L. C.	Turner	Marion.
Hussey, Alvaro Staples	Phar.	Turner	Marion.
Jackson, Elmer Polic	Mech.	Cleone	Multnomah.
Jackson, John Alexander	L. C.	Astoria	Clatsop.
Jolly Mary Grace	L. C.	Philomath	Benton.
Jones, William Robert	L. C.	Suver	Polk.
Jones, Alice Elizabeth	H. S.	Corvallis	Benton.
Jordan, Bert Trew	Phar.	Albany	Linn.
Junkin, Jonathan Bunyan	Min.	Oakville	Linn
Kiger, Effie Ina	H. S.	Blodgett	Benton.
King, Amos Edward	Mech.	Portland	Multnomah.
Kinder, Dock Frank	Mech.	Dayton	Wash. State.
Kissling, William John	Agri.	Macleay	Marion.
Koerner, Martha	H. S.	Oregon City	Clackamas.
Larson, Fred	Mech.	Astoria	Clatsop.
Laughlin, Harley Wade	Min.	La Grande	Union.
Leckenby, Mary Ellen	H. S.	Union	Union.
Lemery, Albert Willian	L. C.	Gervais	Marion.
Lindgren, Dora Matilda	L. C.	Marion	Marion.
Lockwood, Claude McLean	Phar.	Wa lowa	Wallowa.
Locke, Elsie Evelyn	L. C.	Corvallis	Benton.
Lokan, August	Mech.	Astoria	Clatsop.
Lyon, Charles Donahue	Mech.	Medford	Jackson.
Mack, Lawrence Wallace	Mech.	Ely	Clackamas.
Madden, Estella Mary	H. S.	McMinnville	Yamhill.
Martin, Weaver Thomas	Mech.	McMinnville	Yamhill.
McAllister, Reese Moe	Agri.	La Grande	Union.
McAllister, Charles	Min.	Enterprise	Wallowa.
McCallister, Mark David	Mech.	Pratum	Marion.
McCormick, John Roderick	Mech.	Lebanon	Linn.
McCall. Edward Roy	Phar.	Gresham	Multnomah.
McGillivray, Eliza Kate	L. C.	Shaw	Marion.
McKinney, Ray Lewis	Phar.	Medford	Jackson.
McTimmonds, James Vet	Min.	Airlie	Polk.
Meeker, Lenna Louise	H. S.	Laurel	Nebraska.
Messinger, Charlie Hosea	L. C.	Monmouth	Polk.
Miller, Curtis Harry	L. C.	Kings Valley	Benton.
Montgomery, Edith Ellen	H. S.	Falls City	Polk.
Moore, Guy Sherwood	Mech.	Albany	Linn.
Moores, Merrill Bruce	Mech.	Oregon City	Clackamas.
Morgan, Roy	Mech.	Coquille	Coos.

Morgan, Clyde Willis	L. C.	Halsey	Linn.
Morris, Charles William	Agri.	Fossil	Wheeler.
Mossie, Eber David	Mech.	Ukiah	Umatilla.
Mossie, Rosa Celestine	Phar.	Ukiah	Umatilla.
Mulkey, Chester Loren	Phar.	Amity	Yamhill.
Nash, Roderick Nicholson	Agri.	Nashville	Lincoln.
Newsom, Abraham	Phar.	Salem	Marion.
Newhouse, Lulu Alberta	L. C.	Corvallis	Benton.
Nicholson, Lemuel Bradford.	Mech.	Harrisburg	Linn.
Osborne, Edna Marie	H. S.	Corvallis	Benton.
Pasley, Wallace Hubert	Mech.	Glencoe	Washington.
Patton, Letha Margaret	L. C.	Halsey	Linn.
Pauldanius, Louis Albert	L. C.	Astoria	Clatsop.
Pelland, Fred Joseph	Mech.	St Paul	Marion.
Pepin, Arthur James	Min.	Chitwood	Lincoln.
Post, Ames Alfred	Mech.	Dayton	Yamhill.
Price, Ethel	H. S.	Kings Valley	Benton.
Raber, Hazel Blanche	H. S.	Corvallis	Benton.
Ramsey, Oliver Perry	Mech.	Portland	Multnomah.
Randall, Will Amos	Mech.	Portland	Multnomah.
Rawson, Earl	Mech.	Hockinson	Wash. State.
Rich, Arthur James	Mech.	Astoria	Clatsop.
Rice, Sarah Elizabeth	H. S.	Clear Lake	Iowa.
Rice, Lulu Ruth	H. S.	Clear Lake	Iowa.
Rickard, Thella Blanche	L. C.	Inavale	Benton.
Ringo, Joseph Lucine	Mech.	Molalla	Clackamas.
Roberts, Lucile Jean	H. S.	Hood River	Wasco.
Robinson, George Graves	L. C.	Corvallis	Benton.
Rose, Pearl Lemuel	Mech.	Airlie	Polk.
Rosendorf, Juanita	L. C.	Independence	Polk.
Rusk, Herbert Ruel	Mech.	Milwaukie	Clackamas.
Rutherford, William Robert.	Phar.	Burns	Harney.
Salvon, Henry	Phar.	Astoria	Clatsop.
Scherneckau, Chas August	L. C.	Astoria	Clatsop.
Schoel, Louis	Mech.	Halsey	Linn.
Schoel, William Amile	Mech.	Halsey	Linn.
Schrack, Charles Vernon	Agri.	Oakville	Linn.
Schrack, Claud	Agri.	Oakville	Linn.
Sears, Gladys Winona	H. S.	Hood River	Wasco.
Sears, George Ralph	Agri.	Walker	Lane.
Shearer, Caroline Hamilton	L. C.	Oakville	Linn.
Short, Dudley Elshman	Agri.	Goldendale	Wash. State.
Short, Clarence Washington.	Mech.	Goldendale	Wash. State.
Simeral, Raymond Wilton	Agri.	Macleay	Marion.
Simpson, Otto Gerald	Agri.	Suver	Polk.
Simpson, Margaret Merle	H. S.	Corvallis	Benton.
Small, Laura Mae	H. S.	Silver Lake	Lake.
Smith, Edna Louisa	Phar.	Latourell	Multnomah.

