

630.71
Or 3b
no. 39
c. 3

OREGON STATE LIBRARY

DOCUMENT SERIES 1.
COLLECTION

ISSUED MONTHLY

No. 39

OREGON
COLLECTION

BULLETIN

OF THE

Oregon Agricultural College



ANNUAL REPORT

OF THE

President of the Board of Regents

1908-1909

Entered at the postoffice, Corvallis, Oregon, as second-class matter, under
Act of Congress, July 16, 1894



SERIES 1.

No. 39

BULLETIN

OF THE

Oregon Agricultural College



ANNUAL REPORT

OF THE

President of the Board of Regents

1908-1909

MARCH, 1910

SALEM, OREGON
WILLIS S. DUNIWAY, STATE PRINTER
1910

OREGON AGRICULTURAL COLLEGE

ANNUAL REPORTS

1908-1909

Hon. Frank W. Benson,

Governor of the State of Oregon:

I have the honor of submitting the Annual Report of the Board of Regents of the Agricultural College of the State of Oregon.

The work done and the results obtained in the past and especially the splendid work of the year closing July 1, 1909, is exceedingly encouraging to those having in charge the government and control of the institution.

The increase in attendance as well as the growth and broadening of its field of usefulness and the assistance rendered in the development of the material resources of the State, as well as the training of our young people along useful, practical and industrial lines, has appealed very strongly to the public. During the year just closed, the registration was thirteen hundred and fifty-one (1351); for the year ending July 1, 1908, the attendance was eleven hundred and fifty-six (1156).

On June 16, 1909, there was graduated a class of one hundred and twenty-one young people, who were recommended by the President and Faculty of the institution to be proficient in the various industrial pursuits as well as in a general scientific course usually taught in the higher schools of learning, who we trust will be of some benefit to the State at large by giving an increased impetus to the various industrial avocations and thereby repay the people of the State for the money expended in their behalf.

The capacity of the institution for taking care of the large number in attendance has been taxed to its limit. An appeal was made at the last session of the legislature for money to construct other needful buildings, and appropriations were made for that purpose. The Board of Regents is proceeding as rapidly as possible to secure the additional buildings and additional grounds so as to extend the usefulness of the institution, as contemplated by the legislature.

A complete and itemized report of the attendance, the financial condition, salaries of employees, and the graduating classes as especially provided for by law, to be included in the report of the Governor, are all contained in the report of President W. J. Kerr, which is hereto annexed and made a

part of this report, and I refer to the same for the information usually contained in the report of the President of the Board of Regents.

EASTERN OREGON EXPERIMENT STATION.

The Eastern Oregon Experiment Station, stationed at Union, Oregon, is making good progress and has accomplished much work that is of scientific and practical value to the farmers, especially of that section of the State.

The work has been confined to the production of vegetables, cereals, grasses, forage plants and horticulture and the testing of soils. Some experiment work has been done in connection and in cooperation with the Department of Agriculture of the United States in testing dry land alfalfa. Some of the experiments have been and are being made at the Station Farm, some at Hot Lake and some at Haymo Flat, the latter being at an elevation of 3,600 feet. Many varieties of this forage plant are being tested at these places as well as a large number of other grasses, endeavoring as best we may to secure a grass that will suit the range conditions of Eastern Oregon. The work is under the supervision of Robert Withycombe.

Five acres of the farm has been set aside for vegetable garden, two acres for apples, one and one half acres for pears and one acre for small fruits.

The work at this station has done much good in the line of demonstrating the agricultural and horticultural possibilities of the eastern section of the State, and as we believe has repaid the State several times over for all the expenditures that have been made for its equipment and maintenance.

The legislature in 1909 appropriated fifteen thousand dollars (\$15,000) for the maintenance of this station for the two years following.

The receipts and expenditures for this station from July 1, 1908, to July 1, 1909, as reported by the business office of the College, are as follows:

RECEIPTS	
Balance 1907-8.....	\$ 2,647 58
Received from Secretary of State.....	5,625 00
Transferred from station funds, La Grande.....	808 25—\$ 9,080 83
Expenditures.....	8,726 48
Balance.....	\$ 354 35
Sales of produce turned to Treasurer.....	\$ 2,703 10

HERMISTON BRANCH STATION.

At the meeting of the Board of Regents on January 6, 1909, the Board authorized the establishment of a sub dry land station to be established in connection with the Federal Government, at or near the town of Hermiston in Umatilla

County. The legislature passed an act approved February 23, 1909, appropriating three thousand dollars (\$3,000) annually for the purpose of assisting in maintaining and supporting the said station, the conditions being that the Federal Government appropriate a like amount and furnish the land properly fenced and cleared and furnished with an adequate supply of water for domestic and irrigation purposes, with necessary laterals, permanent improvements and initial equipments, without cost to the State of Oregon, and to the satisfaction of the Board of Regents of the Agricultural College.

The bill further provided that the sum of money appropriated should become available at any time, a like amount being available from the Federal Government, if the land described should be properly fenced and cleared and furnished with an ample supply of water for domestic and irrigation purposes, with necessary lateral and permanent improvements, without cost to the State of Oregon. The fund so appropriated to be used by the Board of Regents for the purpose of maintaining and supporting an experiment station for agricultural experiments in Eastern Oregon and for providing scientific apparatus and tools for tilling and improving the land, and for all other necessary purposes for conducting and developing experiments in Eastern Oregon, including the preparation and publication of reports of the work accomplished by said station. The work has been undertaken under the provisions of said act by the Board of Regents.

In May, 1909, Mr. R. W. Allen was appointed as superintendent of said branch station and entered upon his duties. Mr. Allen had been Assistant Horticulturist at Corvallis, since his graduation at the College in 1907. He is not in a position as yet to make a report of the work done.

On May 15, 1909, Mr. Herbert D. Newell, in charge of the Government reclamation work on the Umatilla Irrigation Project, reported that permanent improvements had been made on the forty acre experimental farm as follows:

Cottage for superintendent	\$ 1,298 97
Office	299 09
Barn	353 94
Fence around farm	364 71
Well	67 57

Other improvements which are under way, with the necessary initial equipment, would bring the total to approximately \$3,000.00.

We hope to be able to report excellent success from this institution in the near future.

DRY-LAND EXPERIMENT STATION.

On February 17, 1909, the State legislature passed a law appropriating twenty-five hundred dollars (\$2,500) annually

for the conducting and maintaining of an experiment station of the State Agricultural College on dry, arid or non-irrigated lands in the State of Oregon. The act of the legislature in substance provides as follows:

"That in order to investigate and demonstrate the conditions under which useful plants may be grown on dry, arid or non-irrigated lands of the State of Oregon, and to determine the kinds of plants best adapted for growth on these lands, there be and hereby is established in the manner in this act provided, an experiment station in the State of Oregon for that purpose.

"That said station shall be located on such part of dry, arid or non-irrigated lands of the State of Oregon, by and under the direction of the Board of Regents of the State Agricultural College of the State of Oregon, as shall be selected by the Board of Regents of said College, acting in cooperation with a representative of the United States Department of Agriculture; that the station shall be under the management and control of the Board of Regents of the State Agricultural College of the State of Oregon as a branch station.

"That the appropriation called for by the terms of this act shall not be available until the necessary land, permanent improvements and initial equipment are conveyed without cost to the State of Oregon, the lands to be selected by the Board of Regents of the Oregon Agricultural College acting in cooperation with a representative of the United States Department of Agriculture, the United States to expend the sum of \$2,500 annually, being a like amount with the State of Oregon to assist in maintaining and supporting said station.

