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1873

FIFTH BIENNIAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

IOWA STATE

AGRICULTURAL COLLEGE

AND FARM,

MADE TO

THE GOVERNOR OF IOWA,

FOR THE YEARS 1872 AND 1873.

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STATE AGRICULTURAL COLLEGE, }
AMES, Iowa, December 15, 1873. }

TO HIS EXCELLENCY, CYRUS C. CARPENTER, GOVERNOR:

In accordance with the statute defining the duties of the Board of Trustees of the Iowa State Agricultural College and Farm, I have the honor to submit herewith the Fifth Biennial Report of said Board.

By order of the Board of Trustees.

A. S. WELCH, *President.*

I. P. ROBERTS, *Secretary.*

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I. P. ROBERTS, Secretary.

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GENERAL J. L. GEDDES, Deputy Treasurer.

* Deceased.

448

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Annual meeting of the Board, the second Wednesday in November.

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* During 1872.

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Instructor in Mathematics.

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Lecturer on Bee Culture.

G. C. HUBNER,
Teacher of German.

† H. H. McAFEE,
Professor of Horticulture and Forestry

† Elected November 12 1873.

CALENDAR FOR 1874.

First term begins.....Wednesday, March 4th.
National Anniversary.....July 4th.
First term examinations.....July 6th, 7th, 8th, 9th.
First term closes.....July 9th.
Second term begins.....July 14th.
Baccalaureate Address.....November 8th.

Second term examinations.....Nov. 9th, 10th, 11th.
Address before the societies, Monday evening,.....November 9th.
Address before the Trustees, Tuesday evening,.....November 10th.
Commencement exercises, Wednesday afternoon,.....November 11th.
Term closes.....November 11th.

PRESIDENT'S REPORT.

STATE AGRICULTURAL COLLEGE.)
AMES, IOWA, Dec. 12, 1873.)

TO THE HONORABLE BOARD OF TRUSTEES.

GENTLEMEN:—I hereby present to you my Fifth Annual Report of the Iowa Agricultural College. It comprises tabulated statements of the attendance of students, the districts represented, the regulations, the courses of study, and the classes taught during the past two years. It aims to give also such clear outlines of the policy in government and instruction thus far pursued, that any inquirer may gain therefrom a complete notion of the character, scope and purpose of the entire enterprise. It is, moreover, accompanied by reports from the heads of the different departments under my general supervision.

Despite the obstacles which have stood in its way, the College is steadily fulfilling the purpose prescribed in the Congressional Grant from which its endowment is derived. Those studies which give preparation for the industrial pursuits, have increased each year in volume and interest. The friction between manual and mental labor is constantly diminishing, and the whole enterprise is gradually but surely gaining in efficiency and completeness.

Subjoined is a statement of attendance from the different Counties of the State.

Seventy-five counties were represented during the two years.

IN THE BUILDING.

COUNTIES.	1872	1873	COUNTIES.	1872	1873
Adair	1	...	Jefferson	1	...
Allamakee	1	1	Johnson .....	...	1
Appanoose	1	5	Jones	2	2
Audubon .....	...	3	Keokuk	5	6
Benton	9	12	Kossuth	1	1
Black Hawk	3	1	Lee	1	...
Boone	9	7	Linn	2	...
Bremer	1	1	Louisa	1	2
Buchanan	12	8	Lucas	1	3
Butler .....	...	2	Madison	2	...
Cass	3	2	Mahaska	3	2
Cedar	3	4	Marion	10	5
Cerro Gordo	5	5	Marshall	7	10
Cherokee	1	...	Mitchell	3	2
Chickasaw	1	3	Monona	2	1
Clay	1	...	Monroe	1	...
Clayton	3	3	Muscatine	5	3
Clinton	7	11	Plymouth .....	...	2
Crawford	1	2	Pocahontas	1	1
Dallas	6	2	Polk	8	10
Decatur .....	...	1	Pottawattamie	3	3
Delaware	5	4	Poweshiek	1	2
Dubuque	2	...	Sac	5	4
Fayette	3	2	Scott	8	5
Floyd	6	1	Story	9	9
Greene	1	2	Tama	4	5
Guthrie	2	4	Taylor	2	2
Hamilton	6	5	Union .....	...	1
Hancock	1	2	Van Buren	1	2
Hardin	1	2	Wapello	6	5
Harrison	4	4	Warren .....	...	3
Henry	4	4	Washington	5	7
Howard	1	8	Wayne .....	...	2
Humboldt	4	1	Webster	7	5
Iowa	1	...	Winnebago	1	...
Jackson	3	1	Winneshek	2	3
Jasper	3	...	Woodbury	1	...

OUT OF THE BUILDING.

COUNTIES.	1872	1873	COUNTIES.	1872	1873
Buchanan .....	...	1	Lee	1	1
Carroll .....	...	1	Lucas	1	...
Chickasaw .....	...	1	Marshall .....	...	1
Clinton	1	1	Polk	2	2
Delaware .....	...	1	Scott	3	...
Greene	3	...	Story	23	28
Henry	1	...	Van Buren .....	...	1
Jefferson	3	1	Washington .....	...	1

Twenty-four counties were not represented:

Adams,	Franklin,	Osceola,
Buena Vista,	Fremont,	Page,
Calhoun,	Grundy,	Palo Alto,
Clarke,	Ida,	Ringgold,
Davis,	Lyon,	Shelby,
Des Moines,	Mills,	Sioux,
Dickinson,	Montgomery,	Worth,
Emmet.	O'Brien.	Wright.

ENROLLMENT BY CLASSES.

	1872.	1873.
POST GRADUATE.....	..	1
SENIORS—Young men.....	24	12
Young women.....	2	4
Totals.....	26	16
JUNIORS—Young men.....	13	23
Young women.....	5	8
Totals.....	18	31
SOPHOMORES—Young men.....	52	31
Young women.....	9	17
Totals.....	61	48
FRESHMEN—Young men.....	86	95
Young women.....	51	53
Totals.....	137	148
FRESHMEN (in part)—Young men.....	12	5
Young women.....	9	14
Totals.....	21	19
Grand totals.....	263	263

DETAILED STATEMENT

Of Classes Taught during the College Year 1872.—Amount of Work done by each Teacher not indicated by number of Classes.

FIRST TERM.

TAUGHT BY THE PRESIDENT—

Senior Class.	Psychology.....
" "	Geology.....
Junior Class.	Landscape Gardening.....

BY PROF. JONES—

Senior Class.	Civil Engineering, text, surveys, maps and calculations.....
" "	Architecture, text, designs and drawings
Junior Class.	Differential and Integral Calculus.....
" "	Shades, Shadows and Perspective.....
Sophomore Class.	Plane Trigonometry and Surveying..
Freshman Class.	Algebra.....

BY PROF. MATHEWS—

Pomology.....

BY PROF. ANTHONY—

Senior Class.	Machinery and Mill work.....
" "	Machine Drawing.....
Junior Class.	Theoretical Mechanics.....
Sophomore Class.	Physics.....

BY PROF. FOOTE—

Senior Class.	Mineralogy—Blow-Pipe Analysis.....
" "	Quantitative Analysis.....
Junior Class.	Organic Chemistry.....
Sophomore Class.	General Chemistry.....

BY GENERAL GEDDES—

Senior Class.	Small-Sword Exercise.....
Junior Class.	Field Artillery.....
Sophomore Class.	Broad-Sword Exercise and Field Artillery.....
" "	School of the Soldier and Company.....
" "	Book-keeping.....
" "	Free-hand Drawing.....

By PROF. WYNN—		
Junior Class.	Study of Words	16
Sophomore Class.	Civil Government.....	65
“ “	Latin Grammar.....	
“ “	English Literature.....	11
Freshman Class.	Analysis of English Sentence, and Rhetoric	53
By PROF. BESSEY—		
Junior Class.	Botany.....	15
Sophomore Class.	Botany.....	49
By PROF. ROBERTS—		
Sophomore Class.	Preparation of Soils, and Management of Crops	17
By MISS LOVELACE—		
Freshman Class.	Algebra.....	60
By MISS McDONALD—		
Sophomore Class.	French	9
Freshman Class.	Analysis of English Sentence.....	53
By MISS BARNES—		
	Instrumental Music.....	60
By MR. C. L. SUKSDORF—		
Sophomore Class.	German	18
Freshman “	German.....	32
By J. K. MACOMBER—		
Freshman Class.	Elocution	75

SECOND TERM.

TAUGHT BY THE PRESIDENT—

Senior Class.	Political Economy	26
Junior Class.	Reading of Shakspeare.....	16
Sophomore Class.	Stock Breeding.....	30
Freshman Class.	Normal Instruction.....	50

By PROF. JONES—

Senior Class.	Civil Engineering, texts, surveys, designs, and drawing.....	4
Senior Class.	Architecture, text, designs, and drawings.....	2

Junior Class.	Farm Engineering and Architecture....
Sophomore Class.	Analytical Geometry.....
“ “	Descriptive Geometry.....
Freshman Class.	Elements of Geometry.....

By PROF. ANTHONY—

Senior Class.	Steam Engine and other Prime Movers..
“ “	Designs and Drawings of Machinery...
Junior Class.	Applied Mechanics.....
“ “	Mechanical Drawing.....
“ “	Physics
Sophomore Class.	Physics
Freshman Class.	Physics

By PROF. FOOTE—

Junior Class.	Agricultural Chemistry, analysis of soils and manures.....
“ “	Domestic Chemistry.....
Sophomore Class.	General Chemistry and qualitative analysis.....

By GENERAL GEDDES—

Senior Class.	Military Engineering, including Topographical Drawing and plans of Field and permanent Fortifications.....
Junior Class.	Field Artillery
Sophomore Class.	Field Artillery and Broad Sword exercise
Freshman Class.	Bayonet exercise.....
“ “	Free-hand Drawing.....

By PROF. DETMERS—

Senior Class.	Pathology.....
“ “	Comparative Anatomy and Physiology...

By PROF. WYNN—

Senior Class.	Constitutional Law.....
Sophomore Class.	Science of Language.....
Freshman Class.	Kames' Elements of Criticism.....

By PROF. BESSEY—

Sophomore Class.	Botany.....
“ “	Zoology and Entomology.....
Freshman Class.	Human Anatomy and Physiology.....

By PROF. ROBERTS—		
Sophomore Class.	Stock-Breeding; the Horse and the Hog.	24
By MISS LOVELACE—		
Junior Class.	Domestic Economy.....	4
Freshman Class.	Algebra	38
" "	Arithmetic and Algebra.....	15
By MISS McDONALD—		
Freshman Class	French.....	3
" "	Rhetoric	39
" "	Analysis of English Sentence.....	13
By MISS BARNES—		
	Instrumental Music.....	59
By MISS M. A. LOCKE—		
Freshman Class.	German	19

FOR 1873.

CLASSES TAUGHT AND BY WHOM.

FIRST TERM.

TAUGHT BY THE PRESIDENT—

Junior Class.	Landscape gardening.....	28
Senior Class.	Psychology	16

By PROF. JONES—

Senior Class.	Civil Engineering.....	2
Junior Class.	Shades, Shadows and Perspective.....	10
" "	Calculus	10
Sophomore Class.	Plane Trigonometry	37
" "	Plane Trigonometry and Surveying.....	30

By PROF. GEDDES—

Freshman Class.	Book-keeping	82
" "	Free-hand drawing.....	79
" "	Infantry drill.....	72

By PROF. MATHEWS—

Pomology

By PROF. FOOTE—

Junior Class.	Organic Chemistry.....
Sophomore Class.	Inorganic Chemistry.....
Senior Class.	Mineralogy
" "	Agricultural Chemistry.....

By PROF. BESSEY—

Sophomore Class.	Botany
Junior Class.	Botany

By PROF. WYNN—

Freshman Class.	Rhetoric
" "	Analysis.....
" "	Latin.....
Sophomore Class.	English Literature.....

By PROF. THOMPSON—

Senior Class. Mechanical Drawing.....

By PROF. ROBERTS—

Senior Class. Agriculture, Preparation of Soils and Management of Crops.....

By MISS LOVELACE—

Freshman Class. Algebra

By MISS McDONALD—

Freshman Class.	Rhetoric
" "	Analysis.....
Sophomore Class.	French.....

By MISS BARNES—

Music.....

By MR. MACOMBER—

Senior Class.	Geology
Sophomore Class.	Physics
Freshman Class.	Elocution.....

By MR. STANTON—

Freshman Class.	Algebra.....
" "	English Composition.....

BY MR. HUBNER—

Freshman Class.	German	32
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SECOND TERM.

TAUGHT BY THE PRESIDENT—

Senior Class.	Political Economy.....	18
Sophomore Class.	Stock-Breeding	20
Normal Class.	.....	56

BY PROF. JONES—

Senior Class.	Designs, Bridge-Building and Civil Engineering	2
Junior Class.	Orthographic Projections.....	7
" "	Farm Engineering and Architecture.....	6
Sophomore Class.	Analytical Geometry.....	16
" "	Descriptive "	9

BY PROF. GEDDES—

Freshman Class.	Free-hand Drawing	80
" "	Infantry Drill.....	45

BY PROF. FOOTE—

Junior Class.	Domestic Chemistry.....	2
Sophomore Class.	Analytical Chemistry.....	30

BY PROF. BESSEY—

Freshman Class.	Physiology.....	104
Sophomore Class.	Botany.....	21
" "	Zoology.....	28
Senior Class.	Comparative Anatomy and Physiology..	14

BY PROF. WYNN—

Senior Class.	English Literature.....	11
Junior Class.	Science of Language.....	10
Freshman Class.	Criticism	62
" "	Latin.....	7

BY PROF. ROBERTS—

Sophomore Class.	Stock Breeding.....	19
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BY MISS LOVELACE—

Freshman Class.	Algebra, (Elementary).....	15
Freshman Class.	Algebra, (Advance).....	19
Sub-Freshman Class.	Arithmetic.....	19

BY MISS McDONALD—

Sub-Freshman Class.	Analysis	30
Junior Class.	French.....	11
Junior Class.	French, (Advance).....	2

BY MISS BARNES—

Music	48
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BY MR. MACOMBER—

Junior Class.	Physics	23
Sophomore Class.	Physics	33
Freshman Class.	Physics	104
Freshman Class.	Elocution	101
Junior Class.	Shakespeare.....	18

BY MR. STANTON—

Freshman Class.	Geometry	87
Freshman Class.	Composition.....	91

BY MRS. ELLEN S. TUPPER—

Whole College.	Bee Culture	
	By evening Lectures.	

BY MR. HUBNER—

Freshman Class.	German, (Advance).....	29
Freshman Class.	German	2

STUDENTS.

CATALOGUE FOR 1872—SENIOR CLASS.