Smith, Will Tyler	Phar.	Sheridan	Yamhill.
Smith, Orrice Ray	Min.	Gates	Marion.
Smith, Guy Odell	L. C.	Zena	Polk.
Sommer, Marguerite	H. S.	Scio	Linn.
Sorenson, Bernard Fred	Mech.	Harrisburg	Linn.
Soule, Ira Garfield	Mech.	Lacomb	Linn.
Staats, Eva Clara	H. S.	Airlie	Polk.
Staats, Roscoe Conklin	L. C.	Airlie	Polk.
Starr, Mamie Calla Luda	L. C.	Monroe	Benton.
Steiwer, Karl	Agri.	Jefferson	Marion.
Stimpson, May	H. S.	Newport	Lincoln.
Stimson, Frederick Charles	Phar.	Amity	Yamhill.
Stokes, Francis Marion	Min.	Portland	Multnomah.
Stott, Robert	Phar.	Pendleton	Umatilla.
Stout, Ray Lewis	Mech.	Mehama	Marion.
Strong, Frank Edward	Mech.	Newberg	Washington.
Swann, Claud Vivian	Mech.	Buena Vista	Polk.
Sweek, Earl	Agri.	Burns	Harney.
Sweek, Agnes	H. S.	Burns	Harney.
Tannock, John Smith	Mech.	Lenox	Washington.
Taylor, Vance Alexander	Mech.	Shedd	Linn.
Taylor, Byron James	L. C.	Corvallis	Benton.
Telfer, Grace Marie	Phar.	Portland	Multnomah.
Thompson, Ethel Maud	H. S.	Macleay	Marion.
Thompson, Ralph Infield	Mech.	Heppner	Morrow.
Thrift, Douglas Palmer	Agri.	Shedd	Linn.
Tulley, Elmer Jesse	Agri.	Wallowa	Wallowa.
Tuttle, Gera'd	Phar.	Summerville	Union.
Underwood, William Dean	Mech.	Boyd	Wasco.
Wade, Walter Eakin	Mech.	Summerville	Union.
Wallace, Earl Wayne	Mech.	Hillsboro	Washington.
Ward, Delbert Milton	L. C.	Lone Rock	Gilliam.
Watkins, Harvey Hay	Agri.	Portland	Multnomah.
Webber, Ward Perry	Min.	Medford	Jackson.
Weber, Leona Charlotte	Phar.	Corvallis	Benton.
Wells, Perry Edward	L. C.	Hood River	Wasco.
Wicks, Florence	H. S.	Oakville	Linn.
Wicklund, Alice Minerva	L. C.	Boise	Idaho.
Wilkes, Marion	Mech.	Hillsboro	Washington.
Williams, Floyd Alexander	Agri.	Airlie	Polk.
Wills, Elmer Edward	L. C.	Heppner	Morrow.
Wilson, Clarence Presley	L. C.	Corvallis	Benton.
Wilson, Arthur Hubert	L. C.	Halsey	Linn.
Wimer, Roswell Edward	L. C.	Salem	Marion.
Winters, George Chester	Agri.	Ballston	Polk.
Withycombe, John	Mech.	Portland	Multnomah.
Witty, John Thomas	Phar.	Elgin	Union.
Woodcock, Harold Clyde	Mech.	Corvallis	Benton.