"That the Board of Regents shall cause to be prepared and published, complete annual reports of the work undertaken and accomplished by said station."

On July 1, the committee appointed to make investigations of the conditions in different dry land counties regarding sites for locations of this station had not yet completed their investigations or filed their report.

BULLETINS.

During the past year a number of station bulletins were issued, covering various subjects connected with the work of the station, the total aggregate in pages of published material being two hundred and sixteen, of which ten thousand were mailed to the residents of the State of Oregon. Any person desiring the bulletins will be supplied with them free of cost on furnishing to the station their name and address. These bulletins contain much valuable information, especially to people engaged in any of the industries treated of, and the range of the bulletins is so wide that they cover nearly all of the industries in which our people are engaged.

I call attention to the report of the directors of the station filed herewith.

Respectfully submitted,

J. K. WEATHERFORD.

President of the Board of Regents.

ANNUAL REPORT OF THE PRESIDENT

*Hon. J. K. Weatherford, President, Board of Regents,
Oregon Agricultural College and Experiment Station.*

Sir: In accordance with a regulation of the Board of Regents, the President of the College has the honor to submit his report for the year ending June 30, 1909. In his report for 1907 and 1908, submitted to the Board of Regents at its meeting on January 6, 1909, the President considered at considerable length various questions relating to the policy and work of the College, and gave a detailed report regarding the conditions throughout the several departments, including student and faculty statistics, construction and improvement of buildings, purchase of equipment, organization of schools and departments, advancement of standard, changes in courses of study, etc. By authorization of the Board that report was printed, and it would not seem necessary or desirable that what is given therein should be repeated at this time. This report, therefore, includes such statistics only as were incomplete at the time the material for that report was compiled, with such additional information as may be of immediate interest.

ATTENDANCE.

The attendance during the year 1908-1909, as shown by the report of the Registrar, is as follows:

CLASSIFIED BY COURSES OF STUDY.

Agriculture	317
Forestry	26
Domestic Science and Art	209
Civil Engineering	117
Electrical Engineering	168
Mechanical Engineering	81
Mining Engineering	54
Mechanic Arts (secondary and winter courses)	77
Commerce	144
Pharmacy	88
Special Music	62
Industrial Pedagogy for Teachers	43
Total	1,386
Less names counted twice	35
Total in attendance	1,351

CLASSIFIED ACCORDING TO RESIDENCE.

BY STATES.

Alaska	4	North Dakota	8
California	19	Oregon	1,190
Colorado	2	Pennsylvania	8
Idaho	18	South Dakota	4
Illinois	7	Texas	1
Indiana	2	Utah	6
Iowa	9	Washington	50
Kansas	6	Wisconsin	2
Kentucky	1	Canada	2
Michigan	3	District of Columbia	1
Missouri	2	Hawaii	2
Montana	2	India	1
Nebraska	9		
Nevada	1	Total	1,351
New York	1		

BY COUNTIES (OREGON).

Baker	23	Lincoln	11
Benton	229	Linn	70
Clackamas	55	Malheur	1
Clatsop	26	Marion	62
Columbia	16	Morrow	28
Coos	14	Multnomah	182
Crook	10	Polk	45
Curry	4	Sherman	15
Douglas	34	Tillamook	7
Gilliam	6	Umatilla	27
Grant	11	Union	26
Harney	8	Wasco	20
Hood River	28	Washington	53
Jackson	24	Wheeler	8
Josephine	12	Wallowa	11
Klamath	14	Yamhill	54
Lake	1		
Lane	45	Total	1,190

Total number of counties in Oregon	34
Total number of counties represented	34

GRADUATES.

At the commencement exercises on June 16, 1909, the graduating class numbered 121. Of these, 110 received bachelors' degrees, and 11 received advanced degrees, as follows:

BACCALAUREATE DEGREES.

Bachelor of Science in Agriculture—

Beaty, Orren	Ballston, Oregon
Fisher, Henry Pervine	Haines, Oregon
Hall, Sylvester Benjamin	Cleone, Oregon
Koeber, James	Sherwood, Oregon
Lazelle, Marshall James	Oregon City, Oregon
Stone, Cedric Hiram	Cleone, Oregon
Williamson, Robert Vernon	Wells, Oregon
Bower, Robert Edgar	Silverton, Oregon
Currin, Harvey William	Ione, Oregon
Dobbin, James Davis	Union, Oregon
Hall, Frank Edward	Cottage Grove, Oregon
McElligott, Edmund Samuel	Ione, Oregon
Nelson, George Allen	Scappoose, Oregon
Schrack, Claude	Tangent, Oregon
Suttle, Herbert George	Portland, Oregon

Tiffany, Jesse Almond	Yacolt, Washington
McCully, Russell Alfred	Joseph, Oregon
Palmer, Wintha Rudolph	Dallas, Oregon

Bachelor of Science in Domestic Science and Art—

Currin, Linnie Edith	Ione, Oregon
Currin, Nettie Elsie	Heppner, Oregon
Edwards, Velma Ethel	Mayville, Oregon
Ewing, Georgia Virginia	Oswego, Oregon
Harpole, Ethel Elnora	Junction City, Oregon
Newkirk, Evalina	Oregon City, Oregon
Pratt, Lois Lucinda	Corvallis, Oregon
Davidson, Gertrude	Ione, Oregon
Irvine, Georgia	McMinnville, Oregon
Pogue, Bessie Evalina	Ontario, Oregon
Russ, Edna Mae	Corvallis, Oregon
Sprague, Helen Maud	Corvallis, Oregon
Starr, Wilda	Corvallis, Oregon
Thomson, Aura Amarilla	Echo, Oregon
Vincent, Pearl Elnora	Corvallis, Oregon
Winniford, Martha Delilah	Corvallis, Oregon
Harrington, Gretta	Corvallis, Oregon
Peery, Maymie Ocleva	McMinnville, Oregon
Bell, Sadie	Corvallis, Oregon

Bachelor of Science in Civil Engineering—

Donnelly, Hamilton Keys	Richmond, Oregon
Golloway, Walter Carl	Hillsboro, Oregon
Kerr, Robert Marriner	Ora, Idaho
Price, Roy Wilbur	Scappoose, Oregon
Strebin, John Curtis	Troutdale, Oregon
Wall, Homer Stacy	Early, Oregon
Webber, Ward Percy	Portland, Oregon
Hensley, William	Troutdale, Oregon
Hudson, Ernest Allsworth	Milton, Oregon
Neal, Roscoe	Baker City, Oregon

Bachelor of Science in Electrical Engineering—

Beaty, Jesse James	Ballston, Oregon
Becker, Frank Richard	Philomath, Oregon
Bendshadler, Charles F.	Elgin, Oregon
Bendshadler, George Henry	Elgin, Oregon
Buchanan, Elmer Clarence	Corvallis, Oregon
Chapman, Alexander Kesterin	Grants Pass, Oregon
Cross, George Albert	Dundee, Oregon
Crowe, Elmer Raymond	Loraine, Oregon
Donelson, Earl Irving	Hillsboro, Oregon
Gilkey, Jesse Smart	Corvallis, Oregon
Groth, Benjamin John	Dundee, Oregon
Howard, Charles Harry	Corvallis, Oregon
Leonard, Charles Herbert	Corvallis, Oregon
Smith, Arthur Byron	Dallas, Oregon
Spires, Fred Lloyd	Myrtle Point, Oregon
Sutton, William Danteler	Portland, Oregon
Zimmerman, Henry Roderick	The Dalles, Oregon
Zimmerman, Peter Chris	North Yamhill, Oregon
Autzen, Thomas John	St. Johns, Oregon
Bell, William Frank	Corvallis, Oregon
Hull, Charles Darwin	Cottage Grove, Oregon