NAME.	POST OFFICE.	COUNTY.
Arthur, Joseph C.	Charles City	Floyd.
Brown, Preston S.	Fayette	Fayette.
Cessna, Orange	Nevada	Story.
Churchill, Seldon A.	Davenport	Scott.
Dickey, Shannon H.	Mt. Pleasant	Henry.
Dietz, Charles N.	Anamosa	Jones.
Foster, Luther	Monroe	Jasper.
Fuller, Harry	Ottumwa	Wapello.
Harvey, Francis L.	Springvale	Humboldt.
Hungerford, Edgar M.	Ottumwa	Wapello.
Locke, Mattie L.	Vinton	Benton.
Macomber, John K.	Lewis	Cass.
Noyes, Laverne W.	Springville	Linn.
Page, Henry L.	Boone	Boone.
Ramsey, George W.	Winthrop	Buchanan.
Richards, Fannie H.	Spencer	Clay.
Smith, Charles A.	Camanche	Clinton.
Smith, Irving W.	Charles City	Floyd.
Spencer, Henry C.	Grinnell	Poweshiek.
Stanton, Edgar W.	Ames	Story.
Stevens, John L.	Lamoille	Marshall.
Suksdorf, Charles L.	Walcott	Scott.
Thompson, Tom. L.	West Union	Fayette.
Tillotson, Charles H.	Ames	Story.
Wellman, Calvin P.	Forest City	Winneshiek.
Wells, John M.	Nevada	Story.—26.

JUNIOR CLASS.

Beard, Edward	Frankville	Winneshiek.
Edson, Rowena E.	Blairstown	Benton.
Flower, George R.	Addison	Humboldt.
Greene, Wesley	Davenport	Scott.
Hardy, Benjamin R.	Swede Point	Dallas.

NAME.	POST OFFICE.	COUNTY.
Harvey, George	Toledo	Tama.
Hawkins, Allen M.	Happy Hollow	Wapello.
Kent, David A.	Elkhart	Polk.
Krater, Kate	Algona	Kossuth.
Lee, John S.	Waverly	Bremer.
Maben, Charles B.	Concord	Hancock.
Marshall, Millard F.	Knoxville	Marion.
Raybourne, Harriet E.	Swede Point	Dallas.
Redlingshafer, Elizabeth A.	Chariton	Lucas.
Robinson, Willis O.	Vinton	Benton.
Shankland, Edward E.	Dubuque	Dubuque.
Stalker, Millikan	Richland	Keokuk.
Stalker, Sally	Richland	Keokuk.—18.

SOPHOMORE CLASS.

Adams, Albert G.	Fairfield	Jefferson.
Baker, Warren C.	Ames	Story.
Baldwin, Thomas B.	Council Bluffs	Pottawattamie.
Beard, Hammond	Frankville	Winneshiek.
Bebout, Estelle J.	Eddyville	Wapello.
Bishop, John W.	Muscataine	Muscataine.
Boardman, Charles D.	Lyon	Clinton.
Buchanan, Robert W.	Mt. Pleasant	Henry.
Burleson, Monroe C.	Maquoketa	Jackson.
Chase, Charles S.	Osage	Mitchell.
Clingan, Eugene R.	Vinton	Benton.
Clingan, Charles E.	Vinton	Benton.
Cochran, William H.	Northville	Greene.
Compton, Hugh	Ames	Story.
Conway, John W.	Lansing	Allamakee.
Dudley, Charles S.	Agency City	Wapello.
Dunshee, E. P.	Charles City	Floyd.
Evans, Lafayette	Ames	Story.
Fenton, George E.	Colo	Story.
Grant, James B.	Davenport	Scott.
Hambleton, Sallie	Nevada	Story.
Hastings, Charles P.	Muscataine	Muscataine.
Isaman, George S.	Hillsboro	Lee.
Jackson, Frank D.	Jesup	Buchanan.

NAME.	POST-OFFICE.	COUNTY.
Kiesel, George W.	Guttenberg	Clayton.
Kellogg, Theodore D.	Ames	Story.
Kerr, Eugene H.	Washington	Washington.
Kinsel, J. Webb	Nevada	Story.
Lamoureux, William R.	Sac City	Sac.
Litteer, Monroe C.	Bedford	Taylor.
Macomber, George A.	Lewis	Cass.
Marsh, G. Earl	Jesup	Buchanan.
McCrary, Orlando P.	Trenton	Henry.
Mitchell, Frank P.	Maquoketa	Jackson.
Mitchell, Parker W. R.	Nevada	Story.
Nash, Stephen C.	Cherokee	Cherokee.
Nelson, Niles P.	Bedford	Taylor.
Nichols, Julius H.	Grant City	Sac.
Palmer, Mary A.	Ogden	Boone.
Parsons, A. A.	Fayette	Fayette.
Patrick, Herbert W.	Independence	Buchanan.
Paull, Eva E.	Sigourney	Keokuk.
Porterfield, Hattie M.	Knoxville	Marion.
Potter, Addie E.	Nevada	Story.
Pyne, Edward A.	Vinton	Benton.
Rankin, John Q. A.	Des Moines	Polk.
Roberts, Abe	Jefferson	Greene.
Shepherd, Edwin T.	Ames	Story.
Simons, Mervin B.	Jesup	Buchanan.
Smith, Charles H.	Jesup	Buchanan.
Smith, Ida E.	Charles City	Floyd.
Smith, William R.	Davenport	Scott.
Sprague, Henry M.	Jefferson	Greene.
Steere, Robert W.	Muscatine	Muscatine.
Suksdorf, J. Philip	Walcott	Scott.
Tupper, Kate N.	Des Moines	Polk.
Wallace, John E.	Davenport	Scott.
Wheeler, Emma M.	Denison	Crawford.
Whitaker, Joseph R.	Hook's Point	Hamilton.
Worthington, David H.	Fairfield	Jefferson.
Yates, Samuel Y.	Stanwood	Cedar.—61.

FRESHMAN CLASS.

NAME.	POST-OFFICE.	COUNTY.
Ackley, Winfield	Stanwood	Cedar.
Allen, Albert B.	Clear Lake	Cerro Gordo.
Allen, Clara A.	Clear Lake	Cerro Gordo.
Anders, A. J.	Winthrop	Buchanan.
Arthur, Florence M.	Charles City	Floyd.
Ballard, Martha	Hook's Point	Hamilton.
Barker, Mary A.	Knoxville	Marion.
Bartle, Addie L.	Independence	Buchanan.
Beidler, Sallie	Davenport	Scott.
Betts, W. C.	Muscatine	Muscatine.
Bixler, Andrew J.	Clarence	Cedar.
Black, George R.	Washington	Washington.
Bowerman, Annis	Dunlap	Monona.
Bowman, J. A.	Calamus	Clinton.
Boydston, Lillie E.	Knoxville	Marion.
Brock, Anna F.	Council Bluffs	Pottawattamie.
Brotherton, William	Ames	Story.
Bryant, William C.	Birmingham	Van Buren.
Burson, J. N.	Marshalltown	Marshall.
Butler, Manly O.	Vinton	Benton.
Cadwell, E. P.	Independence	Buchanan.
Carter, Mary R.	Prairie City	Jasper.
Caton, Charles A.	Fontanelle	Adair.
Chamberlin, Albert P.	Cambridge	Story.
Cherrie, Millah M.	Knoxville	Marion.
Christy, Addie A.	Dunlap	Harrison.
Clark, Oscar N.	Redfield	Dallas.
Corning, Charles A.	Des Moines	Polk.
Cunningham, Alice	Knoxville	Marion.
Curtis, Lizzie	Independence	Buchanan.
Cutler, L. B.	Osage	Mitchell.
Danforth, Fred C.	Charles City	Floyd.
Davis, John F.	Manchester	Delaware.
Dudley, M. L.	Ontario	Story.
Dudley, Winnifred	Ontario	Story.
Dukes, Mary O.	Vinton	Benton.

NAME.	POST-OFFICE.	COUNTY.
Ellis, William R.	Panora	Guthrie.
Fenton, Elias J.	Winterset	Madison.
Fitchpatrick, Sarah.	Ames	Story.
Flint, Charles L.	Hazel Grove.	Delaware.
Foster, D. F.	Winterset	Madison.
Freeman, C. F.	Muscatine	Muscatine.
Gardner, N. B.	Washington	Washington.
Gilbert, Frank B.	Ames	Story.
Goss, Chattie M.	Jesup	Buchanan.
Griswold, Edwin E.	Osage	Mitchell.
Gue, Horace G.	Ft. Dodge	Webster.
Guthrie, J. G.	Winthrop.	Buchanan.
Hammond, William H.	Fairfield	Jefferson.
Hamrick, Alice	Knoxville.	Marion.
Hanks, Alice	Knoxville.	Marion.
Hardin, James F.	Steamboat Rock	Hardin.
Haviland, Amelia A.	Fort Dodge	Webster.
Haviland, Charles L.	Fort Dodge	Webster.
Haviland, Delia A.	Fort Dodge	Webster.
Haviland, John J.	Fort Dodge	Webster.
Haviland, William C.	Fort Dodge	Webster.
Haycock, Jennie B.	Richland	Keokuk.
Hewlett, Clara A.	Springvale	Humboldt.
Himelrich, Charity E.	Columbus City	Louisa.
Hoge, Romeo G.	Chariton	Lucas.
Holbrook, Sarah G.	Cincinnati	Appanoose.
Hornady, W. T.	Oskaloosa	Mahaska.
Huggins, Frank A.	Lyons	Clinton.
Hunt, Emma.	Oskaloosa	Mahaska.
Hurlbut, Fannie E.	Ft. Dodge	Webster.
Hyman, Thomas J.	Camanche	Clinton.
Hysham, William J.	Elkader	Clayton.
Iles, Thomas H.	Davenport	Scott.
Ives, Harry M.	Agency City	Wapello.
Keller, A. D.	Perry	Dallas.
Kelley, R. P.	Butler	Keokuk.
Kellogg, Helen E.	Dunlap	Harrison.
Kellogg, Mattie A.	Nevada	Story.
Lee, Charles H.	Mapleton	Monona.

NAME.	POST-OFFICE.	COUNTY.
Leffingwell, Ella M.	Westland	Clinton.
Livermore, C. H.	Oto	Woodbury.
Lowe, Peter P.	Keokuk	Lee.
Lyman, Frank D.	Boonsboro	Boone.
Lyman, Hannah P.	Boonsboro	Boone.
Macomber, Frank J.	Lewis	Cass.
Martin, Charles B.	Lamoille	Marshall.
Mathews, Adelaide	Knoxville	Marion.
Mathews, Libbie B.	Camanche	Clinton.
McCall, S. M.	Des Moines	Polk.
McCormick, Flora B.	Manchester	Delaware.
McElyea, Charles W.	Ames	Story.
McFadden, George B.	Ames	Story.
Miller, Nora E.	Knoxville	Marion.
Miller, Reverdy J.	Mason City	Cerro Gordo.
Moyer, Flora M.	Jesup	Buchanan.
Moyer, W. F.	Jesup	Buchanan.
Neal, Celestia A.	Davenport	Scott.
Nichols, Mary P.	Grant City	Sac.
Palmer, Thomas L.	Washington	Washington.
Parker, Robert C.	Clyde	Jasper.
Peterson, Charles E.	Panora	Guthrie.
Phelps, Gilbert H.	Cedar Rapids	Linn.
Porterfield, Frank W.	Council Bluffs	Pottawattamie
Reiley, James M.	Oxford Mills	Jones.
Rich, George F.	Maquoketa	Jackson.
Ritchie, James L.	Albia	Monroe.
Rosenbaum, Louis	Marshalltown	Marshall.
Ross, Ida M.	Nevada	Story.
Rownd, Charles W.	Cedar Falls	Blackhawk.
Rudolph, Martin E.	Manchester	Delaware.
Ruggles, Joan	Manchester	Delaware.
Ruth, Linus	Ames	Story.
Sears, Charles G.	Marshalltown	Tama.
Sears, W. G.	Marshalltown	Tama.
Sellick, E.	Woodbine	Harrison.
Shearer, Frederick D.	Fairfield	Jefferson.
Sherman, Bertie H.	Cresco	Howard.
Sherman, Ida L.	Fredericksburg	Chickasaw.

NAME.	POST-OFFICE.	COUNTY.
Sigafoos, Russell B.	Crawfordsville.	Washington.
Smutz, Eli J.	Polk City.	Polk.
Snell, J. Judson.	Ogden.	Boone.
Stanton, James E.	Vinton.	Benton.
Stouffer, J. W.	Dallas Center.	Dallas.
Thompson, T. W.	Mason City.	Cerro Gordo.
Thornton, Lucius C.	Cedarville.	Pocahontas.
Toliver, L. D.	Jefferson.	Greene.
Truesdell, A. C.	Polk City.	Polk.
Twinting, Theodore M.	Mt. Pleasant.	Henry.
Waite, Altana D.	Boone.	Boone.
Wallis, James R.	Dubuque.	Dubuque.
Whitaker, Catharine R.	Hook's Point.	Hamilton.
Whitaker, J. M.	Hook's Point.	Hamilton.
Whitaker, Sarah A.	Hook's Point.	Hamilton.
Whiting, Frank H.	Mt. Pleasant.	Henry.
Whitman, J. H.	Dallas Center.	Dallas.
Wicks, Minnie E.	Webster City.	Hamilton.
Wills, Hannah.	Boone.	Boone.
Wills, Nancy.	Boone.	Boone.
Wilson, Maggie D.	Crystal.	Tama.
Wilson, Lizzie M.	Crystal.	Tama.
Wykoff, F. E.	Des Moines.	Polk.—137.

STUDENTS NOT FULLY ACCEPTED AS FRESHMEN.

Branson, Milton W.	Lamoille.	Marshall.
Chamberlin, Asa W.	Cambridge.	Story.
Croy, Frank.	Ontario.	Boone.
Dally, Florence B.	Woodbine.	Harrison.
Dixon, Hattie.	Clinton.	Clinton.
Diller, A. C.	Marshalltown.	Marshall.
Dudley, George E.	Ames.	Story.
Fisher, J. M.	Oskaloosa.	Mahaska.
Grant, Gough B.	Davenport.	Scott.
Hoggatt, Ella.	Ames.	Story.
Johnson, Barrett.	Lamoille.	Marshall.
Jones, Emma R.	Grant City.	Sac.
Jones, William E.	Grant City.	Sac.

NAME.	POST-OFFICE.	COUNTY.
Kellogg, Julian E.	Ames.	Story.
Mitchell, Flora A.	Ames.	Story.
Schroeder, Mahala W.	Garnaville.	Clayton.
Shearer, Belle S.	Ames.	Story.
Tuttle, Lucius.	Clear Lake.	Cerro Gordo.
Welch, William B.	Ames.	Story.
Welch, Genevieve.	Ames.	Story.
Wright, James A.	Des Moines.	Polk.—22.

CATALOGUE FOR 1873.

RESIDENT GRADUATE.

Wellman, C. P.	Forest City.	Winnebago.—1.
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SENIOR CLASS.