Yates, Bessie	H. S.	Corvallis	Benton.
Yeager, Myra Frances	H. S.	Heppner	Morrow.
Wyatt, Minnie Myrtle	L. C.	Corvallis	Benton.

SUB-FRESHMEN.

NAME.	POSTOFFICE.	COUNTY.
Allen, Jasper Ebet	Junction	Lane.
Bagley, Fred William	Paisley	Lake
Benson, Clifford Stuart	Roseburg	Douglas.
Beach, Henry Thomas	Glencoe	Washington.
Brians, Forrest	Heppner	Morrow.
Brians, Harry Harland	Heppner	Morrow.
Buster, Edna Volevia	Sheridan	Yamhill.
Cecil, Homer David	Riley	Harney.
Cochran, Vivian Armel	Salem	Marion.
Cunmings, Henry Manning	Hilgard	Union.
Dailey, William Rufus	Sulphur Springs	Douglas.
Dodson, George Julius	Albany	Linn.
Draper, Ridgely Rupert	Prineville	Crook.
Erb, John Cyrus	Hubbard	Marion.
Fuller, Julia Ella	Corvallis	Benton.
Grimes, Vincent Charles	Harrisburg	Linn.
Harrington, Gretta	Corvallis	Benton.
Harrington, Myrtie Edith	Corvallis	Benton.
Haines, Chaffie Davisson	Eckley	Curry.
Hawley, Earl Vincent	Monroe	Benton.
Herron, Margaret	Bruce	Benton.
Jackson, Frank Wesley	Glencoe	Washington
Kraus, Arthur William	Aurora	Marion.
Lyon, James William	Medford	Jackson.
MacKenzie, James	Newberg,	Yamhill.
Mespelt, Charles Casper	Scio	Linn.
Milner, Moses Embree	Buena Vista	Polk.
Moore, Clarence	Albany	Linn.
Porterfield, Ralph Erastus	Independence	Polk.
Reddaway, Fred Percy	Grass Valley	Sherman.
Rickard, Mark	Inavale	Benton.
Ritner, Frederick Charles	Kings Valley	Benton.
Starr, Miles Turner	Monroe	Benton.
Stokes, William Blanchard	Oregon City	Clackamas.
Stringer, Louis Chancey	Lacomb	Linn.
Wells, John Edward	Buena Vista	Polk.
Wicklund, Clarence Price	Vale	Malheur.
Wilkinson, Claud	Junction City	Lane.

SPECIAL STUDENTS.

NAME.	POSTOFFICE.	COUNTY.
Alderson, Edith Ruth	Salem	Marion.
Applegate, Metta	Yoncalla	Douglas.
Bates, Elsie Anna	Shaw	Marion.
Campbell, Lura	Albany	Linn.
Cramer, Minnie	Corvallis	Benton.
Cronise, Mabel	Corvallis	Benton.
Currin, Frances	Salem	Marion.
Currin, Margaret Ellen	Corvallis	Benton.
Day, Elsie Cordelia	Jacksonville	Jackson.
Dolph, Mrs. Augusta	Portland	Multnomah.
Farra, Lester Franklin	New Market	Missouri.
Flett, Lura Lovene	Corvallis	Benton.
Geer, Bertrand Byron	Willard	Marrion.
Harder, Ralph Frederick	Melville	Clatsop.
Holmes, Samuel	Corvallis	Benton.
McCormick, Lena	Corvallis	Benton.
McFarland, Rova Elvira	Albany	Linn.
Noble, Jennie	Oregon City	Clackamas.
Olson, Kathryn	Catlin	Washington State.
Phillips, Edgar Warren	Portland	Multnomah.
Randall, Julia Mary	Corvallis	Benton.
Sanders, Karl	Baker City	Baker.
Stewart, Una Ellner	Prineville	Crook.
Thornton, Arthur Lee	Roseburg	Douglas.
Thompson, Roxana	Macleay	Marion.
Tohl, Herman John	Nehalem	Tillamook.
Webb, Mary Elizabeth	Portland	Multnomah.
Yates, Mrs. Lucy Wiles	Corvallis	Benton.

SPECIAL MUSIC STUDENTS.