Morgan, Donald Fain	Portland, Oregon
Smith, Neil Tristan	Burns, Oregon
Soi, Mulk Raj	Batalia, India
Harris, Charles Sinclair	Vale, Oregon
Taggart, Durland Orville	Vale, Oregon
Worstell, Ralph	La Grande, Oregon

Bachelor of Science in Mechanical Engineering—

Bernard, Albert Francis	Beaverton, Oregon
Karstetter, John Jacob	Silverton, Oregon
Luse, Fred Deniger	Lents, Oregon
Pierce, Ralph Hillar	Harrisburg, Oregon
Rodgers, Robert Henry	Portland, Oregon
Pelland, Philip Oliver	St. Paul, Oregon
Zimmerman, Peter Chris	North Yamhill, Oregon

Bachelor of Science in Mining Engineering—

Peddicord, Jesse J.	Portland, Oregon
Schirmer, Charles Frederick	Oregon City, Oregon
Clark, Roy Ross	Portland, Oregon
Winslow, Gilbert Fayette	Oysterville, Washington

Bachelor of Science in Commerce—

Cale, Philip Harrison	Albany, Oregon
Chambers, Claude Franklin	Corvallis, Oregon
Hancock, Violet Irene	Cove, Oregon
Horner, Alicia Pearl	Corvallis, Oregon
Howe, Callie Alma	Corvallis, Oregon
McHenry, Fred Marshall	Corvallis, Oregon
Michelbook, Frank Lester	McMinnville, Oregon
Rosendorf, Modesta Florence	Corvallis, Oregon
Taylor, Zack Lester	Corvallis, Oregon
True, Ina Content	Corvallis, Oregon
Williamson, Elmer Benton	Albany, Oregon
Baldwin, Delle May	Corvallis, Oregon
Jefferson, Carl Thomas	Weiser, Idaho
Lane, William George	Corvallis, Oregon
McGinnis, Alice Marie	Corvallis, Oregon
Sproat, Marion	Hood River, Oregon
Kerr, Ivan Earl	Ora, Idaho
Moore, Kate Irene	Echo, Oregon
Hawley, Cora	Corvallis, Oregon

Bachelor of Science in Pharmacy—

Schoel, Alfred	Corvallis, Oregon
Williams, Pearl	Jordon Valley, Oregon
Wilson, Frank Jackson	Canyonville, Oregon
Barnes, Charles Irwin	Elgin, Oregon
Callaway, Edward Cleveland	Spokane, Washington
Dunlap, Ella Belle	Shedds, Oregon

ADVANCED DEGREES.

Civil Engineer—

Thompson, Ralph Infield	Heppner, Oregon
-------------------------	-----------------

Electrical Engineer—

Baker, Walter Rawalt	Salem, Oregon
Christiansen, Conrad	Toledo, Oregon
Schoel, William Amile	Corvallis, Oregon

Mechanical Engineer—

Farnsworth, William Yates	Beverton, Utah
Graf, Samuel Herman	Portland, Oregon
Hanny, John Edward	Oregon City, Oregon

Master of Science—

Allen, Ralph Wilmer	Rickreall, Oregon
Davis, Bertha	Corvallis, Oregon
Graf, Samuel Herman	Portland, Oregon
Vincent, Clarence Cornelius	Corvallis, Oregon

Following is the distribution of the graduating class of 1909 among states and counties.

DISTRIBUTION BY STATES.

Oregon	113
Idaho	3
Utah	1
Washington	3
India	1
Total	121

DISTRIBUTION BY COUNTIES (OREGON).

Baker	2	Malheur	4
Benton	30	Marion	4
Clackamas	5	Morrow	6
Columbia	2	Multnomah	15
Coos	1	Polk	5
Douglas	1	Sherman	1
Gilliam	1	Union	6
Harney	1	Umatilla	3
Hood River	1	Wasco	1
Josephine	1	Washington	4
Lane	4	Wheeler	1
Lincoln	1	Wallowa	1
Linn	5	Yamhill	6

Twenty-six counties represented.

As reported to the Governor and the legislature, the appropriations requested from the State by the Board of Regents for the biennium, July 1, 1909, to June 30, 1911, were as follows:

Maintenance, an increase from \$50,000 a year to	\$ 100,000
Equipment and improvements for two years	60,000
Buildings and land for two years—	
Central agricultural building	55,000
Horticultural building and greenhouses	45,000
Central heating plant	35,000
Armory and drill hall	35,000
Land	30,000

The Legislature appropriated for—

Maintenance (annual appropriation)	80,000
Equipment for two years	60,000
Buildings and land for two years—	
Central agricultural building	55,000
Central heating plant	35,000
Armory and drill hall	35,000
Greenhouses	5,000
Land	20,000

It will be observed that the amounts requested by the Board of Regents were reduced by \$90,000. The over-crowded condition throughout the College and the consequent demand for additional room, equipment, and instructors, made it highly important that the entire amount asked for should be allowed. It is especially unfortunate that any reduction was made in the amount requested for general maintenance. As shown in the report, the estimates of the Board of Regents were very conservative. A reduction in these amounts of \$20,000 a year renders it impossible that the necessary repairs and improvements be made in order to care properly for the College plant, and that the number of instructors required be provided to insure the most efficient work in the different department. The College is further embarrassed by the discovery, after the adjournment of the legislature, that the increase provided in the maintenance appropriation will not become available until 1910. This further reduces by \$15,000 the income for maintenance for the year 1909-1910.

The delay in commencing work on the buildings for which appropriations were made, occasioned by the effort that was made to invoke the referendum on the College appropriations for buildings and equipment, will render it impossible to get these buildings ready for occupancy until late in the year, probably in March or April. In connection with the referendum agitation, it is very gratifying to record the hearty and general support the College received from the people and the press throughout the State.

A complete inventory of the College property has been taken during the year by the business office. The value of the College plant, as given in the inventory, may be summarized as follows:

Buildings.....	\$ 378,250
Equipment.....	116,331
Campus and farm lands.....	336,000
Total.....	\$ 830,581
As reported by the Secretary of State, the funds accruing from the sale of Agricultural College lands, under the act of Congress of 1862, amounted on June 30, 1909, to.....	196,583
This amount added to the value of the College plant, as given in the inventory, makes the total value of the College property.....	\$ 1,027,164

The appended report of the business office will show the condition of the College finances. From this report it will be observed that on July 1, 1909, there was a deficit of \$3,396. This deficit was occasioned by the large increase in attendance and the unavoidable expenditures occasioned thereby, and by

the necessity of installing a separate heating plant in the Agronomy Building, instead of heating this building from the general heating plant as originally contemplated. While, as indicated above, the income for maintenance during the coming year will be inadequate to meet all the requirements of the College in providing for the most efficient work, yet, by practicing the most rigid economy, it will be possible to keep the expenditures within the available funds and to close the year on June 30, 1910, without a deficit.

For information regarding the Agricultural Experiment Station, attention is invited to the accompanying report of the Director.

Respectfully submitted,

W. J. KERR,

President of the College.