Beard, Edward.	Frankville.	Winneshiek.
Edson, Rowena.	Blairtown.	Benton.
Flower, George R.	Addison.	Humboldt.
Greene, Wesley.	Davenport.	Scott.
Hardy, Benjamin R*.	Swede Point.	Dallas.
Harvey, George.	Toledo.	Tama.
Hawkins, Allen M.	Happy Hollow.	Wapello.
Kent, David A.	Elkhart.	Polk.
Krater, Kate.	Algona.	Kossuth.
Lee, John S.	Waverly.	Bremer.
Maben, Charles B.	Concord.	Hancock.
Marshall, Millard S.	Knoxville.	Marion.
Raybourne, Harriet E.	Swede Point.	Dallas.
Robinson, Willis O.	Vinton.	Benton.
Stalker, Milikan.	Richland.	Keokuk.
Stalker, Sally.	Richland.	Keokuk.—16.

JUNIOR CLASS.

Adams, Albert G.	Fairfield.	Jefferson.
Bebout, Estelle J.	Eddyville.	Wapello.
Boardman, Charles D.	Lyons.	Clinton.
Buchanan, Robert W.	Mt. Pleasant.	Henry.

* Died September 8, 1873.

NAME.	POST OFFICE.	COUNTY.
Chase, Charles S.	Osage	Mitchell.
Clingan, Charles E.	Vinton	Benton.
Clingan, Eugene R.	Vinton	Benton.
Dungan, Horace G.	Chariton	Lucas.
Grant, James B.	Davenport	Scott.
Hastings, Charles P.	Muscatine	Muscatine.
Isaman, S. George	Hillsboro	Lee.
Jackson, Frank D.	Jesup	Buchanan.
Kiesel, J. George W.	Guttenburg	Clayton.
Lamoreux, William R.	Sac City	Sac.
Litteer, Monroe C.	Bedford	Taylor.
Marsh, G. Earl	Jesup	Buchanan.
McCray, Orlando P.	Trenton	Henry.
Nelson, Niles P.	Conway	Taylor.
Palmer, Mary A.	Ogden	Boone.
Parsons, A. A.	Fayette	Fayette.
Paull, Eva E.	Sigourney	Keokuk.
Potter, Addie E.	Nevada	Story.
Prime, Mary A.	Ames	Story.
Pyne, Edward A.	Vinton	Benton.
Simons, Mervin B.	Jesup	Buchanan.
Smith, Ida E.	Charles City	Floyd.
Smith, William R.	Davenport	Scott.
Tupper, Kate N.	Des Moines	Polk.
Wheeler, Emma M.	Denison	Crawford.
Whitaker, Joseph R.	Hook's Point	Hamilton.
Yates, Samuel Y.	Stanwood	Cedar—31.

SOPHOMORE CLASS.

Allen, Clara A.	Clear Lake	Cerro Gordo.
Bartle, Addie L.	Independence	Buchanan.
Black, George R.	Washington	Washington.
Bryant, William C.	Birmingham	Van Buren.
Cadwell, E. P.	Independence	Buchanan.
Chamberlin, Albert P.	Cambridge	Story.
Cherrie, Millah M.	Knoxville	Marion.
Compton, Hugh	Ames	Story.
Corning, Charles A.	Des Moines	Polk.
Curtis, Lizzie M.	Independence	Buchanan.

NAME.	POST OFFICE.	COUNTY.
Ellis, William R.	Panora	Guthrie.
Evans, Lafayette	Ames	Story.
Goss, Chattie M.	Jesup	Buchanan.
Griswold, E. E.	Osage	Mitchell.
Gue, Horace G.	Des Moines	Polk.
Haviland, Delia A.	Fort Dodge	Webster.
Hoge, Romeo G.	Chariton	Lucas.
Hornaday, William T.	Oskaloosa	Mahaska.
Hyman, Thomas J.	Camanche	Clinton.
Iles, Thomas H.	Davenport	Scott.
Ives, Harry M.	Ottumwa	Wapello.
Kelley, R. P.	Butler	Keokuk.
Lee, Charles H.	Mapleton	Monona.
Lyman, Hannah P.	Boonsboro	Boone.
Lyman, Frank D.	Maquoketa	Jackson.
Macomber, Frank J.	Lewis	Cass.
Mathews, Libbie B.	Camanche	Clinton.
McCormick, Flora B.	Manchester	Delaware.
McElyea, Charles W.	Ames	Story.
Neal, Celestia A.	Davenport	Scott.
Palmer, Thomas L.	Washington	Washington.
Patrick, Herbert W.	Independence	Buchanan.
Peterson, Charles E.	Panora	Guthrie.
Rudolph, Martin E.	Manchester	Delaware.
Sherman, Bertie H.	Cresco	Howard.
Sherman, Ida L.	Fredericksburg	Chickasaw.
Sigafoos, Russell B.	Crawfordsville	Washington.
Smutz, Eli J.	Polk City	Polk.
Stanton, James E.	Vinton	Benton.
Thornton, Lucius C.	Cedarville	Pocahontas.
Twinting, Theodore F.	Mt. Pleasant	Henry.
Wattles, Mason J.	Glidden	Carroll.
Whitaker, Catharine R.	Hook's Point	Hamilton.
Whitaker, J. M.	Hook's Point	Hamilton.
Wills, Hannah	Boone	Boone.
Wills, Nancy	Boone	Boone.
Wilson, Lizzie M.	Crystal	Tama.
Wilson, Maggie D.	Crystal	Tama.—48.

FRESHMAN CLASS.

NAME.	POST OFFICE.	COUNTY.
Aitken, Marian H.	Mason City	Cerro Gordo.
Aitken, Martin I.	Mason City	Cerro Gordo.
Albee, Frederick A.	Atlantic	Cass.
Allen, Rose	Sac City	Sac.
Ankeny, Maude H.	Clinton	Clinton.
Ankeny, Harry K.	Clinton	Clinton.
Barker, Arthur P.	Camanche	Clinton.
Barker, Mary A.	Knoxville	Marion.
Barrett, Bessie M.	Dunlap	Harrison.
Beach, Josephine	Tipton	Cedar.
Beadle, Emma G.	Cresco	Howard.
Beadle, Lottie C.	Cresco	Howard.
Beard, L. W.	Frankville	Winneshek.
Blodgett, Albert M.	Le Mars	Plymouth.
Blodgett, Julia C.	Le Mars	Plymouth.
Boggs, William C.	Vinton	Benton.
Bonbright, Stephen S.	Des Moines	Polk.
Bond, L. D.	Dale City	Guthrie.
Booth, Frank W.	Anamosa	Jones.
Bouch, Ira W.	Independence	Buchanan.
Branson, Milton L.	Lamoille	Marshall.
Branson, W. S.	Lamoille	Marshall.
Brock, Anna F.	Council Bluffs	Pottawattamie.
Brown, J. A.	Columbus City	Louisa.
Brush, J. B.	Timber Creek	Marshall.
Buell, Langworthy	Lyons	Clinton.
Burson, J. N.	Marshalltown	Marshall.
Butler, John	Fort Dodge	Webster.
Canavan, B. E.	Ackley	Butler.
Chamberlin, Asa A. W.	Cambridge	Story.
Child, Emma M.	Jefferson	Greene.
Child, M. Ella	Jefferson	Greene.
Christy, Adda A.	Dunlap	Harrison.
Clancy, Kate L.	Manchester	Delaware.
Clark, H.	Oakfield	Audubon.
Claussen, Lorents A.	Afton	Union.
Cobbey, J. E.	Vinton	Benton.

NAME.	POST-OFFICE.	COUNTY.
Collins, W. S.	Solon	Johnson.
Corbly, Maggie E.	Tranquillity	Appanoose.
Coykendall, Emma M.	Rock Falls	Cerro Gordo.
Crosby, James	Garnaville	Clayton.
Crow, B. F.	Woodbine	Harrison.
Cull, George	Lamoille	Marshall.
Cunningham, Alice	Knoxville	Marion.
Diller, A. C.	Albion	Marshall.
Dudley, Winnifred	Ames	Story.
Feghtly, John J.	Utica	Van Buren.
Ferguson, George	Des Moines	Polk.
Fish, Nettie A.	Eddyville	Wapello.
Fisher, J. M.	Oskaloosa	Mahaska.
Fitchpatrick, Sarah	Ames	Story.
Frisbie, Carrie	Williamstown	Chickasaw.
Gardner, N. Bruce	Washington	Washington.
George, Frank W.	Williamstown	Chickasaw.
Garard, G. A.	Washington	Washington.
Gilmore, William T.	Tipton	Cedar.
Goodspeed, Weston A.	Lexington	Washington.
Graves, A. A.	Swede Point	Boone.
Green, Arthur C.	Manchester	Delaware.
Green, Henry H.	Exira	Audubon.
Griffin, William	Palmyra	Warren.
Hainer, Eugene J.	New Buda	Decatur.
Hardin, James F.	Steamboat Rock	Hardin.
Hare, Clara E.	Vinton	Benton.
Harlow, Ellen W.	Ames	Story.
Hastie, Philip W.	Carlisle	Warren.
Haviland, Charles L.	Ft. Dodge	Webster.
Haviland, Amelia A.	Ft. Dodge	Webster.
Haviland, Ida E.	Ft. Dodge	Webster.
Haycock, Jennie B.	Richland	Keokuk.
Henry, W.	Centerville	Appanoose.
Hemelrich, Charity E.	Columbus City	Louisa.
Hitchcock, Abner E.	Anamosa	Jones.
Holbrook, Sarah G.	Cincinnati	Appanoose.
Horner, J. C.	Eldora	Hardin.
Horning, H. K.	Des Moines	Polk.

NAME.	POST OFFICE.	COUNTY.
Hubner, Gustave.....	Ames.....	Story.
Hysham, William J.....	Elkader.....	Clayton.
James, William M.....	Ames.....	Story.
Jennis, A. C.....	Wilton Junction.....	Muscataine.
Johnson, Barnett.....	Lamoille.....	Marshall.
Jones, Emma R.....	Grant City.....	Sac.
Jones, William E.....	Grant City.....	Sac.
Keigley, T. J.....	Ames.....	Story.
Kellogg, Helen E.....	Dunlap.....	Harrison.
Kellogg, Howard M.....	Corydon.....	Wayne.
Kellogg, Julia E.....	Ames.....	Story.
Kellogg, Martha A.....	Nevada.....	Story.
Kellogg, Rosa C.....	Ames.....	Story.
Kuntz, Flora E.....	Polk City.....	Polk.
Lavender, J. F.....	Brooklyn.....	Poweshiek.
Lawton, Louisa.....	Lyons.....	Clinton.
LeValley, Hattie H.....	Denison.....	Crawford.
Livingstone, F. M.....	Ames.....	Story.
Lonsdale, J. D.....	Dale City.....	Guthrie.
Lucas, H. W.....	Clinton.....	Clinton.
Martin, W. M.....	Moulton.....	Appanoose.
Mathews, Adelaide.....	Knoxville.....	Marion.
Maynard, C. M.....	Council Bluffs.....	Pottawattamie.
McCamley, Anna T.....	Centerville.....	Appanoose.
McCormac, James E.....	Cresco.....	Howard.
McFadden, George B.....	Ames.....	Story.
McGrew, Benjamin H.....	Marshalltown.....	Marshall.
McGinitie, Nannie M.....	Eddyville.....	Wapello.
McIntire, Charles C.....	Wilton Junction.....	Muscataine.
Mead, Ella E. C.....	Cresco.....	Howard.
Merritt, James A.....	Oxford.....	Tama.
Miller, George L.....	Louisville.....	Audubon.
Mitchell, Flora A.....	Ames.....	Story.
Moyer, Alexander.....	Jesup.....	Blackhawk.
Nelson, Lillian.....	Clarksville.....	Butler.
Northrup, J. O.....	Strawberry Point.....	Fayette.
Palmer, H. W.....	Washington.....	Washington.
Patterson, B. B.....	Riceville.....	Howard.
Page, Arthur G.....	Fredericksburg.....	Chickasaw.

NAME.	POST OFFICE.	COUNTY.
Peek, Flora L.....	Concord.....	Hancock.
Pierson, Ida B.....	Promise City.....	Wayne.
Porterfield, Frank W.....	Council Bluffs.....	Pottawattamie.
Rosenbaum, Louis.....	Marshalltown.....	Marshall.
Ross, Ida M.....	Nevada.....	Story.
Rowell, Elmore C.....	Lyons.....	Clinton.
Rudolph, Jennie H.....	Manchester.....	Delaware.
Rumsey, Electa M.....	State Center.....	Marshall.
Scott, H. N.....	Wheatland.....	Clinton.
Sears, W. G.....	Marshalltown.....	Tama.
Shaw, A. B.....	Tipton.....	Cedar.
Shearer, Isabella S.....	Ames.....	Story.
Sheldon, Dwight D.....	Iowa Center.....	Story.
Shields, Susie C.....	Ames.....	Story.
Smith, Louis K.....	Waukon.....	Allamakee.
Smith, R. W.....	Birmingham.....	Van Buren.
Snell, J. J.....	Ogden.....	Boone.
Spencer, Louis E.....	Grinnell.....	Poweshiek.
Springer, James T.....	Florence.....	Benton.
Stickney, J. Sheldon.....	Vinton.....	Benton.
Thompson, Oliver C.....	Boone.....	Boone.
Todd, Louis D.....	Harper.....	Keokuk.
Waite, C. E.....	Palmyra.....	Warren.
Welch, Genevieve.....	Ames.....	Story.
Welch, William B.....	Ames.....	Story.
Whitaker, Sarah A.....	Hook's Point.....	Hamilton.
Whiting, Frank.....	Mt. Pleasant.....	Henry.
Wicks, Minnie E.....	Webster City.....	Hamilton.
Windell, Joseph S.....	Castalia.....	Winnebuck.
Woodard, Walter M.....	Marshalltown.....	Marshall.
Wright, Frank P.....	Clinton.....	Lucas.
Wright, James A.....	Des Moines.....	Polk.
Yard, Louisa.....	Washington.....	Washington.

—148.

STUDENTS NOT FULLY ACCEPTED AS FRESHMEN.

Allen, Nettie A.....	Clear Lake.....	Cerro Gordo.
Baughman, Laura J.....	Ames.....	Story.

NAME.	POST-OFFICE.	COUNTY.
Beebe, Reba.....	Polk City.....	Polk.
Bixby, Ella I.....	Ames.....	Story.
Carter, S. B.....	Cresco.....	Howard.
Crew, Mary A.....	Lyons.....	Clinton.
Freed, Alice G.....	Ontario.....	Story.
Geddes, Patricia.....	Ames.....	Story.
Hays, Mrs. C. H.....	Ontario.....	Story.
Kieth, Cora D.....	Vinton.....	Benton.
McElyea, Jennie.....	Ames.....	Story.
Roberts, Matie.....	Ames.....	Story.
Shearer, Christine J.....	Ames.....	Story.
Stebbins, Ella.....	Ames.....	Story.
Vorse, J. C.....	Des Moines.....	Polk.
Welch, Harry.....	Ames.....	Story.
Will, James F.....	Iowa Center.....	Story.
Wood, Amelia S.....	Glenroy.....	Howard.
Wood, Curtiss A.....	Iowa Center.....	Story.—19.

SUMMARY.—1872.

Seniors.....	26
Juniors.....	18
Sophomores.....	61
Freshmen.....	187
Sub-Freshmen.....	21
Total.....	263

1873.