NAME.	WORK.	POSTOFFICE.	COUNTY.
Allen, Thomas Jefferson	C.	Kings Valley	Benton.
Applegate, Mitta	P.	Yoncalla	Douglas.
Applegate, Rachel	C.	Yoncalla	Douglas.
Bates, Elsie Anna	C, P, V, H.	Shaw	Marion.
Beaty, Edward Benjamin	C, H.	Walkerton	Indiana.
Belknap, Frances Edna	C.	Corvallis	Benton.
Bridgess, Marion Forrest	C, H.	Portland	Multnomah.
Burnaugh, Lewie	C.	Elgin	Union.
Buster, John William	C, P, H.	Sheridan	Yamhill.
Buster, Edna	C, P, V, H.	Sheridan	Yamhill.
Canfield, Kathleen	P.	La Fayette	Yamhill.
Carnahan, Frank	C, V, H.	Astoria	Clatsop
Danneman, Carrie	V.	Clem	Gilliam.
Day, Elsie	P, V.	Jacksonville	Jackson.
Elgin, Sophie	C, V.	Suver	Polk.
Erwin, Cecil	P.	Corvallis	Benton.
Erwin, Ralph	P.	Corvallis	Benton.

Fischer, Martha	V.	Corvallis	Benton.
Finley, Ada Eudora	C.	Corvallis	Benton.
Geer, Bertrand Byron	C, P.	Willard	Marion.
Getty, Fannie	V.	Empire	Coos.
Gibson, Thomas Masson	P	Chemanius	British Columbia.
Goldson, George William	C.	Goldson	Lane.
Groshong, Fred Monroe	C.	Hoskins	Benton.
Hanley, William	C.	Hillsboro	Washington.
Hall, Albert Sidney	C, H.	Cleone	Multnomah.
Hall, Frank Edward	C, H.	Payn	Clackamas.
Harden, Beulah	C.	Stayton	Marion.
Harrington, Gretta	P.	Corvallis	Benton.
Haberlach, William Fred	P.	Clackamas	Clackamas.
Horner, Pearl Alicia	P.	Corvallis	Benton.
Horner, Vera Della	P.	Corvallis	Benton.
Howard, Edith	C.	Prineville	Crook.
Jones, Mary	P.	Corvallis	Benton.
Jones, William Robert	P, C, H.	Suver	Polk.
Jolly, Mary Grace	P.	Philomath	Benton.
Keady, Mabel Bee	C.	Salem	Marion.
Koerner, Martha	P.	Oregon City	Clackamas.
Laughlin, Chester Willis	C.	North Yamhill	Yamhill.
Leadbetter, Elizabeth	C, P.	Corvallis	Benton.
McGillivray, Eliza	C, V.	Shaw	Marion.
McCormick, Lena	V.	Corvallis	Benton.
Moores, Merrill Bruce	C.	Oregon City	Clackamas.
Moore, Guy	C.	Prineville	Crook.
Moore, Gladys	C, P, H.	Prineville	Crook.
Miller, Curtis	P.	Kings Valley	Benton.
Olsen, Kathryn	P.	Catlin	Washington State.
Osborn, Edna	C.	Corvallis	Benton.
Patten, Letha Margaret	P.	Halsey	Linn.
Paulson, Joseph	C.	University Park	Multnomah.
Rich, Arthur James	P.	Astoria	Clatsop.
Roberts, Lucile Jean	C, P, V.	Hood River	Wasco.
Rosendorf, Modesta	P.	Independence	Polk.
Raber, Hazel Blanche	C.	Corvallis	Benton.
Randall, Julia	P.	Corvallis	Benton.
Ritner, Frederick Charles	C.	Kings Valley	Benton.
Rusk, Alyce Lena	C, H, P.	Milwaukie	Clackamas.
Smith, Ray Marie	V, C.	Salem	Marion.
Smith, Benjamin	C.	Salem	Marion.
Smith, Edna	C, H.	Latourell	Multnomah.
Simpson, Margaret Merle	P, V.	Corvallis	Benton.
Short, Clarence	C, H.	Goldendale	Washington.
Shaw, William Thomas	C, V.	Corvallis	Benton.
Steiwer, Helen	V.	Jefferson	Marion.
Stewart, Una Ellner	P.	Prineville	Crook.
Starr, Sylvia	P, V, C.	Monroe	Benton.
Starr, Mamie	C, H.	Monroe	Benton.
Sears, Gladys	C, P.	Hood River	Wasco.
Scott, Teroah Winfield	C.	Carson	Washington State.
Shepard, Claybourne	C.	Salem	Marion.
Skelton, Nellie	C.	Mount Vernon	Washington State.
Sturgeon, Maude	P.	Tillamook	Tillamook.
Spangler, Lulu	V.	Athena	Umatilla.
Thompson, Orla	V, C.	Macleay	Marion.
Thompson, Harris	C,	Macleay	Marion.
Thompson, Roxana	C, V, P, H.	Macleay	Marion.
Thompson, Ethel	C, H, V.	Macleay	Marion.
Tulley, Edgar Arthur	C.	Wallowa	Wallowa.
Telfer, Grace	P, V.	Portland	Multnomah.
Tedrow, Albert Edward	C.	Monmouth	Polk.
Tartar, Lena Belle	C, P, H.	Airlie	Polk.