FINANCIAL REPORTS.

REPORT OF THE TREASURER

From June 30, 1908, to June 30, 1909.

THE COLLEGE.

GENERAL MAINTENANCE—RECEIPTS.

STATE MAINTENANCE.			
Balance on hand July 1, 1908.....	-----	-----	\$ 54 82
State appropriation.....	-----	-----	50,000 00
Federal maintenance (Morrill).....	-----	-----	35,000 00
Land grant interest.....	-----	-----	17,237 04
MISCELLANEOUS.			
Revolving fund.....	-----	-----	424 45
SALES.			
Miscellaneous.....	\$ 529 15		
Horticulture.....	35 00		
Domestic science.....	55 35		
Mechanic arts.....	14 50		
Dairy husbandry.....	732 10		
Campus.....	88 07		
Chemistry.....	7 65		
Library fines.....	41 52		
Rentals.....	88 22		
		\$ 1,591 50	
FEES AND DEPOSITS.			
Cauthorn hall.....	\$ 912 00		
Waldo hall.....	654 50		
Entrance \$5.00 fee.....	5,846 00		
Accounting.....	285 00		
Agronomy.....	153 50		
Bacteriology.....	16 50		
Chemistry.....	3,468 50		
Electrical engineering.....	205 50		
Dairy husbandry.....	283 50		
Domestic science and art.....	940 00		
Mechanical engineering.....	2,584 00		
Pharmacy.....	398 50		
Stenography and typewriting.....	263 50		
Zoology.....	756 00		
Physical education.....	2,180 50		
Physics.....	416 00		
Mining engineering.....	281 00		
Geology.....	4 00		
Art.....	120 50		
Penmanship.....	12 50		
Forestry and botany.....	159 50		
Civil engineering.....	136 50		
Library.....	10 13		
Unclassified.....	101 12		
Horticulture.....	88 00		
Diplomas.....	585 00		
Thesis.....	44 00		
		\$ 20,905 75	
			\$ 22,497 31
			\$ 125,213 62

GENERAL MAINTENANCE—DISBURSEMENTS.

	Maintenance	Interest	Miscellaneous	Morrill	Totals
GENERAL MAINTENANCE.					
Salaries	\$23,450 20	\$11,928 70	\$ 5,445 66	\$35,000 00	\$ 75,824 56
Labor	5,661 03	-----	4,512 63	-----	10,173 66
Supplies	6,943 57	-----	4,722 34	-----	11,665 91
Fuel	4,765 85	-----	136 22	-----	4,902 07
Insurance	-----	-----	201 29	-----	201 29
Light, heat, power	551 70	-----	717 40	-----	1,269 10
Telephone and telegraph	320 86	-----	344 27	-----	665 13
Postage and stationery	116 46	-----	142 19	-----	258 65
Printing and advertising	1,866 54	-----	198 24	-----	2,062 78
Water tax	493 15	-----	567 15	-----	1,060 30
Traveling expenses	1,094 70	-----	660 60	-----	1,755 30
Incidental expenses	691 63	-----	210 55	-----	902 18
Piano rental	64 00	-----	-----	-----	64 00
Totals	\$46,019 69	\$11,928 70	\$17,856 54	\$35,000 00	\$110,804 93
REPAIRS.					
Buildings	\$ 43 56	\$ -----	\$ 454 79	\$ -----	\$ 498 35
Equipment	40 77	-----	58 64	-----	99 41
Totals	\$ 84 33	\$ -----	\$ 513 43	\$ -----	\$ 597 76
EQUIPMENT.					
Furniture	\$ 789 99	\$ -----	\$ 499 65	\$ -----	\$ 1,289 64
Machinery and implements	1,626 57	-----	2,998 97	-----	4,625 54
Scientific apparatus	1,001 88	-----	2,107 49	-----	3,109 37
Books, magazines, etc.	631 36	-----	527 59	-----	1,158 95
Live stock	-----	-----	-----	-----	-----
Unclassified	458 05	-----	52 34	-----	510 34
Totals	\$ 4,507 85	\$ -----	\$ 6,136 04	\$ -----	\$ 10,643 89
IMPROVEMENTS.					
New buildings	\$ 1,117 12	\$ -----	\$ 468 59	\$ -----	\$ 1,585 71
Old buildings	103 14	-----	286 75	-----	389 89
Campus and water works	115 08	-----	166 74	-----	281 82
Shops and barns	129 83	-----	-----	-----	129 83
Totals	\$ 1,465 17	\$ -----	\$ 922 08	\$ -----	\$ 2,387 25
Experiment Station	\$ 1,566 84	\$ -----	\$ -----	\$ -----	\$ -----
Refunded fees	400 00	-----	2,210 18	-----	-----
Totals	\$54,043 88	\$11,928 70	\$27,638 27	\$35,000 00	\$128,610 85

SPECIAL STATE APPROPRIATION 1907, 1908.

RECEIPTS.

State appropriation.....	\$ 65,000 00	
Expended 1907, 1908.....	14,367 80	
Balance.....	\$ 50,632 20	
Balance 1906, 1907.....	228 78	
Balance Prof. Crawford's report.....	116 34	
Total.....	\$ 50,977 32	
Less \$2.20 difference between Prof. Crawford's and Secretary of State Benson's accounts.....	2 20	
	\$ 50,975 12	\$ 50,975 12

DISBURSEMENTS.

Buildings	Improvements	Repairs	Totals		
Administration.....	\$ 2,557 85	\$ 169 10	\$ 2,726 95		
Armory.....	24 61	241 55	266 16		
Agricultural Hall.....	366 35	100 22	466 57		
Barns.....	1,331 17		1,331 17		
Old barns.....	714 00		714 00		
Mechanic Arts.....	1,988 13	22 95	2,011 08		
Waldo Hall.....	310 90		310 90		
Cauthorn Hall.....	1,504 26	44 20	1,548 56		
Heating plant.....	73 30	52 03	125 33		
Poultry houses.....	192 54		192 54		
Alpha Hall.....	152 85		152 85		
Horticultural.....	3 00	35 20	38 20		
Agronomy Hall.....	35,013 18		35,013 18		
Mining Laboratory.....	511 00		511 00		
Campus.....	124 11	2 10	126 21		
Totals.....	\$ 46,888 50	\$ 782 60	\$ 47,671 10	\$ 47,671 10	
Equipment (departmental).....				\$ 3,304 02	
					\$ 50,975 12

RECAPITULATION.

GENERAL MAINTENANCE—RECEIPTS.			
State maintenance.....	\$ 50,054 82		
Federal maintenance (Morrill).....	35,000 00		
Land grant interest.....	17,237 04		
Revolving fund.....	424 45		
Miscellaneous.....	22,497 31		
Total.....	\$ 125,213 62	\$ 125,213 62	
DISBURSEMENTS.			
State maintenance.....	\$ 54,043 88		
Federal maintenance (Morrill).....	35,000 00		
Land grant interest.....	11,928 70		
Miscellaneous.....	27,638 27		
Total.....	\$ 128,610 85	\$ 128,610 85	
Deficit.....		\$ 3,397 23	

SPECIAL STATE APPROPRIATION.

Receipts.....	\$ 50,975 12
Disbursements.....	50,975 12

STATION FUNDS.