Resident Graduates.....	1
Seniors.....	16
Juniors.....	31
Sophomores.....	48
Freshmen.....	148
Sub-Freshmen.....	19
Total.....	263

GRADUATES IN 1872.

Gentlemen.....	24
Ladies.....	2
Total.....	26

GRADUATES IN 1873.

Gentlemen.....	11
Ladies.....	4
Total.....	15
Whole number of graduates.....	41

EXAMINATIONS.

The following questions in Grammar, Spelling, Geography, Arithmetic and Algebra give a clear idea of the examinations which a student is required to pass before he can be admitted to the Freshman class of the Iowa Agricultural College.

Of course these particular examples are *only specimens* intended simply to show the *average* character of such examinations. To avoid the expense of a useless journey, every applicant for admission to the College should be certain before leaving home that his knowledge of the common branches is up to the standard required by these papers.

In each of the following studies the applicant must answer correctly at least 75 per cent. of the questions:

GRAMMAR.

1. Name and define all the parts of speech.
2. Parse *him* in the following sentence: "I saw him run."
3. Parse *who* in the following sentence: "Who steals my purse steals trash."
4. Parse *what* in the following sentence: "What the weak head with strongest bias rules, is pride."
5. Write the names of the tenses of the verb, and explain how each tense is formed.
6. What is the office of the participle?
7. Parse each word in the sentence: "I might have been struck."
8. Analyze the following, giving the relation of each word:

"Tis a time

For memory and for tears. Within the deep
Still chambers of the heart, a specter dim,
Whose tones are like the wizard voice of Time
Heard from the tomb of ages, points its cold
And solemn finger to the beautiful
And holy visions that have passed away,
And left no shadow of their loveliness
On the dead waste of life."

SPELLING.

Parallel.	Committee.
Receive.	Calculate.
Efficient.	Financial.
Ecstasy.	Intelligent.
Separate.	Laboratory.
Until.	Accomplishing.
Recommend.	Believe.
Evanescent.	Apparatus.
Preceptress.	Analyze.

GEOGRAPHY.

1. Name in order of their sizes the three largest rivers in the world, the three largest in North America, in South America, in Asia, in Europe, in Africa.
2. Name in order the three longest mountain chains in the world. Give their general direction, position and height.
3. Name in order the three largest cities in Europe, in Asia, in North America, in the world.
4. Which cities lie farthest north, New York or Rome? Boston or Paris? Quebec or London? Charleston or San Francisco?
5. Which cities lie farthest east, Rio Janeiro or Chicago? St. Petersburg or Berlin? Calcutta or Melbourne?
6. Through what waters does one sail to go from New Orleans to Hong Kong and return, going around the world? What winds favor him? Near what lands does he pass?
7. Bound Iowa, Massachusetts and South Carolina.
8. State the geographical advantages of St. Louis for a great city.

ARITHMETIC.

1. Divide 355729 by 365.
2. Find the prime factors of 345345.
3. Get the greatest common divisor of 1155, 15015 and 345345.
4. Reduce to its lowest terms 737-871.
5. Multiply .055 by .1001.
6. Divide 30 A. 3 R. 35 P. 25 yds. 7 ft. by 5.
7. Get bank discount on \$560.20 for 90 days at $7\frac{1}{2}$ per cent.
8. What is the equated time of payment of \$500 due October 1, \$600 due November 1, and \$700 due December 1?

9. If 4 men in 6 days cut 36 cords of woods, in how many days will 9 men cut 27 cords?
10. Divide \$1000 among four partners, in the ratio of 1, 2, 3 and 4.
11. Get square root of 626.001.
12. Get cube root of 513 to three decimal places.

Explain reasons of the several processes, and give the rules therefor.

ALGEBRA.

1. Define the following words as used in Algebra: Coefficient, index, root, power, positive, negative, monomial, binomial, trinomial, etc.
2. Form and name the several signs used in Algebra.
3. Explain the processes of addition, subtraction, multiplication, division and factoring, with examples.
4. State the processes of getting the greatest common divisor, and least common multiple of algebraic quantities, with examples.
5. State the processes of adding, subtracting, multiplying and dividing fractions, with examples.

It is important to the last degree that students should begin their course in higher industrial education with a thorough knowledge of the common branches. Many candidates were rejected last year because they had failed to master the elements of English Grammar. The questions asked will of course be changed in each examination, the above specimens being about an average in severity. The examinations will be in writing.

EXPENSES.

Students pay actual cost for board, fires, lights, laundry, damages to college property when caused by themselves, care, lighting, warming, and general repairs of the College buildings and furniture, and such other incidental expenses as specially belong to them as a body.

Students pay nothing for tuition or room rent, nor for the general expenses of the college.

Damages to college property will be charged to the person damaging the same when known, but if its author is undiscovered it will be assessed upon the section where it occurs or upon the whole school.

Students supply themselves with pillows and other bedding, with towels and with carpets if they desire them. They supply themselves also with ticks which can be filled with straw after their arrival.

The rates of charge for the past year have been as follows:

Board, per week.....	\$2.50
Fires and lights, per week.....	.35
Incidental expenses, per week.....	.25
Laundry, average per doz., about.....	.60

As the boarding department of the College is self sustaining, receiving no aid from the State, depending entirely upon receipts from students to pay expenses, there can be no free admission to its tables. Students or other persons bringing friends are required, therefore, to pay at the rate of twenty-five cents per meal for each such friend before admission to the dining hall.

The conduct of students in the dining hall, during meals, is under the supervision of one of the professors and is required to be in harmony with the strictest propriety.

The provisions purchased for the boarding department are of the very best quality that can be procured in the market, the aim being to furnish well cooked, substantial and nutritious food.

DEPOSIT.

Accepted candidates will deposit fifteen dollars each with the cashier, as a security for the payment of their bills, and have their names entered upon his books; after which they are considered members of the College and entitled to all its privileges.

MONTHLY SETTLEMENT.

Students will settle all bills for each month at the cashier's office, on the second Saturday of the month following, the original deposit being retained till full settlement. The necessity for prompt settlement is imperative, and any student who neglects this duty, except for reasons satisfactory to the President, may be dismissed by him for such neglect.

CARE OF MONEY AND VALUABLES.

Students may, if they desire, deposit money and other valuables with the cashier for safe keeping, taking a receipt for the same. While the College authorities will do all in their power to recover lost articles and to prevent and punish theft, the College cannot be responsible for such losses or thefts from the persons or rooms of students.

DUTY OF PARENTS.

Parents and guardians are respectfully reminded that the admission of one candidate is usually (with our limited accommodations) the exclusion of another. They will clearly see that it is their duty to provide, when once their children or wards are admitted, for their remaining at least one entire term. The withdrawal of a student before the term's close is a serious detriment to his own progress and to the welfare of the College. It leaves studies unfinished. It leaves rooms at a time when from the advancement of classes it is impossible to fill them, and the bounty of the State is wasted. It unsettles the habits of other students and tends to disorganize the College.

Parents and guardians whose children or wards are admitted will therefore give a written pledge, as one of the conditions of such admission, that they shall not be recalled until the term is finished, except for sickness or serious misfortune.

MANUAL LABOR.

The statute requires that all students shall engage in manual labor an average of two and a half hours per day throughout the College year. The following articles embody the system under which this department is conducted:

I. *Monthly detail.*—On the first day of each month the President details an adequate number of workers for each Superintendent for the month. No change from one Superintendent to another is permitted during the month except on urgent reasons presented by the Superintendent.

II. *Superintendents' Reports.*—At the end of the month the several Superintendents report to the President the number of hours worked by each student under his charge, the rate per hour, the total sum earned by each, and the amount to be charged the several departments. These earnings are subtracted by the cashier from the students' monthly bills for board, etc.

III. *Pay.*—Students doing heavy work on the farm, or other unskilled heavy work in orchard, garden, kitchen, or elsewhere, are paid according to efficiency from three to nine cents per hour.

Students employed in the library, museum, or President's office, or in skilled labor in the garden, orchard, ornamental grounds, or elsewhere, under the instruction of the proper officer, are paid at the rate of from three to seven cents per hour.

Students laboring in the Workshop are furnished with tools and all needed instruction, but receive no compensation until their labor is of value to the College, when they are paid from three to nine cents per hour, deducting a moderate sum for the use of tools.

IV. *No Distinction by Reason of Sex* is made in rate of pay or choice of work, the rate paid per hour being settled, under rule III, by value of services.

V. *Surveying, Drawing, and Laboratory Practice.*—Practice in Surveying, in Mechanical Drawing, and in the Chemical Laboratory, so far as laid down in the time table, is regarded as labor within the meaning of the law, though not subject to pay.

VI. *General Details.*—Students in the Sophomore class for the first term, and in the Freshman class throughout the year, are detailed to such labor as the several departments of labor may furnish for the time being, their preference being regarded whenever practicable.

VII. *Instructive Labor.*—Sophomores for the second term, and Juniors and Seniors throughout the year, are required to do the work belonging to the course of study that they have selected, unless detailed elsewhere to answer the needs of the College.

A few Seniors who have special capacity in that direction are employed as foremen under the several superintendents.

VIII. *Supervision.*—All labor by students is supervised personally by some officer of the College, or a foreman under his direction.

CONDITIONS OF ADMISSION.

Candidates for admission must be at least sixteen years of age, be of good moral character, residents of the State, and able to pass a satisfactory examination in Reading, Writing, Spelling, Arithmetic, Geography, and English Grammar. They are advised also to learn the simpler processes in Algebra.

Candidates may make direct application to the President of the College. They will be received in such manner that all parts of the State shall, so far as possible, have equal representation.

BURLINGTON, CEDAR RAPIDS AND MINNESOTA RAILROAD.

The Burlington, Cedar Rapids and Minnesota Railroad will carry students of this College at half fare. A certificate of membership will be furnished on application to the President.

GOVERNMENT.

It is the purpose of the Agricultural College to provide for its pupils the best possible opportunities for progress in study. It endeavors also to sustain such system and order that, while these opportunities are voluntarily improved by most, they *shall not be wasted by any*. The College government requires from every student an earnest and undivided attention to the matter in hand, whether it be study, recitation, or manual labor. It seeks in that way to beget the habit of patient and persistent effort. It requires, further, that students shall respect the rights of others, shall treat each other and their officers with courtesy, and thus it encourages gentlemanly bearing and manners. It intrusts the administration of its laws largely to the students themselves, and in this manner endeavors to call forth the virtues of self-respect and self-control. The government, in short, in its entire spirit and plan, is intended to aid the student in attaining manly dignity and moral force, as well as scholarship.

Now, if there are any young persons, of either sex, who do not sympathize with this higher mission of College government, we earnestly advise them not to come here. We are sure that we shall be sustained in saying that the College wants only those students who desire to improve in all respects—in conduct, habits, character and knowledge. There are so many of this class who are seeking admission to the College that we should not be justified in wasting the bounty of the State and the nation on boys and girls that are either idle or morally perverse. A few law-breakers would destroy the harmony of the entire institution and become an intolerable burden to its officers. If any such are found among us, we shall require them to withdraw as soon as kindly advice and patient admonition prove to be of no avail.

Hitherto nearly all our students have been studious, earnest, faithful, and law-abiding.

Subjoined are the laws by which the College is regulated, and which, as will be seen, commit the most important part of the government to the students themselves.

COLLECTIONS AND APPARATUS.

Physical Cabinet.—The collection of Physical apparatus is very complete, and has been mainly imported from Europe, from such dealers as Duboscq, Molteni, Jamin and Nachet. It consists of the finest instruments of their kind, not illustrative merely, but adapted to the

determination of accurate results, and having a wide range of application. Last year about \$2,000 was expended for apparatus illustrative of Light and Heat, including a complete Melloni's apparatus for studying the laws of radiation, absorption, and reflection of heat; the finest magic lantern manufactured, with attachments for the projection of physical phenomena; Tyndal's apparatus, etc. This year over \$2,500 have been expended for Electrical and other apparatus. An improved Holtz machine, giving a fifteen inch stroke of lightning; a full set of Geissler's tubes; illustration of the geyser; apparatus for showing the identity of gases and vapors; spouting fluid apparatus; Hero's fountain; a large number of glass photographs for the magic lantern, etc.

The Workshop.—Is furnished with various tools for working wood and metal; including two very excellent lathes and a very powerful air compressor. Two thousand dollars will be expended the coming year for additional apparatus, when very good facilities will be furnished for giving practical instruction in Mechanics. The machinery is driven by a fifteen-horse-power Corliss engine, which grinds corn, forces water into the College building and laboratory, ventilates the laboratory, and performs various other work, in a very satisfactory manner.

Museum — Zoology.—A fine collection of birds has been purchased, properly mounted, and placed in a glass case in the center of the museum. The College also owns the Shaffer collection of mammals, birds, reptiles, and insects, illustrating the fauna of our State.

Botany.—In the College Herbarium there are now about twenty-five hundred specimens. There is also a collection of grains and textile material from the Paris Exposition of 1867.

Geology.—The College is by law the recipient of a complete series of the duplicate specimens collected in the State survey. A series of one thousand models of rare, and interesting fossils has been purchased. A collection of rocks, and the minerals which enter their composition numbering two hundred and fifty, have been presented by Professor Foote.

CHEMICAL LABORATORY.

The Chemical Laboratory has been furnished with furnaces, sand-baths, hoods, balances, filter pumps, and other apparatus, both for General and Analytical Chemistry. Gas and water are supplied to each of the forty tables. Two thousand dollars a year, for the next two years, will be expended for apparatus and other needs.

LIBRARY.

This now numbers about thirty-five hundred volumes, over two thousand dollars having been expended this year. The works relating to the departments of Architecture, Physics, Natural History, and Agriculture, are numerous and especially valuable. The leading French, English, and American Scientific publications are taken.

COURSES OF STUDY.

AGRICULTURAL COURSE.

FRESHMAN YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Algebra.	Geometry.
Book-keeping.	Physiology.
Analysis of English Language.	Elements of Criticism.
Rhetoric.	Free-hand Drawing.
Free-hand Drawing.	Physics.
Elocution: English Composition.	Elocution: English Composition.
German. (<i>Optional to proficient in Analysis.</i>)	German. (<i>Optional.</i>)

SOPHOMORE YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Plane Trigonometry and Surveying.	Inorganic Chemistry: Qualitative Analysis.
General Chemistry.	Botany.
Botany.	Zoology: Entomology.
Physics.	Agriculture: History, Races, Breeding and management of Domestic Animals.
	Physics.

JUNIOR YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Landscape Gardening.	Agriculture: Farm Engineering and Architecture: Draining: Road-making. Water supply, plans for farm buildings.
Organic Chemistry.	Agricultural Chemistry: Analysis of Soils, etc.
Botany.	Science of Language.
Agriculture: Propagation of plants, seedlings, grapes and fruits: Orchard: Fruit culture: Forestry.	Physics: Meteorology.
Elocution: Addresses in chapel.	Elocution: Reading of Shakspeare.