Tortora, Emma	P.	Corvallis	Benton.
Underwood, Irving M.	C.	Sherar Bridge	Wasco.
Witty, John Thomas	C.	Elgin	Union.
Withycombe, Mabel	P, V.	Hillsboro	Washington.
Wills, Elmer	P.	Heppner	Morrow.
Wilson, Cara	V.	Corvallis	Benton.
Wells, Albert Sidney	C.	Portland	Multnomah.
Woodcock, Mrs. M. S.	V.	Corvallis	Benton.
Webb, Mary Elizabeth	V. C.	Portland	Multnomah.
Yeager, Myra Frances	P.	Heppner	Morrow.
Yates, Elbert William	C.	Corvallis	Benton.
Yates, Bessie	C, H, V, P.	Corvallis	Benton.
Zurcher, James D.	C, V.	Enterprise	Wallowa.

NOTE.—In the above the following abbreviations occur: C., Choral Work; V., Voice Culture; P., Pianoforte; H., Harmony.

RECAPITULATION.

	Men	Women	Dept. Total	Class Total
GRADUATES	3	7		10
SENIORS—				
Mechanical	8		8	
Electrical	6		6	
Household Science		10	10	
Agricultural	9		9	
Pharmacy	3	2	5	
Total seniors				38
JUNIORS—				
Mechanical	3		3	
Electrical	5		5	
Household Science		15	15	
Pharmacy	5		5	
Agricultural	1	1	2	
Total juniors				30
SOPHOMORES—				
Mechanical	26		26	
Household Science		23	23	
Agricultural	21		21	
Pharmacy	6	2	8	
Mining (regular)	5		5	
Total sophomores				83
FRESHMEN—				
Mechanical	69		69	
Household Science		42	42	
Literary Commerce	36	22	58	
Agricultural	32		32	
Pharmacy	28	6	34	
Mining (regular)	9		9	
Mining (short course)	3		3	
Total freshmen				247
SPECIAL	8	20	28	28
SUB-FRESHMEN	33	5	38	38
MUSIC	33	61	94	
Students of this department enrolled with other classes	80			
Students in music not enrolled with other classes	2	12	14	14
Total	321	167		488

Students Classified by Counties, States and Foreign Countries.

Baker	2	Lincoln	14
Benton	91	Linn	55
Clackamas	20	Malheur	5
Clatsop	13	Marion	48
Columbia	2	Morrow	7
Coos	3	Multnomah	34
Crook	6	Polk	34
Curry	1	Sherman	2
Douglas	10	Tillamook	5
Grant	1	Umatilla	6
Gilliam	3	Union	12
Harney	6	Wallowa	6
Jackson	7	Wheeler	1
Josephine	1	Wasco	16
Lake	4	Washington	14
Lane	11	Yamhill	19

Number of counties in Oregon	33
Total number of counties represented	32
Whole number of students from Oregon	459
California	1
Idaho	1
Indiana	1
Iowa	7
Missouri	1
Nebraska	3
South Dakota	1
Texas	1
Washington	11
British Columbia	1
Japan	1
Total	488

Comparative Statement of Enrollment.

Year.	*Music, Special.*	*Preparatory.*	*Freshmen.*	*Sophomores.*	*Juniors*	*Seniors*	*Graduate Students.*	*Special.*	*Total.*
1888–1889		36	33	14	14	0	0	0	97
1889–1890		67	55	17	6	0	6	0	151
1890–1891		76	83	24	15	0	3	0	201
1891–1892		86	63	28	19	9	3	0	208
1892–1893		98	123	31	18	7	5	0	282
1893–1894		36	103	71	21	5	4	0	240
1894–1895		47	85	64	52	13	0	0	261
1895–1896		80	175	63	54	9	14	2	397
1896–1897		*Sub-*	157	80	29	17	11	25	319
1897–1898		*Fresh-*	151	75	45	26	15	24	336
1898–1899		*men.*	164	79	30	36	15	14	338
1899–1900		42	145	74	40	36	20	48	405
1900–1901		44	177	72	42	37	9	55	436
1091–1902	14	38	247	83	30	38	10	28	488

INDEX.