	Hatch	Adams	Miscellaneous	Totals
RECEIPTS.				
Balance appropriation 1907, 1908.....	\$ 50	\$ 40	\$ 45 58	\$ 46 48
Appropriation 1907, 1908	15,000 00	11,000 00		26,000 00
Sales, etc.....			2,995 86	2,995 86
Totals.....	\$ 15,000 50	\$ 11,000 40	\$ 3,041 44	\$ 29,042 34
DISBURSEMENTS.				
Salaries.....	\$ 9,913 90	\$ 6,089 89	\$ 1,015 80	\$ 17,019 59
Labor.....	1,825 46	1,455 10	1,783 05	5,063 61
Publications.....	721 86		20 06	741 92
Postage and stationery.....	175 15	80 00	5 35	260 50
Freight and express.....	28 75			28 75
Heat, light, water.....		4 88		4 88
Chemical supplies.....	231 91	461 69	43 42	737 02
Seeds, plants, sundry supplies.....	439 35	240 88	103 39	783 62
Fertilizers.....	7 34	7 60		14 94
Feeding stuffs.....	918 14	423 94	15 00	1,357 68
Library.....	2 00	62 70		64 70
Tools, implements, machinery.....	243 10	18 45		261 55
Furniture fixtures.....				
Scientific apparatus.....	82 24	86 76		169 00
Live stock.....	51 65	242 50	15 72	309 87
Traveling expenses.....	140 25	1,571 63	33 80	1,745 68
Contingent expenses.....	206 62	250 78	5 25	462 65
Building and repairs.....	12 79	3 60		16 39
Totals.....	\$ 15,000 51	\$ 11,000 40	\$ 3,041 44	\$ 29,042 35

OFFICERS OF ADMINISTRATION AND INSTRUCTION
DURING YEAR 1908-1909.

Name and official position	Salary		Total
	Station	College	
WILLIAM KASPER KERR, D. Sc., President	\$	\$ 5,000 00	\$ 5,000 00
JAMES WITHYCOMBE, M. Agr., Director of Experiment Station, Professor of Animal Husbandry	1,300 00	700 00	2,000 00
ARTHUR BURTON CORDLEY, M. S., Dean School of Agriculture, Professor of Zoology and Entomology	800 00	1,000 00	1,800 00
GRANT ADELBERT COVELL, M. E., Dean School of Engineering and Mechanic Arts, Professor of Mechanical Engineering		1,800 00	1,800 00
JULIET GREER, A. B., Dean School of Domestic Science and Art, Professor of Domestic Science		2,000 00	2,000 00
JOHN ANDREW BEXELL, A. M., Dean School of Commerce, Professor of Business Administration, Financial Secretary		2,000 00	2,000 00
FREDERICK BERCHTOLD, A. M., Professor of English Language and Literature		1,600 00	1,600 00
JOHN B. HORNER, A. M., Litt. D., Professor of History and Political Science, Registrar		1,600 00	1,600 00
GORDON VERNON SKELTON, O. E., Professor of Civil Engineering		1,700 00	1,700 00
EDWARD RALPH LAKE, M. S., Professor of Forestry and Botany		1,700 00	1,700 00
JOHN FULTON, M. S., Professor of General and Analytical Chemistry		1,700 00	1,700 00
THOMAS HENRY CRAWFORD, A. M., Professor of Commercial Law		1,500 00	1,500 00
CLAUDE ISAAC LEWIS, M. S. A., Professor of Horticulture	1,100 00	700 00	1,800 00
FRED LEROY KENT, B. Agr., Professor of Dairy Husbandry	1,000 00	400 00	1,400 00
CHARLES LESLIE JOHNSON, B. S., Professor of Mathematics		1,500 00	1,500 00
EMILE FRANCIS PERNOT, M. S., Professor of Bacteriology	1,400 00	300 00	1,700 00
CLARENCE MELVILLE MCKELLIPS, Ph. C., Professor of Pharmacy		1,500 00	1,500 00
GERARD TAILLANDIER, Professor of Modern Languages		1,600 00	1,600 00
U. G. MCALEXANDER, Captain 13th Infantry, United States Army, Commandant, Professor Military Science and Tactics		900 00	900 00
JAMES DRYDEN, Professor of Poultry Husbandry	1,000 00	800 00	1,800 00
THOMAS MOONEY GARDNER, M. M. E., Professor Electrical Engineering		1,800 00	1,800 00
HENRY DESBOROUGH SCUDDER, B. S., Professor of Agronomy	850 00	850 00	1,700 00
HENRY MARTIN PARKS, B. S., E. M., Professor of Mining Engineering		2,000 00	2,000 00
CHARLES EDWARD BRADLEY, M. S., Professor of Agricultural Chemistry	1,500 00		1,500 00
EMMETT DUNN ANGELL, Director of the Gymnasium, Professor of Physical Education		1,800 00	1,800 00
WILLIAM FREDERICK GASKINS, B. S., Professor of Music (depends on fees received from students for salary)			
WILLIAM ARTHUR JENSEN, Recorder of the Faculties, Secretary to the President		1,400 00	1,400 00
IDA BURNETT CALLAHAN, B. S., Assistant Professor of English Language and Literature		1,100 00	1,100 00
FARLEY D. McLOUTH, B. S., Assistant Professor of Art		1,200 00	1,200 00

OFFICERS OF ADMINISTRATION AND INSTRUCTION—Continued.

Name and official position	Salary		Total
	Station	College	
MARK CLYDE PHILLIPS, B. M. E., Assistant Professor of Mechanical Engineering	\$-----	\$ 1,350 00	\$ 1,350 00
IDA ANGELINE KIDDER, A. B., Librarian	200 00	800 00	1,000 00
NICHOLAS TARTAR, B. S., Instructor of Mathematics	-----	1,000 00	1,000 00
JOHN COLBURN BRIDWELL, B. S., Instructor in Zoology and Entomology	300 00	900 00	1,200 00
HARRY L. BEARD, B. S., Director of Cadet Band, Instructor in Mathematics	-----	1,000 00	1,000 00
LOREN BURTON BALDWIN, A. M., Instructor in English	-----	1,000 00	1,000 00
EARL VINCENT HAWLEY, B. S., Instructor in Electrical Engineering	-----	800 00	800 00
GRACE GATCH, A. B., Instructor in History and Latin	-----	800 00	800 00
WILLIAM MCCAULEY PORTER, Instructor in Forging	-----	720 00	720 00
CHARLES ARTHUR COLE, M. S., Instructor in Horticulture	600 00	400 00	1,000 00
HERMAN V. TARTAR, B. S., Instructor in Chemistry	-----	1,000 00	1,000 00
ELMER POLIC JOHNSON, B. S., Instructor in Carpentry	-----	1,350 00	1,350 00
ROY E. HEATER, Instructor in Physical Education	-----	900 00	900 00
MARION SYDDUM VAN LIEW, Instructor in Domestic Science	-----	1,000 00	1,000 00
ARIEL M. EWING, Instructor in Domestic Art	-----	1,000 00	1,000 00
HELEN HYDE TOBIN, Instructor in Domestic Art	-----	1,200 00	1,200 00
ERWIN L. POTTER, B. S., Instructor in Animal Husbandry	400 00	600 00	1,000 00
C. L. KNOFF, M. E., Instructor in Mechanical Engineering	-----	1,000 00	1,000 00
RALPH D. HETZEL, A. B. LL. B., Instructor in Public Speaking and Debating	-----	1,200 00	1,200 00
WINNIFRED MAUDE WILLIAMS, B. Ph., Instructor in English and Physical Culture for Women	-----	1,100 00	1,100 00
EDWARD B. BEATY, B. S., Instructor in Mathematics	-----	900 00	900 00
WILLIBALD WENIGER, Ph. D., Instructor in Physics	-----	1,200 00	1,200 00
SIMON N. CACERES, C. E., Instructor in Spanish and Mathematics	-----	1,000 00	1,000 00
H. LEW MATHRE, Instructor in Commerce	-----	900 00	900 00
ARTHUR L. PECK, B. S., Instructor in Floriculture and Landscape Garden- ing	-----	1,400 00	1,400 00
GEORGE ROBERT HYSLOP, B. Sc., Instructor in Agronomy	500 00	700 00	1,200 00
EARL PAUL HARDING, B. S., Instructor in Pharmacy and Chemistry	-----	800 00	800 00
GENEVIEVE BAUM-GASKINS, Instructor in Music (depends on fees for salary)	-----	-----	-----
ADMA GREEN, Instructor in Art	-----	800 00	800 00
EXRA S. DIXON, Instructor in English	-----	550 00	550 00
WILLIAM R. BOONE, Instructor in Piano (depends upon fees received from students)	-----	-----	-----
NETTIE M. FLINN, Instructor in Mandolin, Piano and Violin (depends upon fees received from students)	-----	-----	-----
RALPH WILMER ALLEN, B. S., Assistant in Horticulture	720 00	-----	720 00