SENIOR YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Psychology.	Political Economy.
Geology.	Constitutional History and Law.
Agricultural Chemistry.	Comparative Anatomy and Physiology.
Agriculture: Preparation of Soils and management of Crops.	Veterinary Science and Practice.
	Elocution: Addresses in Chapel.

COURSE IN HORTICULTURE AND FORESTRY.

FRESHMAN YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Identical with the course in Agriculture.	Identical with the course in Agriculture.

SOPHOMORE YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Identical with the course in Agriculture.	General Chemistry and Qualitative Analysis.
	Zoology: Entomology.
	Botany: Physics.
	Hot-bed Culture: Principles of Fruit Culture: Grafting and Budding: Vineyard Culture.

JUNIOR YEAR.

First Term.

Organic Chemistry and Quantitative Analysis.
Botany.
Landscape Gardening: Study of Words.
Kitchen Gardening—general management: kinds of vegetables: methods of culture.

Second Term.

Agricultural Chemistry, and Analysis of Soils, Manures, etc.
Physics.
Study of Shakspeare.
Farm Engineering—Draining: Road-making: Water Supply.
Farm Machinery.
Farm Architecture—Plans for farm houses, barns, sheds, dairies, etc.

SENIOR YEAR.

First Term

Psychology.
Comparative Anatomy and Physiology.
Mineralogy and Geology: Formation of Soils.
Flowers and Flowering Plants: Soils for different fruits.

Second Term.

Political Economy: Constitutional History and Law.
Market Gardening.
Meteorology: Forestry.

COURSE IN STOCK-BREEDING.

For the Freshman, Sophomore and Senior years the course is identical with the Agricultural course.

JUNIOR YEAR.

First Term.

Quantitative Analysis.
Vegetable Physiology.
Entomology.
History of Different Breeds of Domestic Animals.
Landscape Gardening.

Second Term.

To the studies of the Agricultural course add the Treatment and Training of Domestic Animals.

Students in this course have special privileges and instruction in the care of Domestic Animals, treatment of their Diseases, etc., and may be confined to this work if they so choose.

COURSE IN MECHANICAL ENGINEERING.

FRESHMAN YEAR.

Identical with the course in Agriculture.

SOPHOMORE YEAR.

First Term.

Identical with the course in Agriculture.

Second Term.

Analytical Geometry.
Descriptive Geometry.
Inorganic Chemistry: Qualitative Analysis.
Physics.

JUNIOR YEAR.

First Term.

Landscape Gardening.
Differential and Integral Calculus.
Shades, Shadows and Perspective.
Organic Chemistry.
Theoretical Mechanics.

Second Term.

Exercises in Geometrical Drawing.
Applied Mechanics: Strength of Materials.
Physics: Meteorology.
French.

SENIOR YEAR.

First Term.

Psychology.
Geology.
Theory of Machines.
Machine Drawing.
French.

Second Term.

Political Economy.
Constitutional History and Law.
Theory of Motors.
Designs, Details and Estimates for Machinery.
Elocution: Addresses in Chapel.

COURSE IN CIVIL ENGINEERING.

For the Freshman Sophomore and Junior years the course is identical with the course in Mechanical Engineering.

SENIOR YEAR.

First Term.

Psychology.
Geology.
Civil Engineering, Material and Structures.
Field Practice: Surveys for railways and other works, maps and plans in detail for their construction.
French.

Second Term.

Political Economy.
Constitutional History and Law.
Civil Engineering: Combined Structures.
Designs and detailed drawings for Bridges and other Civil Constructions.
Elocution: Addresses in Chapel.

COURSE IN MINING ENGINEERING.

For the Freshman, Sophomore and the Junior years the course is identical with the course in Mechanical Engineering.

SENIOR YEAR.

First Term.

Psychology.
Geology.
Quantitative Analysis.
Metallurgy.
French.

Second Term.

Political Economy.
Constitutional History and Law.
Metallurgy.
Mine Surveying and Machinery.
Elocution: Addresses in Chapel.

COURSE IN ARCHITECTURE.

For the Freshman, Sophomore and Junior years the course is identical with the course in Mechanical Engineering.

SENIOR YEAR.

First Term.

Psychology.
Geology.
Constructive Architecture: Carpentry and Masonry: Building Materials.
Designs for roof Trusses, Centers, Etc.
Shop practice: Carpentry and Joinery.
French.

Second Term.

Political Economy.
Constitutional History and Law.
History and Principles of Architecture: Detailed Study of the orders.
Architectural Designs, Detailed Drawings: Estimates and Specifications.
Elocution; Addresses in Chapel.

COURSE IN GENERAL SCIENCE FOR LADIES.

For the Freshman Year the course is identical with the course in Agriculture.

SOPHOMORE YEAR.

First Term.

General Chemistry.
Botany.
English Literature.
Physics.
Plane Trigonometry.

Second Term.

Inorganic Chemistry: Qualitative Analysis.
Botany.
Zoology: Entomology.
Physics.

JUNIOR YEAR.

First Term.

Landscape Gardening.
Organic Chemistry.
Botany.
Domestic Economy.

Second Term.

Domestic Chemistry.
Science of Language.
Physics: Meteorology.
French.
Elocution; Reading of Shakspeare.

SENIOR YEAR.

First Term.

Psychology.
Geology.
Mineralogy.
French.

Second Term.

Political Economy.
Constitutional History and Law.
Comparative Anatomy and Physiology.
Elocution; Addresses in Chapel.

To all students Music is optional; rates of charge fifty cents per lesson.

The kind of instruction in these several branches varies with the nature of the subjects and the views of the Professor in charge. It is mainly by means of text book and recitation in such subjects as Psychology, Geology, Mathematics, Physiology, Botany, Language, Engineering, and Physics. In Landscape Gardening, Agriculture, Horticulture, and in Veterinary Science, lectures are given. In Chemistry, to the text book and lecture, is added constant practice in the laboratory. In Surveying, in addition to the class-room work, students have frequent practice in the field.

COURSE IN MILITARY TACTICS AND ENGINEERING.

FRESHMAN YEAR.

FIRST AND SECOND TERMS.—Schools of the Soldier and Company.

SOPHOMORE YEAR.

FIRST AND SECOND TERMS.—Field Artillery.

JUNIOR YEAR.

FIRST AND SECOND TERMS.—Bayonet and Broad-Sword Exercise.
Dismounted Cavalry Tactics.

SENIOR YEAR.

FIRST AND SECOND TERMS.—Military Engineering; Field Fortifications.
Topographical Drawing.
Small-Sword Exercise.

The classes for military instruction are interspersed through the different courses. All able-bodied students will be enrolled as a College Battalion, and drill, as such, once a week through the course.

NORMAL COURSE.

The course of lectures for the Normal Department includes the following subjects: Organization and Government of Schools; Methods of Teaching; Primary Instruction; Natural order of Studies corresponding to the order of evolution of the intellectual powers; Mental Philosophy as applied to the work of the school-room, and rigid review of the common branches.

The above course of lectures will be given during the last month of the College year.

COURSE IN BEE-KEEPING.

Lectures on the management of Bees are given every year by Mrs. Ellen S. Tupper. Bees are kept upon the College Farm, and when desired, special instruction is given in their management.

TIME TABLE.

FIRST TERM.

	7.15-8	8-9	9-10	10-11	11-12	1-1.30	1.30-2.15	2.15-3.3	3-3.45	3.45-4.45	7-10
FRESHMAN CLASS.	Practice in the Field.				Book-Keep- ing.*		Language.	Algebra by divisions.	{ Elocution.† Eng. Comp. Military drill. F. H. draw'ng.		Study.
SOPH. CLASS.		Trig'try. Surv'ng.	Botany.*		Chemistry.* Physics.†	Practice in the Field or Chemical Laboratory by divisions.					Study.
JUNIOR AGRIC'S.	Organic Chemistry with Prac- tice in the Laboratory.			Landsc. G.* Agricul're.†	Botany.	Practice in the Field.					Study.
JUNIOR MECH'N'S.	Organic Chemistry with Prac- tice in the Laboratory.*			Landsc. G.* S.S.& Pers.†	Calculus.		Mechanics.	Practice in the Workshop.		Study.	
SENIOR AGRIC'S.	Practice in the Field.			Geology.	Psychology.				Agriculture.†		Study.
SENIOR MECH'N'S.	Engineering.		French.*	Geology.	Psychology.	Practice in the Field, Workshop and Drafting Room.					Study.

SECOND TERM.

FRESHMAN CLASS.	Practice in the Field.				Physiol'gy.* Physics.†		Language.	Geometry by divisions.	{Elocution.† Eng. Comp. Military drill. F. H. drawing	Study.	
SOPHOMORE AGRIC.		Chemistry †	Zoology.	Stock Breed ing.*	Physics.* Botany.†	Practice in the Field or Chemical Laboratory by divisions.‡				Study.	
SOPH. MECH'S.		Chemistry.†		Analytical Geometry.	Physics.* Des. Geom.†	Practice in the Workshop or Chemical Laboratory by divisions.‡				Study.	
JUNIOR AGRIC'S.	Laboratory Practice in Agricultural Chemistry.†		Physics*	Science of Language.	F. E. & Arch* Ag. Chem.†	Practice in the Field.				Study.	
JUNIOR MECH'S.		Mechanics.	Physics*		French.	Practice in the Workshop and Drafting Room by divisions.				Study.	
SENIOR AGRIC'S.	Practice in the Field.				Polit. Ec'y. Con'l H. & L.		Pathology.			Comp. Anat. & Physiology.	Study.
SENIOR MECH'S.		Architec- ture.	Engineer- ing.		Polit. Ec'y. Con'l H. & L.	Practice in the Drafting Room.				Study.	

*Tri-weekly. On Mondays, Wednesdays, and Fridays.

†Semi-weekly. On Tuesdays and Thursdays.

‡The Freshman class is divided into four divisions, A, B, C, D.

Whereof: On Monday A and B have Free-hand Drawing, C Elocution, D English Composition.

On Tuesday A has Elocution, B English Composition, C and D Free-hand

Drawing.

On Wednesdays the whole class has Military Drill

On Thursdays A and B have Free-hand Drawing, C English Composition, D

Elocution.

On Friday A has English Composition, B Elocution, C and D Free-hand

Drawing.

On Tuesdays the Sophomores have Military Drill from 10 to 11.

On Thursdays the Juniors " " " " 9 to 10.

On Mondays the Seniors " " " " 9 to 10.

‡The Sophomore class is so arranged that during the Spring Term each student spends two afternoons per week in the Chemical Laboratory, two afternoons per week in the labors of the Farm, Garden, etc., and one afternoon per week in the field Surveying, throughout the term.

††The Sophomore class is so arranged during the Fall Term that each student spends three afternoons per week in the Chemical Laboratory, and two afternoons per week in the labors of the farm or Workshop.

‡‡The Constitutional History and Law occupy the first half, and the Political Economy the last half of the term.

In place of Surveying the ladies have English Literature at the same hour. Other special studies in the Ladies' course will have the time for their recitation arranged when the classes are formed.

The hours for lessons and practice in Music are arranged privately by the teacher with each pupil.

DEPARTMENTS OF STUDY.

AGRICULTURE.

The aim of this department is to add skill in the various actual operations of the farm, to a complete understanding of those operations and a thorough knowledge of the principles which underlie them.

The preliminary studies are pursued in the departments of Mathematics, Chemistry, Botany, Zoology and Physiology, and upon the perfect mastery of these, depends largely the student's success in the later and more comprehensive study of Agriculture.

The theoretical study of Agriculture proper, occupies two years, and is divided at present between President Welch and Professors Jones, Mathews, and Roberts, as follows:

SOPHOMORE YEAR.

Second Term.—The history, races, breeding and management of domestic animals.

President Welch gives three lectures per week upon cattle, for the first half of the term, discussing the general principles which apply to all domestic animals alike, as well as the special facts which relate to the breeding and treatment of the different races of cattle.

Professor Roberts gives three lectures per week for the last half of the term, taking up the other domestic animals.

JUNIOR YEAR.

First Term.—Propagation of plants, seedlings, grapes, and fruits, orcharding, fruit culture, forestry.

Professor Mathews gives two lectures per week throughout the term.

Second Term.—Farm engineering and Architecture, embracing Drawing, Road-making, Water supply, Farm machinery, Plans for farm houses, Barns, Sheds, Dairies, etc. Professor Jones gives three lectures per week throughout the term, with weekly practice in Surveying and Leveling. He gives also all needed instruction in preparation of plans, estimates and specifications for various works, with the necessary drawings therefor.

SENIOR YEAR.

First Term.—Preparation of soils, and management of crops.

Professor Roberts gives two lectures per week throughout the term, giving special attention to the varieties of soil in our own State, their peculiar treatment, the particular crops adapted thereto, their culture and their values.

The above lectures are given either in class-room, field or stable as the subject deserves. The practical operations in agriculture are fully illustrated in the management of the large farm attached to the College upon which a course of mixed husbandry is pursued under the immediate superintendence of Professor Roberts. Students have opportunity to witness all these operations when not otherwise employed, and by the statute establishing the College, they are required to spend some two or three hours each day at manual labor. This labor is for the most part upon the farm, under proper instruction, and if the students desire, it may be entirely so. In addition, the orchards, nurseries, vineyards and small fruit gardens are under the immediate charge of Professor Mathews, and the vegetable garden under that of Professor Bessey. Both these gentlemen employ students to do the work in their departments and train them in all the operations connected therewith. The College Farm has great variety of soil, necessitating a varied culture. For its cultivation it has all the more approved farm machinery, and for the purpose of illustration it is stocked with many of the more important breeds of cattle, sheep, swine and fowls. The Professor of Agriculture has projected a series of experiments which will be conducted with great accuracy, and result in the establishment of facts upon which the science of Agriculture may be built.

AGRICULTURE AND FORESTRY.

Practical instruction is given students while at work on the garden, and the following subjects are discussed in the class room: Hot-bed culture; the kitchen garden, its general management, kinds of vegetables methods of culture, etc.; market gardening, grafting, budding and the various processes connected with the rearing of nursery stock, are taught by lectures and actual practice in the field. The culture of the grape and other small fruits receives special attention, and practical work is required in the orchard, nursery, and garden.

LANDSCAPE GARDENING.

A course of daily lectures is given on Landscape Gardening during the last half of the spring term of the Junior year.

This course is given to the students of all departments. These lectures embrace: Elements of beauty in a landscape: principles of landscape improvement; sites for buildings; beautifying the grounds around dwellings; water, wells and springs; methods of drainage; trees—deciduous and evergreen; plans for ornamental grounds; the different styles of architecture; and the drafting of plans.

CHEMISTRY.

The course in Chemistry extends through two years and a half, as follows:

SOPHOMORE YEAR.

First Term.—General Chemistry, Inorganic; recitations from text book, and lectures, three times a week. Laboratory practice two afternoons a week. In laboratory practice each student performs a series of over four hundred experiments at his own table, following the details given by the Professor. He manufactures such substances as ink, bluing, gunpowder and potash.

The aim of the lectures is to convey general information and technical details that are out of place in an ordinary text book. Such topics are discussed as glass, porcelain, pottery, limes and mortar.

Second Term.—General Chemistry, Inorganic; review, two recitations a week. Qualitative Analysis; Laboratory practice three afternoons a week throughout the term.

Lectures and black-board exercises are also given from time to time.

By the Laboratory work of the previous term, the student has been made acquainted with the general and analytical properties of the elements, and their most important compounds.

This knowledge is now put in practice and fixed by the performance of a series of analyses, so arranged as to lead the student step by step, from the simple to the more complex cases of Qualitative Analysis. Such substances are analyzed as salt, soda, nickel coin, brass, limestone type metal, wood and coal, ashes and guano.

JUNIOR YEAR.

First Term.—General Chemistry, Organic; recitations, lectures, and laboratory practice daily. The lectures treat of such topics as: combustion, disinfectants, preservation of wood and stone; coal tar products, aniline colors, carbolic acid, etc. The series of experiments performed by every member of the class, embraces such subjects as the manufacture of ether, chloroform, alcohol, sugar and nitro-glycerine.

Quantitative Analysis: Commenced by laboratory practice.

Second Term.—Agricultural Chemistry: By lectures, recitations and special experiments, twice a week throughout the term. The topics treated of include, the connection between Agriculture and Chemistry; the composition of plants, the food of plants and the chemical changes during growth.

Analysis of soils, Manures, Foods, Fruits, &c.: Laboratory practice three mornings a week. Lectures are given upon the same subjects.

In the Ladies' course, Chemistry as applied to Domestic Economy is taught by lectures and recitations, four days a week.

SENIOR YEAR.

First Term.—Agricultural Chemistry: By lectures and recitations, two exercises a week, for the term. The lectures treat of such topics as the following: The food of plants; Manures, special and general; preparation and preservation of barn-yard manures; the compost heap; means of improving the soil by manures, whether animal, vegetable, or mineral; Chemistry of the dairy, of plowing, draining; Chemistry of animal nutrition.

In the Chemistry of Household Life, lectures are given upon the following topics: Preservation of meats, fruits and vegetables; the chemical changes which take place in the boiling, baking and roasting of various articles of food; technical Chemistry of beverages; ventilation; water, cleansing agents, such as soaps, borax, and alcohol; Dyes, bleaching agents, and poisons.

PHYSICS.

FRESHMAN YEAR.

The study of Physics commences during the second term of the first year, and is continued through the Sophomore and a portion of the Junior years. The Freshmen study the subjects of Solids, Liquids and Gases and begin the subject of Heat.

SOPHOMORE YEAR.

During the first term, the subjects of Heat and Sound are completed. The Dynamical Theory of Heat; the Mechanical Equivalent of Heat and the heating of buildings by different methods have special attention given to them.

During the second term, Light and Magnetism are studied. The Undulatory Theory of Light and the general theory of undulations, as applied to the subjects of Light and Sound, are studied with great care.

JUNIOR YEAR.

The Juniors study the subjects of Statical and Dynamical Electricity, and the outlines of Meteorology. Numerous experiments are introduced throughout the course.

MATHEMATICS.

The course of instruction in Mathematics pre-supposes a thorough knowledge of Arithmetic, and the rudiments of Algebra so far as simple equations.

It occupies two and a half years for its completion, and may be divided into a Lower and a Higher Course. The former occupies one and a half years, and embraces:

FRESHMAN YEAR.

First Term.—Algebra; Loomis' Treatise.

Second Term.—Plane, Solid, and Spherical Geometry.—Loomis.

SOPHOMORE YEAR.

First Term.—Plane and Spherical Trigonometry, Mensuration, Plane and Topographical Surveying, and Leveling.—Loomis.

The Higher Course occupies one year, and embraces:

SOPHOMORE YEAR.

Second Term.—Analytical Geometry.—Church. Descriptive Geometry.—Church.

JUNIOR YEAR.

First Term.—Differential and Integral Calculus.—Church.

Shades, Shadows, and Perspective.—Church.

The Lower Course is designed to meet alike the wants of the Agriculturist and the Engineer. It gives so much of mathematics as is necessary for the business man, the farmer and the mechanic; including all that is subordinate to book-keeping, the simpler kinds of engineering, particularly farm engineering, and the general study of science; and sufficient to inure the mind to the work, and give it the habits of vigorous logic. The Higher Course is designed to lay a broad and sure foundation for the study of Mechanics, the higher departments of science, and for the more difficult problems of engineering.

The subjects are taught by text-books, and daily recitations, accompanied by the free use of the black board, and the solution of numerous problems, by lectures, and by carefully constructed drawings. In Surveying, students practice in the field with instruments two hours daily, by divisions, throughout the first term of the Sophomore year. They keep notes of their surveys, and from them make all necessary drawings, calculations, and reports. In Descriptive Geometry and Shades, Shadows, and Perspective, students are taught the use of drawing instruments, and are required to construct carefully in India ink all important problems.

MECHANICS AND ITS APPLICATION.

This subject is pursued by the mechanical students during the Junior year. The course of instruction embraces the following subjects:

First Term.—*Theoretical Mechanics:* Representation and measurement of forces; composition and resolution of forces; principles of moments and virtual moments; theory of parallel forces; center of gravity.

Elementary Machines: Friction and other resistances.

General Equations of Motion: Motion in straight lines; uniform and varied motion; curvilinear motion; centrifugal force; moment of inertia; laws of impact; center of percussion.

Work: Work done in overcoming resistances; work done in overcoming inertia; accumulation of work; measurement of work done by motors and consumed by various machines.

Mechanics of Fluids: Laws of pressure; center of pressure; buoyancy and flotation; tension and elasticity of gases and vapors.

Flow of Liquids: Through orifices, over weirs, in pipes, and open channels; living force of liquids.

Second Term—Applied Mechanics: Stability of structures; equilibrium of arches; trussed roofs and bridges; suspension bridges; tubular bridges; hydraulic motors; over-shot, under-shot, and breast wheels; turbines; steam engines; hot-air engines; gas engines.

A series of exercises, such as the construction of models and simple pieces of apparatus, will be arranged for the mechanical students, to give them some knowledge of mechanical methods and some degree of skill in the use of tools.

In connection with the study of mechanics, students will take indicator diagrams from the engine, and from these estimate the power consumed by various machines, by means of the dynamometer.

The mechanical work rendered necessary by improvements in and about the College buildings, will be performed, as far as practicable, by the students, and for this they will receive compensation proportioned to the value of their services to the College.

BOTANY.

During the first term of the Sophomore year, the students of all the courses study Botany, devoting three hours each week to recitations. In this term, the ordinary Elements of Structural and Systematic Botany are taken up, the aim being to give the student as much knowledge of the subject as is usually given in College courses.

In the second term, the special botanical orders are studied by the students in the Agricultural and Horticultural courses, more attention being given to the difficult forms.

In the Junior year, Vegetable Physiology, Economic Botany and the Elements of Cryptogamic Botany occupy the whole of the first term, five hours each week being devoted to recitations.

Throughout the whole course, the student has the use of the various collections, and makes, under proper instruction, such microscopic examinations as will give him a familiarity with the subject.

ZOOLOGY AND ENTOMOLOGY.

These sciences are taught to the Sophomore class (Agricultural Department) during the whole of the second term. The principles of classification are studied sufficiently to enable the student to determine

readily the relation of one species to another. Special attention is given to the study of the Mammals, Birds and Insects of Iowa; their structure, habits, distribution, and their relation to each other and to man being fully and freely discussed. Injurious species are dwelt upon, and, whenever possible, remedies are suggested. Such species as have proved permanently beneficial are fully described, so as to be readily identified.

BEES-KEEPING.

This department is under the management of Mrs. Ellen S. Tupper, and is conducted by means of lectures delivered to the whole College. The winter management of bees; patent hives; honey extractors and bee pasturage are some of the subjects discussed.

A College Apiary furnishes an opportunity for those who desire it to receive special instruction in this department.

ENGLISH LANGUAGE AND LITERATURE.

FRESHMAN YEAR, ALL COURSES.

First Term.—Analysis of the English Sentence, and Rhetoric. Welch's "Analysis" is used; and in Rhetoric, whilst suitable text-books are found of service, original compositions, and familiarity with the best models for imitation, are chiefly relied on as contributing most to the student's advancement. An exercise requiring the pupil to embody the figures of Rhetoric in the various kinds of sentences he has learned to distinguish in Analysis affords a very effective drill in invention.

Second Term.—Elements of Criticism. The class is composed of two divisions, and besides the instruction received from the text-book (Kames' Elements) the divisions alternate from week to week in composition and reciprocal criticism—this last consisting in a brief memorandum of the errors in orthography, grammar, the construction of sentences, rhetorical blemishes, or any violation of the rules of taste that may be found in the composition submitted. Largely the compositions consist in analyses of the plays of Shakspeare, and reflections on the characters and passions portrayed. These notes are gathered by the teacher, and according to some judicious standard are made to influence the pupil's grade. Familiar lectures, and black board exercises, are introduced as occasion may offer.

SOPHOMORE YEAR, LADIES' COURSE.

This year embraces the course of English Literature proper.

First Term.—English Literature; embracing the early history of the English language, and a thorough study of the biography, literary labors, style, etc., of the representative authors of the marked epochs of English history, special stress being laid on the political and religious influences at work in the times in which they wrote. Taine's English Literature as condensed by Professor Fisk, is, in these particulars, most helpful to the student, and is the text-book in the class-room. It is however, required of the class, so far as practicable, to read the great Classics at the time they are under review, and draw out their impressions in writing, which in turn are subjected to criticism. It is especially expected of the pupil, at this stage of her advancement, that she will become familiar with Shakespeare, as a source of practical wisdom and a knowledge of human nature, surpassing every other in the language.

Second Term.—American Literature. After a brief survey of the dawnings of our literature in the Colonial period, a careful study of the writers, authors, and poets of prominence from the days of Franklin down to the present time, is made on the basis of suitable selections from each, giving a limited attention to the events of contemporary history, and preparing accurate chronological charts. Students find free access to the library, and are encouraged to avail themselves of the facilities there provided for researches, especially in biography, history, and criticism.

JUNIOR YEARS—COURSES FOR THE AGRICULTURISTS AND LADIES.

First Term.—Science of Language. Professor W. A. Whitney's work entitled "Language and the Study of Language," is the text-book used. In this study the student is made familiar with the underlying principles of all languages, their genetic and morphological classification into great families, the principles of phonetic change, and the conclusions reached by the great masters in comparative philology on the origin of language, its relation to thought, and its bearing on the question of the unity of the human race.

Though not immediately occupied with the English language, it furnishes the student with the means of intelligence, by accounting for the superiority of his own tongue, and the reasons for its playing so conspicuous a part in the progress of the race. Absorbing all purely

literary studies in its scientific aims, it restores them liberalized and strengthened in the new interest it awakens in language as the faculty by which the human being is distinguished from the brute; in broad and generous sympathies with all literatures, and all varieties of human thought and experience; and especially in glimpses into pre-historic times, which could not otherwise be had.

The science is of but recent date, but is prosecuted by some of the greatest minds in Europe and this country, and is wholly in keeping with the special scheme of education pursued at this Institution. As there are many points of practical moment not yet settled in the new science, and as these are in spirited controversy between its two greatest champions, Professor Whitney and Max Muller, the student is encouraged to read this last brilliant and fascinating writer, and form opinions of his own.

Second Term.—Two plays of Shakespeare are critically studied with the view more particularly of fixing the import of the "Shakespearean phraseology," and exercising the pupil's powers on obscure and highly wrought passages. These plays are afterwards made the material for oratorical reading and elocutionary drill.

MODERN LANGUAGES.

French and German are optional except in the Mechanical course. Instruction is given in French in the last term of the Junior and first term of the Senior years of the Mechanical course; and in German in the Freshman year at the student's option.

ELOCUTION AND COMPOSITION.

Lessons in Elocution and Composition are given once each week, throughout the entire Freshman year. The Juniors are required to prepare and deliver three orations each, in the chapel during the Spring Term. The same is required of the Seniors during the last term of the fourth year.

BOOK-KEEPING.

The instruction in book-keeping is given in connection with the lessons and exercises in Bryant & Stratton's larger text-book. Each student opens and keeps a full set of books in double entry; writes business letters, contracts, receipts, bank checks, accounts of sales, bills of lading, and other business and legal papers; rules, and keeps the various

auxiliary books useful in different kinds of business; makes balanced statements; computes interest and percentage, partial payments, partnership, and equation of payments; files and preserves vouchers, and, in general, does what he might do if in charge of the books of a large house, and complicated business. These books and papers are shown in class, compared, and criticised. In addition, tri-weekly recitations are made upon the principles involved, and their applications. To this subject are given three days per week for the first term of the Freshman year.

MILITARY TACTICS AND ENGINEERING.

This department established pursuant to act of Congress, will be sustained in strict conformity with United States Army Regulations. The course embodying the following branches of study:

Military Engineering.—Field and permanent Fortifications; military bridges; mining; topographical, and free hand drawing.

Military Tactics.—Infantry, cavalry, artillery, bayonet and broadsword exercise.

Gunnery and Ordnance.—Theory of Projectiles, Siege, Artillery and Mortar practice.

Military Law.—Practice of Courts-Martial; United States Army Regulations.

Practical instruction will be given in some one of the different arms of the service three times a week. Inspection of arms and accoutrements, and dress parade every Saturday.

The following branches will be taught through the successive Collegiate years:

Freshman.—Schools of the soldier and company.

Sophomore.—Practical instruction in the schools of the soldier and company; Field Artillery, Bayonet and Sword exercises.

Junior.—Schools of the Soldier and Company; Bayonet and Sword exercise.

Senior.—Military Engineering; School of the Battalion; Ordnance and Gunnery; Cavalry Tactics; Military Law.

All male students of the College except such as may be excused by proper authority, are expected to attend all military exercises in their respective classes.

Students desiring military uniforms of the approved patterns, will be furnished with the same at cost price, upon their depositing with the

cashier of the College the amount required, together with their proper measurement.

INSTRUMENTAL MUSIC.

Students who desire, can take lessons on the piano or organ. The charges for instruction in this department are fifty cents per week, opportunity being given to practice from one to two hours a day.

FREE-HAND DRAWING.

Lessons in Free-hand Drawing alternate with Book-keeping through the first term of the Freshman year.

LITERARY SOCIETIES.

There are four Literary Societies connected with the College, the *Crescent*, the *Philomathean*, the *Bachelor*, and the *Oliolian*. The first two mentioned admit both sexes; the third is composed exclusively of young gentlemen, while the last admits ladies only. Each society meets in its own room on Saturday evening, and engages in such exercises as seem best suited to literary progress.

SYNOPSIS OF THE COLLEGE CODE.

STUDY, RECITATION AND LABOR.

1. The hours from seven to ten o'clock on work-day evenings, and from 7.15 A. M. to 12 M., and 1.30 P. M. to 4.45 P. M. of all week-days except Saturday, are devoted to study, recitation and labor.

2. Students shall attend promptly all exercises of classes to which they belong. The recitation for an excused absence from class shall be made up within two weeks from such absence.