OFFICERS OF ADMINISTRATION AND INSTRUCTION—*Concluded.*

Name and official position	Salary		Total
	Station	College	
CLARENCE CORNELIUS VINCENT, B. S., Assistant in Horticulture	\$ 720 00	\$-----	\$ 720 00
FRED CLARK EWING, B. S., Assistant in Entomology	720 00	-----	720 00
CLAUDE CLIFFTON CATE, B. S., Assistant in Plant Pathology	720 00	-----	720 00
OTTO GERALD SIMPSON, B. S., Assistant in Dairy Husbandry	-----	\$ 400 00	\$ 400 00
FRED L. GRIFFIN, B. S., Assistant in Zoology and Entomology	300 00	300 00	600 00
LAURA HILL, B. S., Assistant in Zoology and Entomology	200 00	280 00	480 00
SAMUEL HERMAN GRAF, B. S., Assistant in Mechanical Engineering	-----	300 00	300 00
WILFORD W. GARDNER, C. E., Assistant in Civil Engineering	-----	300 00	300 00
HERBERT EDWARD COOKE, B. S., Assistant in Mining Engineering	-----	600 00	600 00
RENTON KIRKWOOD BRODIE, B. S., Assistant in Chemistry	-----	250 00	250 00
HELEN MARGARET GILKEY, B. S., Asssstant in Botany	-----	200 00	200 00
GLENN DEHAVEN, B. S., Assistant in Racteriology	300 00	-----	300 00
FRANCES HOUSTON, Assistant in Physical Education	-----	150 00	150 00
B. F. IRVINE, Treasurer Board of Regents	-----	500 00	500 00
E. E. WILSON, Secretary Board of Regents	-----	400 00	400 00
E. P. ERWIN, Head Janitor	-----	1,000 00	1,000 00
M. D. HALL, Assistant Janitor	-----	600 00	600 00
S. A. THARP, Assistant Janitor, Night Watchman	-----	600 00	600 00
J. A. SPANGLER, Fireman Power Plant	60 00	740 00	800 00
G. B. KEADY, Foreman Printing Plant	-----	1,200 00	1,200 00
A. W. KEADY, Assistant Foreman Printing Plant	400 00	600 00	1,000 00
A. APPLEWHITE, Foreman College Farm	720 00	-----	720 00
J. A. GILKEY, Campus Foreman	-----	440 00	440 00
JOHN W. PIPER, Teamster	-----	440 00	440 00
H. F. WOODS, Farm Teamster	600 00	-----	600 00
A. H. CRAMER, Farm Hand	600 00	-----	600 00
H. L. HOLGATE, B. S., Station Stenographer	825 00	-----	825 00
W. HORACE KERR, Clerk Business Office	300 00	600 00	900 00
JUANITA ROSENDORF, Assistant Registrar	-----	757 50	757 50
Totals	\$18,185 00	\$78,177 50	\$ 96,312 50

Above list shows yearly rate. As some employees were put on the salary list in September only nine months' salary was drawn.

Total amounts paid by Station Funds \$ 17,019 59
 Total amounts paid by College Funds 75,824 56

Respectfully submitted,

B. F. IRVINE, *Treasurer.*

AGRICULTURAL EXPERIMENT STATION

REPORT OF THE DIRECTOR

To the President of the College,

Sir: The Director of the Experiment Station has the honor of submitting herewith a synoptical report of the work of the different departments of the Station for the year ending June 30, 1909.

At the outset the Director desires first to express to the President and to all of the members of the station staff his keen appreciation of their loyal support and feels deeply grateful that the endeavors of the Station for the year just closed have been characterized by a spirit of helpfulness, cooperation and general good will among all of the departments.

The work of the Station is constantly widening in scope, but the field is so large and the problems so many that progress seems slow when considered in relation to the opportunities for scientific research. This, however, is but a natural sequence in a State like our own with its possible thirty million acres of tillable land. An extremely wide range of agricultural production and an era of rapid development bring urgent demands upon the Station for assistance. The Station has endeavored so far as practicable to meet every request for aid and by so doing the routine work has been greatly increased.

In the establishment of the demonstration farm at Hermiston and a similar farm in the typical dry farming region, the foundation will be laid for work that should prove of exceptional value to the agricultural interests of the State. In this relation it may be added that the great problem in the non-irrigable agricultural sections of the so-called Inland Empire is not so much a question of increased production as it is a question of perpetuity of production. For example, the dry farmed districts of Eastern Oregon produce annually about ten million bushel of wheat. This wheat takes from the soil \$2,400,000 worth of nitrogen and under the existing systems of farming in these sections there is scarcely any nitrogen returned to the soil. Thus the great practical problem is how can this nitrogen be restored and the present wheat yield maintained and even increased. Soil exhaustion is the greatest bane of agriculture.

Farming by irrigation is becoming an important factor in the agriculture of this State. Through private and corporate enterprises and the reclamation work undertaken by the fed-

eral government a large area of land is being reclaimed. It is estimated that within a comparatively short time there will be 380,000 acres of land reclaimed in Oregon by means of irrigation. This will include a wide range of soils and represent variable climatic conditions, thus evolving innumerable problems for solution.

Horticulture is making a phenomenal development. At the present rate of planting with modern cultural methods, surrounded with proper safeguards for the control of pests and diseases, the annual output of the industry within twenty years should reach an approximate value of fifty million dollars. This will rest largely, however, upon the assistance given by this Station. Even at present the Station is constantly appealed to for help. It has been the policy of this Station to render all possible aid to the industry. In fact the Station has been singularly fortunate in being able under the Adams act to maintain representatives both at Hood River and Rogue River for the past two growing seasons. Much valuable data have been secured from these investigations.

It is of the utmost importance that the greatest possible amount of cooperative work be undertaken with growers. In fact it would be well if some definite experiments could be conducted in the Rogue River Valley. This valley has conditions peculiarly its own, thus presenting an important field for scientific investigations. The cooperative work in the establishment of young orchards at Estacada and at Molalla have been satisfactory and have resulted so far in creating a wholesome sentiment in behalf of better orchard methods. The orchard at Estacada was very successfully used in a field demonstration in connection with a farmers' institute.

There is no question but what the Station is an important factor in promoting better agricultural practices throughout the State. The station, however, should be strengthened in some departments. More animal husbandry is required. This State is destined to become a great stock growing center and facilities should be afforded for more demonstrative and experimental work along these lines. This will require more land and live stock. In fact, it is extremely unfortunate that the Station is in possession of so little land for experimental work. Not only is more land needed for work in agronomy and animal husbandry, but the department of horticulture is also in need of more land. It is highly desirable in the investigational work of cherry gummosis that a large number of cherry trees should be grown, but the unfortunate inadequacy of land precludes this. Land is also needed for work in market gardening. With the rapid development of our cities and towns comes a growing demand for vegetables. Thus the Station at

present is being constantly appealed for information of this class. Unfortunately but little experimental and practical data upon this subject is available at this Station.

The leasing of the Meeker orchard has proven to be very satisfactory and has enabled the departments of horticulture and entomology to do much work and the data secured thereby will be valuable to the horticultural interests of the State. It would be well to continue this lease, also lease the adjoining land in this property for a period of at least ten years, if practicable. There should also be purchased or leased some river bottom loam land for work in market gardening and the experimental growing of small fruits.

The natural physical division of the State by the Cascade range of mountains creates two rather distinctive agricultural sections. Methods in one section which may be successful may prove entirely impractical in the other. Thus for the eastern portion of the State the Eastern Oregon Experiment Station should be made the center for all of the experimental work in that section. This station has an abundance of rich soil splendidly adapted to work in animal husbandry, horticulture, plant breeding and sugar beet culture. These should be made the major lines of work at this Station. Some valuable work in the breeding of grasses, cereals and sugar beets has been accomplished and a good beginning has been made in horticulture and animal husbandry. This year the experimental work in animal husbandry consists of fattening hogs with peas grown as a rotation crop with cereals.

There is, however, a large and very important field presented by this section not only in the commercial growing of hogs but also in the fattening of beef. With the establishment of modern abattoirs at Portland, market discrimination will become much keener and values for first class cattle will go much higher than the average range of prices is at present. This will have a tendency to develop the stock feeding industry which at first will bring many unsolved problems to the feeder. The Eastern Oregon Experiment Station should at the earliest practicable opportunity take up this work with the aim of working out the most feasible and economical way of finishing range cattle for the market. The Station should also give some attention to the hog growing industry. This may be done by experimental feeding to demonstrate if possible that hogs can be profitably grown upon the wheat farms of that section. It is a peculiar anomalous condition that a very large percentage of the hogs slaughtered in this State come from Nebraska—they should be grown on Oregon farms.

There is also the great undeveloped agricultural section of Central Oregon that is calling for help from the Station.

Perhaps one of the most notable fields in this section for agricultural work is the Harney Valley. This valley with the valleys immediately tributary thereto comprises nearly a million acres of agricultural land. If systematic cooperative work could be undertaken in dry farming methods and the growing of cereals and forage plants it would be immensely helpful in hastening the development of this region.

The college farm is in a very dilapidated condition for the want of fences and gates. It is very discouraging to be continuously apologizing for the unkempt condition of the farm. In addition to fences and gates considerable tile drainage is needed. The farm could be made much more productive and could be more economically operated if it were better drained.

DEPARTMENT OF HORTICULTURE.

ADAMS WORK.

Project I. Pollenation of the Apple.

Investigations under this project are progressing very satisfactorily. The results of the work for the past two years have been published in Bulletin 104. The work the past spring has been especially gratifying. We have been working out some of the best pollenizers for the Spitzenburg, Newton, Northern Spy and Gravenstein, and are working on the mutual affinities of our leading varieties. We have done some interesting work on the visibility of pollen and in addition have some work on pears as to the sterility and fertility of the leading varieties and some of the most successful crosses. The work is being carried on at Hood River, Rogue River, and at this Station.

In addition to the pollenation problems, we have also conducted extensive smudging and frost fighting experiments.

Project II. Irrigation of the Apple.

We are now conducting our third season's experiments along the lines of determining the best time to apply water when one or more irrigations are made, the action of this water on the soil, the tree, and the intrinsic qualities of the fruit. We have three orchards in the Rogue River Valley, representing different types, and the work this season is progressing more satisfactorily than ever before. We expect to have some valuable data this fall.

Project III. Gummosis of the Cherry.

This investigation is in cooperation with the Department of Entomology and Plant Pathology. We have made a start in this work by supplying ourselves with a stock of cherries for experiments in the relation of grafting to gummosis.

WORK UNDER THE HATCH FUND.

1. *Loganberry Experiment.*

To determine which is the best fertilizer and combination of fertilizers for the Logan, also to determine which gives the best results—clean culture, sod, mulch, and mulch and manure. Twenty-four plots in test.

2. *Raspberry and Blackberry.*

Variety tests. Just beginning, only a few varieties each.

3. *Gooseberries and Currants.*

Variety tests. Also several thousand seedling gooseberry, currant and raspberry plants.

4. *Strawberries.*

Variety tests, irrigated vs. unirrigated. Also to determine best distances apart to set certain varieties to get best results. Breeding experiments will be carried on in connection with the variety tests.

5. *Filberts.*

Variety tests. Also to determine which is the best method for pruning.

6. *Grapes.*

Variety tests.

7. *Peaches.*

Variety tests on both clay soil and sandy loam. Also pruning and cultural methods will be studied.

8. *Pears.*

Variety tests and comparison of standard and dwarf trees.

9. *Apples.*

Variety orchard with a comparison of open and center head pruning.

10. *Cover crops.*

Test of different crops and combination of crops and their effects on soil, tree and fruit. Also a comparison of clean culture, sod, sod mulch, sod and manure, mulch, mulch and manure. Experiments are also being carried on in Hood River, Rogue River, and at the Eastern Oregon Experiment Station.

11. *Walnut Stock and Walnut Grafting.*

Tests to determine the best stock and best method of propagation.

12. *Gummosis of the Cherry.*

Grafting and budding methods to determine which has a tendency to prevent gumming.

DEPARTMENT OF ENTOMOLOGY AND PLANT PATHOLOGY.

ADAMS ACT.

Project I. Study of Lime-Sulphur Spray.

In connection with this investigation it is deemed especially desirable to undertake an exhaustive chemical study of the various compounds developed in the lime-sulphur spray and their behavior under varying conditions.

Project II. Apple-tree Anthracnose.

An exhaustive investigation of this disease has been made for the past two years and much data that should prove of value in its control have been obtained.

In the progress of the investigation it was found that what appeared to be anthracnose occurred upon other fruit trees than the apple and this has been carefully studied by means of cross inoculation.

Horticulture and Entomology I.

This is cooperative work between the two departments in the study of cherry gummosis.

HATCH ACT.

1. *Peach Spot Experiments.*

This is cooperative work with growers at Ashland and has resulted very satisfactorily.

2. *Potato Spraying Experiments.*

This was conducted last year but unfortunately yielded no practical results.

3. *Celery Leaf Blight.*

Excellent results have been secured in checking this disease.

Routine Work.

The routine work of this department is increasing very rapidly. There are great demands upon the department to make field investigations of orchard pests. At present a special investigation is being made of the red spider which is reported as doing great damage to hops.

DEPARTMENT OF AGRONOMY.

The endeavors of this department are directed mainly along lines of work previously reported. The principal investigations are—

Experiments with long and short rotation systems for improvement of soil fertility.