3. Examinations shall be conducted in writing, when possible, upon questions proposed by the instructors of the various classes, and no special examinations will be granted except in cases of sickness or unavoidable absence.

4. No student shall graduate from this College upon a less total standing than *seventy-two* for the studies of the course in which he proposes to graduate, and not less than *three* on each of the branches which constitute the distinctive features in such course. Studies which are pursued for a part of a term, or for a part of the time during any term, shall be counted proportionately to such part.

5. Students are detailed for labor by the President, and work as directed, an average of two hours and one-half per day, for five days in the week.

COLLEGE SOCIETIES.

The President or Faculty must in all cases be consulted by the students, before organizing any literary, scientific, or other society. The members of such duly organized society may meet for improvement, during the study hours of such evenings as may be designated by the President or Faculty. Their meetings may, if necessary, hold till 10 p. m., and in such case the retiring bell shall be rung at 10:30 p. m.; but in no case shall attendance upon the meetings of any society be construed to excuse students from a strict observance of study hours after adjournment.

THE SABBATH, AND WORSHIP.

1. Students shall duly observe the Sabbath by maintaining a proper degree of quiet and order in and about the College.
2. Students will assemble in the Chapel once in each day for prayers, and on every Sabbath afternoon for public worship.

INSPECTION.

On each work-day morning, at inspection hour, students shall have their rooms open and ready for inspection, and upon Saturday mornings, at least one occupant, or some representative, shall be present at such inspection.

EXCUSES.

1. When students have been absent from any exercise, they shall in person, as soon as possible, present their reasons for such absence to the President.
2. For each unexcused absence from classes or chapel, three demerits will be given.

OBSERVANCE OF BY-LAWS.

1. Students shall strictly observe the by-laws pertaining to any of the departments of the College.

PROHIBITORY LAWS.

1. Students may not leave the vicinity of the College building at

any time without permission from the President. General permission to be absent on Saturday is given by the President.

2. Loud talking, whistling, scuffling, gathering in halls and staircases, and boisterous and noisy conduct are *at all times* forbidden.

3. During study hours, when not engaged in work or recitations, students may not leave their rooms except for unavoidable reasons, approved by the presiding officer of the section.

4. At ten o'clock p. m., lights shall be extinguished, and from this time till the rising bell no student may be out of his room, except for unavoidable reasons, nor shall he in any way disturb his neighbors.

5. Students may not abstract or remove any article, whether clothing, food, furniture, tools, fruit, or any other property belonging to the College.

6. Card playing, and other games of chance, and the use of tobacco and intoxicating beverages are strictly forbidden.

GOVERNMENT.

1. At the beginning of each term, there shall be elected from each section, one Councilman, one Captain, and one Lieutenant, and such election shall be valid upon the approval by the President, *provided* that no student who is a lawbreaker shall be eligible to such offices.

2. It shall be the duty of each Captain, or, in the Captain's absence, of the Lieutenant to preserve order in his section, according to law, and to report all violations of law to the Councilman of his section, who shall present the same to the Council at its next meeting. The Captains and Lieutenants will meet once each week with the President of the College, for informal report as to the condition of the government in their sections, and to consult as to the best means of securing harmony and efficiency of action.

3. The Council shall organize by choosing a president and a secretary from its own members, whose duties shall be the ordinary duties of such officers in deliberative assemblies. The Council shall hold regular meetings each week for the purpose of trying such offenses, and only such, as are reported.

4. In all trials, the President of the Council shall preside as Judge, and he shall appoint one member thereof to conduct the prosecution. The accused shall be present during his trial. He may have a member of the Council appointed as his attorney, and he shall have the privilege of cross-questioning witnesses in person or by his attorney.

5. In any trial, the testimony of the officer reporting the offense that of all other competent witnesses, and admissions made by the accused, shall be received in evidence.

6. The verdict, and the number of demerits, shall each be given by vote, in which the President shall have only the casting vote, and no member shall be debarred from voting on account of giving evidence in the case.

7. It shall be the duty of the Council to report its proceedings to the Faculty, weekly, for approval.

8. When a student officer has been reported to the Council for any misdemeanor, the Council shall, without trial, refer the case to the Faculty.

9. Whenever it shall appear that the members of any section are not able to maintain good order, and the disorder shall not seem curable by other and milder means, the President may vacate the rooms in such section.

10. When the demerits of any student reach five in number, he will be warned by the President in private; when his demerits reach ten, the President will again warn him, and advise his friends of such action, with the reasons therefor; for fifteen demerits, he shall be requested to withdraw from the College.

11. The Faculty reserve the right to try or rehear all cases of disorder, disobedience or immorality, when circumstances demand it.

12. The Faculty reserve the right to expunge the demerit marks of any student upon his subsequent blameless conduct.

LIST OF DONATIONS TO THE COLLEGE.

1872 AND 1873.

Garden Cultivator.....Rue, Council Bluffs, Iowa.
Honey Extractor
Six American Bee Hives
Several lots of Seeds.....U. S. Department of Agriculture.
One Shepherd Dog.....Hon. C. W. Tenney, Plymouth, Iowa.

The following donations were made to the Museum:

White Crane.....Mr. Croy, Ontario, Iowa.
Live Opossum.....S. G. Isaman, Hillsboro, Iowa.
Buffalo Head.....Mr. Prime, Ames, Iowa.
Skin of Rattlesnake.....Mrs. Beaumont, La.

Several specimens of birds.....College Students.
Skeleton of a dog.....J. K. Macomber.
Indian skull from Nebraska.....Mr. Prime, Ames, Iowa.
Fossils from the Cretaceous, Hon. C. W. Tenney, Plymouth, Iowa.
Fossil corals from the drift....Hon. C. W. Tenney, Plymouth, Iowa.
Fossil woods from Colorado..Hon. Delos Arnold, Marshalltown, Ia.
Fossil shells from Shellrock, Iowa..J. C. Arthur, Charles City, Iowa.
Specimens of coal from Appanoose County.....Mr. Pierson.
Specimens of building stone.
Specimens for College Herbarium.....J. K. Macomber.
Specimens for College Herbarium.....P. S. Brown, Fayette, Iowa.
Specimens for College Herbarium....S. G. Isaman, Hillsboro, Iowa.
Specimens of Towel Plant.....Mrs. Beaumont, La.
Specimens of Seaweed....Hon. Delos Arnold, Marshalltown, Iowa.

The following papers and other publications were sent to the Library by their respective publishers free of charge:

Dubuque Daily Times.
Burlington Daily Hawkeye.
Marshall County Times.
Marshall Republican.
Centerville Citizen.
Muscatine Journal.
Boone County Republican.
Hancock Signal.
Howard County Times.
Iowa Plaindealer.
Nevada Representative.
Ames Intelligencer.
The (Pittsburg, Pa.) Methodist Recorder.
The (Chicago) Christian Register.
Country Gentleman.
Religious Messenger, (Boston).
Patent Office Gazette.
Reports from Bureau of Statistics.
Pamphlets and Circulars from the Bureau of Education.
Daily Signal Service Weather Maps.
Reports of State Agricultural Society.

Reports of State Horticultural Society.
Reports of U. S. Department of Agriculture.

Subjoined will be found the Reports of the different Departments of the College, the proceedings of the Board of Trustees, and the reports of the Agents for College Lands.

Respectfully submitted,
A. S. WELCH.

REPORTS OF DEPARTMENTS.

REPORT OF FARM SUPERINTENDENT.

To the Honorable, the President and Board of Trustees of the Iowa State Agricultural College and Farm:

GENTLEMEN—I beg leave to submit the following report of farm operations, its present condition, its future wants; condition, amount, and value of stock, farm implements, &c., for the years 1872-73.

The hands and teams during the winter months were employed in care of stock and hauling wood, coal, &c.

WHEAT FIELD—1872.

Number of acres.....	26½
Total number of bushels.....	402
Total cost.....	\$329.82

The above includes the cost of seed and culture of eight acres of winter wheat, from which, on account of failure, there has been no income.

CORN FIELD—1872.

Total number of acres.....	101½
Total number of bushels.....	5,949
Total cost.....	\$773.43

The above includes the cost of the experiments below, and the extra work on the prairie sod-corn ground.

EXPERIMENTS WITH CORN—1872.

Plat No. 1, manured and drilled, produced at the rate of.....	67 1-7
Plat No. 2, unmanured and drilled, produced at the rate of.....	60 5-7
Plat No. 3, unmanured and drilled, produced at the rate of.....	61 3-7
Plat No. 4, unmanured and hilled, 44x46 inches.....	62 1-7
Plat No. 5, unmanured and drilled.....	60 5-7
Plat No. 6, unmanured and drilled.....	60 5-7

Plat No. 7, unmanured and hilled, 44x46	62 6-7
Plat No. 8, unmanured and hilled, 44x46	63 6-7
Plat No. 9, unmanured, 5 stalks in the hill	48 1-7
Plat No. 10, unmanured, 4 stalks in the hill	57 3-7
Plat No. 11, unmanured, 3 stalks in the hill	62 1-14
Plat No. 12, unmanured, 2 stalks in the hill	51 1-14

The first six and the last four plats were plowed three times; plat seven was plowed eight times; plat eight four times.

The ground had been under cultivation about four years; had never been manured; was in corn the year before; was plowed in the spring; in good order, and planted May 27th; husked and weighed November 19th.

The manure on plat No. 1 was moderately rotted horse manure, at the rate of six cords to the acre, spread on top and harrowed in.

All was planted very thickly, and when about three inches high thinned to the same number of stalks in each plat; all the plats dressed out with the hoe once, but the last four.

Most of the hills in Nos. 4, 7, and 8 had four stalks each.

Compare Nos. 1 and 2 to test the value of manure; Nos. 3 and 4, hills and drills; 5 and 6 variations of adjacent soils; 7 and 8 common and continuous culture; 9, 10, 11 and 12 is to ascertain the best number of stalks in the hill.

About the first of September a heavy rain storm prostrated or leaned all of it; the drilled corn suffered the worst.

Like experiments were commenced this spring, but some lawless cattle broke in during the night and made such havoc that they were abandoned.

OAT FIELD—1872.

Number of acres.....	40
Number of bushels.....	1051
Total cost.....	\$356.35

A large part of the oat field was situated on very low land, and could not be sowed until the last of May. Being anxious to get the field well set to grass the oats were sowed very thinly.

RYE FIELD—1872.

Number of acres.....	42
Number of bushels.....	631
Total cost.....	\$201.13

HAY FIELD—1872.

Number of tons.....	117
Cost of securing.....	\$109.17
Cost per ton.....	1.78

The above is exclusive of use of machine.

ROOT FIELD—1872.

Carrots and Mangolds.

Number of bushels.....	735
Total cost.....	\$148.49

POTATO FIELD—1872.

Number of bushels.....	952
Total cost.....	\$129.22

The Spring of 1873 opened fair, with the ground in good condition. The wheat and oats were sowed in good season. Part of the corn was planted early, but about the middle of May the ground became very wet, so that it was not finished until well into June. The dry hot weather which soon followed, enabled us to clear the ground of weeds, and the prospect for a good corn crop was encouraging. But dry weather the latter part of the season, and an early frost reduced the yield at least one third as compared with last year.

The last field of wild prairie bottom land on home farm, lying north of the railroad, was plowed and planted to corn and tended the same as the old ground. The extra cost of breaking and harrowing is included in the following exhibit:

Total number of acres, including sod corn.....	86
Total cost.....	\$825.76
Total bushels.....	3346

At present writing, the amount and cost can be obtained only approximately, as the corn is not all husked.

WHEAT FIELD.

Variety, White Michigan.

Number of acres.....	25
Number of bushels.....	355
Total cost.....	\$249.17

About one half was sowed on fall plowing, the balance on cornstalk ground cultivated and harrowed in. The fall-plowed land was much the heaviest in the straw but lodged badly and did not fill well.

The dry gravelly soil of some of the up-land is not well adapted to spring wheat, and the extremely dry weather that has occurred for the last two years in the third week in June, just when the wheat was in bloom, has caused it to blight badly.

I think when we get the farm so arranged that we can sow the wheat on the black bottom lands we will have better success.

This Spring I commenced a series of experiments on rather low flat land to test the value of manures, salt and gypsum; Fall and Spring plowing, and thick and thin seeding. For this purpose I measured off twelve plats of one fourth acres each and had my experiments well under way, with all of the plats growing rank and fine. But a heavy storm prostrated and so damaged nearly all of it that my attempts to gain any facts from them, more than of a general character, were useless.

The plat that was sowed at the rate of three bushels per acre and the manured plat were almost a total failure; there was abundance of straw but it did not fill.

The plat that received but one bushel of seed per acre was the best from the simple fact of its standing up better.

The plats upon which gypsum and salt were sown went down alike with those adjoining with which they were to be compared.

These four plats were seeded at the rate of one and one half bushel per acre, and had no manure applied. The land on which all of these experiments were tried had been used for the last two years to grow hoed crops upon, and was under the best possible state of cultivation, and extremely fertile.

OAT FIELD.

Variety, Surprise.

Number of acres.....	18½
Number of bushels threshed.....	550
Total cost.....	\$135.37

The oats were badly lodged, and consequently could not be harvested without great waste.

HAY FIELD.

The hay crop was on an average very good. From the fact that most of the ornamental grounds which are in grass are mowed from two

to three times each year, and the account kept with hay field, and for various other reasons, it would only lead into error to give the number of acres. The cost is also enhanced by the trees, roads, etc., obstructing the use of the machine.

Number of tons weighed.....	158½
Number of tons in stack in field, estimated.....	25
Timothy seed, 37 bushels at \$2.50.....	\$92.50
Total.....	183½
Total cost.....	\$428.05

From the field situated in the northeast corner of the farm, creek-bottom, containing thirty-two acres, we cut fifty-eight tons of timothy hay, after having reaped twelve acres of it for seed. The reaping was done as high as it was possible to get the machine, and the stubble mowed by running the mower the opposite way.

The cost of securing the seed was charged to hay field. This thirty-two acre field was plowed for the first time in May and June, 1871, and a part of it planted to corn. In the early fall of the same year, it was all sowed to rye for pasture. The stock was all turned upon it about November 1st, and cropped it quite close. In the Spring of 1872 it was thought best to lay it down in grass. So, in the beginning of March, three bushels of timothy, and two of Alsike clover seed were sown on a light snow.

Rye, cut the usual time, yield about twelve bushels per acre. After the rye was taken off, the clover, timothy and weeds came up and made a rank growth. In September of the same year, the field was all mowed, and most of it raked up and stacked for feed. The cattle eating it well during the winter.

This summer it has produced as I have stated above. The Alsike clover ripened very early and added but little in weight or bulk. I think it increased the amount of timothy, by keeping the ground cool and moist well into June. In those places where the clover had not taken, the timothy was much shorter and not headed so well. The subduing of this field was not undertaken as an experiment, but I think it has proved to be a very valuable one, as it proves that it is neither expensive nor difficult to get our low prairie lands into the best of tame grasses, thereby increasing the yield in value at least six fold. The same success has informally followed in cropping the first year more than a hundred acres of prairie, embracing both low and high land.

POTATO FIELD.