Testing the adaptability and value of alfalfa for hay and pasture.

Testing the adaptability and value of kale as a winter dairy feed or soiling crop.

Experiment in testing varieties of vetch, adaptability and value for Willamette Valley climatic and soil conditions. In co-operation with the U. S. Department of Agriculture (Bureau of Plant Industry).

Experiment in cooperation with the station chemical department in breeding vetch for higher protein content.

Experiments in breeding of kale to increase the yield and value of this important stock feed by developing uniformity of type, compactness of growth, weather resisting qualities, succulency, etc.

Experiments in cooperation with the U. S. Department of Agriculture (Division of Farm Management) in testing the value of cultivation compared with no cultivation without weeds.

Experiment testing the value of irrigation on the Station farm of vetch, clover and alfalfa in cooperation with the U. S. Department of Agriculture (Office of Experiment Stations).

DEPARTMENT OF CHEMISTRY.

ADAMS ACT.

Project I. Soil Leaching Experiments.

Effects of calcium and potassium in fixing or freeing fertilizer constituents in the soil.

Project II. Study of lupulin and other active principles of hops, including effects of high and low temperatures in drying upon these principles and the value of the cured product.

Much cooperative work has been done with the Department of Poultry Husbandry in the study of products formed in an incubation egg and in testing the effect of moisture and carbon dioxide on same. Also a large amount of work has been done on insecticides and fungicides in cooperation with the Department of Entomology.

HATCH ACT.

1. A chemical study of the total plant food content of the various types of Oregon soils. Heretofore only acid soluble potash, phosphates and lime had been studied.

2. Vetch Selection—One hundred and thirty-one samples of vetch were analyzed for moisture and protein in the problem of vetch selection.

3. Fertilizer Control—Forty samples of fertilizers were analyzed in fertilizer control work.

4. Co-operative work with Klamath Falls Reclamation Service on the composition of the ground waters of the Klamath Basin.

5. Insecticide work in co-operation with the U. S. Department of Agriculture on methods for analyzing insecticides.

6. Peppermint—Peppermint plants introduced from Michigan have made a good growth and samples will be distilled this fall.

7. Chemical study of composition of Willamette and Columbia River water throughout the year. Samples have been collected monthly since December and will be collected for one year and complete analysis made.

Routine Work.

From July 1, 1908, to June 30, 1909, the department received for analysis 490 samples as follows:

131 vetch samples.

149 soils.

60 waters.

40 fertilizers.

19 insecticides.

12 feeds.

79 miscellaneous.

DEPARTMENT OF BACTERIOLOGY.

1. Investigation of the mortality of incubator chicks, in co-operation with the Department of Poultry Husbandry.

2. Comparative tests of bacterial content of machine and hand-drawn milk to determine the most efficient and simplest means of sterilizing the milking machine.

3. Investigation in cheese-curing in sausage casings. Cheddar and soft cheese have been cured in this manner with excellent results.

4. Investigations in nitrifying organisms. Experiments with organisms in their relation to the formation of tubers, such as potatoes, have responded remarkably well to inoculations.

A great deal of routine work has been done by this department in the investigation of diseases, waters, etc.

DEPARTMENT OF POULTRY HUSBANDRY.

ADAMS ACT.

Project I. Incubation Experiments.

In the incubation work the chemical and bacteriological departments have co-operated. Much work has been done and

considerable data secured, throwing additional light on this problem. During the year Bulletin 100, containing the results of the experiments up to that time, was published. This gives the results of tests on the relative efficiency of natural and artificial methods of incubation.

HATCH ACT.

1. Investigation in methods of brooding chicks.

2. Poultry breeding work.

A block of 200 fowls were purchased from different breeders of the State last fall. Trap nests were installed in all of the houses, and record is being kept of the number of eggs laid by each hen. At the end of the laying year selection from this flock will be made on the basis of egg yield, and these will be used for breeding next year. This is probably the most important line of work that the poultry department can carry on.

DEPARTMENT OF DAIRY HUSBANDRY.

1. Milking machine investigations.

2. Investigations of problems relating to the variation in the fat content of hand-separator cream.

3. Testing dairy herds for individual farmers.

4. Testing pure-bred animals for advanced registration.

5. Miscellaneous testing of samples of milk, cream, and butter for butter fat content sent in from various sources.

6. A study of intensive dairying with the station herd. A determination of what can be done with green crops for both summer and winter feeding with reference to maximum production and economy of same.

7. An investigation of the percentage of solids not fat in milk, both actual and with relation to the fat content.

8. A study of the possibilities in the manufacture and sale of soft cheese (Camembert, etc.) in the State, particularly where transportation is a serious problem.

DEPARTMENT OF ANIMAL HUSBANDRY.

The principal work of this department during the past year consisted mainly in the experimental feeding of swine.

1. A feeding experiment with wheat and barley. Results indicated that barley is about equal with wheat in value for feeding hogs. Gains secured from food consumed corroborated former experiments, viz., that four and one-half pounds of grain will produce one pound live weight in hogs.

2. Feeding experiments to determine the value of skim milk in fattening hogs.

Two experiments were conducted with skim milk as a supplementary food for hogs with the result that the skim milk gave a return of 81 cents per cwt.

3. Feeding experiments with kale as a winter maintenance ration for grown hogs.

The results indicated that hogs can not only be maintained on kale but that they will make a slight gain.

4. Experimental feeding of young hogs to determine an economical winter ration.

Two lots were used in this experiment. Lot one was fed one pound of chopped wheat per day to each hog with what kale they would eat up clean. Lot two was fed one pound of chopped wheat to each hog per day with what mangels they would consume. Both lots made good gains, but the kale-fed lot made the better gain.

5. Continuation in soil experiments with cows.

FARMERS' INSTITUTES.

A less number of institutes were conducted during the past year than usual. This was in a measure due to the running of the demonstration trains. It is plainly manifest that the institute is a lively factor for the promotion of better farm practices. Wherever the institute is held changes for the better are quickly in evidence. Better cultural methods and more intensive crop production are the logical corollary of the institute. Through the courtesy of the Southern Pacific Railroad Company two co-operative demonstration trains were operated last year, one in the Willamette Valley and one in Southern Oregon. These trains were phenomenally successful in point of interest and attendance. The train operated in the Willamette Valley made 27 stops with a total attendance of 19,250 people. The one operated in Southern Oregon made 15 stops with an attendance of 21,480 people.

There were 35 regular farmers' institutes held during the year ending June 30, 1909, consisting of 79 sessions with an aggregate attendance of 16,930. The total attendance of the institutes and demonstration trains was 57,660 people.

BULLETINS.

The following bulletins were published during the year ending June 30, 1909:

No. 100—Incubation Experiments.

No. 101—Orchard Survey of Jackson County.

No. 102—Digestibility of Kale, Vetch Hay, Steamed and Unsteamed Silage.

No. 103—An Investigation of the Mortality of Incubator Chicks.

No. 104—Pollination of the Apple.

No. 105—Culture of Small Fruits.

Circular No. 3—Notes on Nut Culture.

Total aggregate pages of published material, 216.

Mailing list, 10,000.

CORRESPONDENCE.

The correspondence of the station is rapidly assuming mammoth proportions, and it is absolutely necessary that additional stenographic help be supplied. Total number of letters sent out during the year, 12,800.

Respectfully submitted,

July 19, 1909.

JAMES WITHYCOMBE,
Director.