But few were planted by myself, as Professor Mathews decided to raise Potatoes in the orchard and consequently they were under his supervision. The variety was mostly Early Rose, and the yield good.

Number of bushels..... 246
Total cost..... \$78.71

ROOT FIELD.

One acre of Mangolds and one half acre of Carrots were planted. The Carrot seeds failed to germinate. Replowed the ground and sowed again, and again the seed failed. Then plowed and sowed to turnips.

Took then, and they were kept well dusted with gypsum and ashes.

Number of bushels.....
Total cost..... \$62.72

In the spring of 1871, thirty-eight plots, of one-eighteenth of a acre each, were prepared for experiments. The odd numbered plots were sown with small grain; while upon alternate ones different varieties of grasses and other forage plants were sown as shown below.

Block 2—Italian Rye grass, (*Lolium Italicum*.) Set well, but froze out during the winter.

Block 4—Perennial Rye grass (*Lolium perenne*.) failed to set well, so the plot was plowed up.

Block 6—Chili Clover, Alfalfa, or Lucerne (*Medicago sativa*), needs further trial.

Block 8—Yellow Oat grass (*Avena flavescens*.)

Block 10—Fall Oat grass (*Avena elatior*.) These turned out about like the Rye grasses.

Block 14—Rhode Island Bunt Grass, (*Agrostis vulgaris*.)

Block 16—Alsike Clover (*Trifolium hybridum*.) This made a pretty good showing at first, but afterwards died away.

Block 18—Fowl meadow Grass (*Poa serotina*.)

Block 20—Hard Fescue (*Festuca duriuscula*.)

Block 22—Sheep Fescue, (*Festuca ovina*.) This now forms a close thick sod; thus far it holds its own against Blue Grass.

Block 24—Crested Dog's tail, (*Cynosurus Cristatus*.)

Block 26—Rescue Grass (*Bromus Schradri*.) Failed to set well and was plowed up.

Block 28—Red Fescue (*Festuca rubra*.) Forms a thick sod like Sheep Fescue.

Block 30—Meadow soft grass (*Holcus lamatus*.)

Block 32—Wood meadow grass (*Poa nemoralis*.) Plowed up on account of failure to set well.

Block 34—Meadow Fescue (*Festuca pratensis*.) Forms close sod, though not so firm as 22 and 28.

Block 36—Rough stalked meadow grass (*Poa trivialis*.) Plowed up.

Block 38—Creeping bent grass (*Agrostis stolonifera*.) This forms a poor sod, though with better conditions it might possibly make a better showing.

FARM STOCK.

There are on the farm at the present time eighteen short-horns, two Devons, six Ayrshire, four Jerseys, ten native cows, fifteen half-bloods, and forty-seven half and three-quarter blood young cattle—total, one hundred and two.

Most of them are not in as good condition as they were last year on account of the dry fall cutting the pasture short.

The sheep comprise one hundred and thirty-five head, lambs included, and are healthy and in fine condition.

The swine, of all ages and breeds, number eighty-three, are in fine health, and those intended for slaughter are in prime flesh.

The teams are in first-class work order, and embrace seven horses, three brood mares, two mules, and three colts.

For information in regard to value, quantity, number and kind of stock, teams, farm implements, farm-house, furniture, &c., see detailed inventory herewith attached as a part of this report.

To supply the other departments with necessary teams and hands to do the work that could not be done by the students, has often been inconvenient and difficult, but notwithstanding, I have never, to the best of my knowledge, failed to respond to all demands.

The season has been a very hard one to show a good balance sheet. The early date at which the books had to be closed to meet the requirements of the law, prevents the credits of some of the accounts from being sent in, therefore this explanatory summary is necessary to show the true standing of the farm department.

SUMMARY OF THE FARM DEPARTMENT.

Dr.—Balance as shown by Cashier's books.....	\$662.20	
Cr.—By amount expended in permanent improve- ments		\$625.02
Cr.—By amount charged to other departments for use of implements		118.00
Cr.—By 3,346 bushels of corn at 35c.....	1,171.10	
Cr.—By 17 cords prepared wood at \$5.00.....		85.00
	<hr/>	<hr/>
	\$662.20	\$1,999.12
		662.20
Leaving a credit of.....		<hr/>
		\$1,336.92

I would respectfully ask that your honorable body take some action in regard to the sale of stock. The present method of disposing of the surplus of the same, places me in a position that is not at all enviable.

The policy of disposing of the products of the farm at private sale will, I have no doubt, bring money to the Institution; but it subjects us all, and myself particularly, to unjust criticism.

WANTS.

They are not very numerous, at least, so great as in former years. The open ditch that has been cut from near the west professor's house to the mouth of a sewer, should be continued till it intersects the one dug some years since from the creek to the east approach road. This is much needed, and would in a few years give much valuable meadow land.

We could dispose of many more thoroughbred hogs at good figures, if the conveniences for rearing them were enlarged.

The farm needs more tile drains, and they would pay a good interest on the investment. This is perhaps the most pressing want.

I think it would be well to fence all of the timber land on the west, and clear some ten acres on the east side of it, as what little timber there is, is scrubby and of little value. If you should so direct, this will also need a small appropriation.

The old express wagon is worn out and should be replaced by a new and heavier one. The new barn should be painted as soon as possible; and spouting put up at least on the south side, and also on both sides

of the wagon house. The farm house should have some painting and papering done.

For cost of barn, etc., see the last report of Superintendent of Work to the Auditing Committee filed in the cashier's office.

The farm is now in a good state of cultivation, and reasonably well fenced. I think any good judge would say that it is worth at least five dollars per acre more than it was when I took charge of it. The enhanced value of over four thousand dollars, has been produced by the expenditure of the one thousand dollars appropriated, and the farm has done the rest, and still shows a profit each year.

It is now over three years since I took charge of the Agricultural department of this College, and I think it due to the public, as well as to myself, to briefly explain the course I have pursued and the reasons therefor. At the beginning of my official connection with it, July 1st, 1870, I found an Institution less than two years old, and connected with it was a farm of moderate fertility, embracing a square mile of territory, nearly two hundred acres of which had never felt the touch of the plow-shear, and most of this was either wet bottom land or rolling knolls with soil too dry and gravelly. Soon after, a neglected and poorly fenced farm of over two hundred acres was added to it at a very low figure, the tillable land of which, had been cultivated for many years without grass or fertilizers. From its peculiar location and distance from the farm buildings, it was expensive and difficult to grow grain or hay, although well adapted for grazing. There were some good thorough-bred and native cattle, but not enough. The teams, implements, and farm buildings were totally inadequate. I have given you but a faint idea of the work that loomed up before me. So forcibly was I impressed with the fact that a farm must be made before I could experiment to any great extent, that I immediately set about enclosing the outlying land, and breaking prairie in October and November, although well aware that it was contrary to the most approved methods of subduing it. In short, most of my energies and the means you have furnished me have been expended in constructing open and blind drains, repairing and building fences, subduing prairie, and bringing under cultivation the waste places, adding to the number and value of the stock, teams and farm implements, building new barns and repairing old ones, constructing roads and bridges, and adding to the utility and conveniences of the farm, buildings, and their surroundings.

There is yet much to do to bring the Agricultural department up to my ideal, but the hard pioneer work is accomplished. There are two

policies, either of which may be pursued in this department, and I suggest that it would be well for your honorable body to designate the one you prefer.

The policy I have mainly pursued in my department, has been to make the farm pay its way and steadily improve it with the profits, which, under the peculiar circumstances is hard to do.

The trouble does not arise from the fact that the students do not work well; but in general farm work, you cannot mass and employ twenty or thirty students for the short space of two and one-half hours per day to a good advantage. And if you divide them into small squads to suit the work, the force to direct and superintend them becomes large and expensive.

While endeavoring to make it pay, I have seized upon every opportunity to use the stock, farm and every thing connected with it as apparatus with which to instruct and explain, both in and out of class. I have sometimes doubted the wisdom of my course and thought it might have been better, had I devoted more time and money to experiments and improved the farm less. Had I done so I have no doubt I would have gained more popularity. Whether it would have been for the best interest of the Institution I leave you to judge.

There has never been made, either by the General Assembly or the Board of Trustees, any appropriations for conducting experiments. Notwithstanding, as many have been tried as I deemed the state of the farm funds would admit.

You are also well aware that one may conduct many experiments before arriving at any facts that are worth publishing. The policy of some who are connected with Agricultural Colleges in other States is to use the farm, stock and appurtenances simply as apparatus with which to teach, explain and experiment. Claiming that the income therefrom is only incidental, and of a secondary consideration, I am inclined to favor the latter policy, though from circumstances I have been forced to follow the former.

All of which is respectfully submitted.

I. P. ROBERTS.

REPORT ON POMOLOGY.

To the Honorable, the President and Board of Trustees of the Iowa State Agricultural College:

GENTLEMEN—I have the honor to submit my annual report for the year 1873.

In saying that the past winter was one of unusual severity, manifested by the destruction of fruit trees, vines, &c., in the orchard and vineyard, as well as in the nursery, I only express what your own observation has already verified; for, while the losses in my department have been quite discouraging, the universal complaint in other portions of the country justifies me in the conclusion that ours are scarcely an average, as compared with many localities elsewhere. Some orchards have been entirely destroyed, and so, as with us, have vineyards, large and small, been entirely killed by the peculiar effects of the two past winters upon the roots, destroying so much of them immediately below the crown as to obstruct a healthy circulation between the remaining part of the roots and the top of the tree. In all such cases, the results, though often not manifesting themselves immediately after the opening of spring, were none the less certain. Evidence of the inevitable fatality was greatly deferred by the rainy season, which continued up to the last of May. If we shall, by our observation and researches, have learned the true cause of this general calamity, we may derive great profit therefrom in being enabled to apply appropriate preventives or remedies. No physician can be successful in the treatment of a disease, and especially one of a dangerous character, without a careful and discriminating diagnosis.

So nearly, in many instances, are vegetable disorders and those of the human system allied, that this rule will hold good in the former as well as in the latter; but, as the malady of trees, about which I am now speaking, is but seldom suspected until recovery is impossible, our investigations must be more of a *post mortem* than of a diagnostic character, and, therefore, necessarily require even greater care and skill in arriving at correct conclusions. I have spent much time and study in the investigation of this tree fatality, which I denominate "root kill,"

scrutinizing as closely as possible every minute fact and circumstance connected with it, and not only so, but on several occasions during the period within which my attention has been called to the subject, secured the assistance of Professor Bessey, whose researches and skill in vegetable physiology and botany, inspire me with great confidence in his opinions, and am happy to say that in my general conclusions I have his entire concurrence.

I regret that the nature and magnitude of the subject render it impossible for me to embrace even a partial discussion of it in this report, which can in its very nature only contain an epitome of my work in class and manual instructions for the current year, together with a few suggestions for the future. But I shall, during the winter vacation, endeavor to give my views somewhat elaborately through one or more of our State newspapers. I will only remark here, that from my experience and observations, I am well satisfied that a mode of culture can be adopted which will relieve us from all danger of the *root-kill*, so much dreaded now, and make orchards and vineyards as safe and permanent in Iowa as they are in any other State. The reform will somewhat enhance the price of nursery stock, and therefore meet with opposition in the start, but will pay three-fold in the end.

In our new orchard of one thousand trees, west of the College, the loss by the winter-kill is over two hundred. Among the varieties planted, there are very few that have not been set down by a majority of our Iowa pomologists as perfectly hardy, or "iron-clad," but some of which were nevertheless badly root-killed. I have taken a full list, and noted carefully the proportion of each variety fatally injured. In the whole collection there are only about one-half dozen kinds which passed the two preceding winters entirely unharmed.

The growth of the trees this season, has not been equal to that of former years, though the new wood is generally well ripened, and hence in good condition to stand even a severe winter with impunity; and every tree is likewise well protected by wrapping with hay bands, and mounding with earth. Most of the trees planted in the Spring of 1870, then three years old, have fruit buds and will probably commence bearing next year.

To enable me to fill up the present vacancies, and extend the orchard to the maximum of the original plan, will require for next Spring's planting, about three hundred trees, which of selected three-year-olds, will probably cost twenty-five dollars at the nursery. For this purpose, I shall secure kinds whose roots have thus far stood the test with

impunity, and shall then change the tops by grafting or budding so far as may be necessary to keep up a proper proportion of the most desirable sorts. In all my planting there are but three or four varieties, the tops of which have been in the least injured by winter freezing or other vicissitudes of the season.

The apple seedlings in the nursery, which have survived the general catastrophe, have all been budded, seem to have taken well, and are properly prepared for winter. Of these and last year's budding, there are about seven thousand. Of cherries worked on the Mahaleb stocks there are about one thousand, and about the same number of apples worked on Paradise roots. The Mazzard cherry stocks were all root-killed, while the Mahalebs, though injured in the tops, were in excellent condition for budding, the roots having remained perfectly sound. The Paradise apple stocks appear to be entirely iron-clad; not one affected, in root or top by the past winter. Seedling pear stocks planted out and budded last year, were all killed. I am propagating the pear sufficiently for experimental purposes on the white thorn, and thus far it has done well. I shall bud about two thousand of them next year. A pretty thorough investigation of the subject, together with quite an extensive experience in this direction for several years past, point to this stock as the most suitable and hardy, for such varieties of the pear as will grow upon it. Many kinds, however, will either not unite at all, or fail within the first two years when grafted or budded upon thorn, but among those which succeed well, are some of the best sorts we have.

Grape vines are all root-killed. The sorts I have tried, a large majority of which were Concords, root-killed so badly that their propagation here in the ordinary way, is too uncertain to justify an additional risk for plants. I am satisfied from the closest watchfulness, that there is no sure way of growing a healthy and permanent vineyard in this locality, but by planting out varieties that will not root-kill, and collar grafting them with our favorite sorts. I have watched this trouble with the grape roots for twelve or fourteen years, and I am sure that those who have not given the matter their special thought and attention, have no idea how many of the most approved and popular sorts root-kill to a greater or less extent, almost every winter; but if not fatally stricken, they emit new roots, rally again, and so go on for years. The greatest and most sudden destruction, however, is in light and porous soils, and where the ground is exceedingly dry at the setting in of winter, as in the two past seasons.

I have discovered no sort yet which is entirely exempt from the root-kill, under the circumstances named, except the Taylor or Bullitt, and as it is a very vigorous grower, and remarkably healthy vine, I should as at present advised, prefer it for stocks, and next to it the Opporto, whose roots are affected but little by the severest trials.

Besides conclusions drawn from my own observations, I have very high authority for saying that varieties of grapes whose roots are subject to winter injury, though not killed, are greatly improved both in size and flavor of the fruit, by collar grafting upon kinds which are not subject to be thus affected.

The best crop of raspberries produced this year in our small fruit garden in proportion to the number of plants, was gathered from Davidson's Thornless. Next to it, Mammoth Cluster, then Ellisdale, and Philadelphia. As a choice table fruit the Ellisdale stands first, and the Philadelphia next in order; the former of these two being the *hardest* of all. Both, however, are too soft for marketing, but for family use, when picked exactly in their proper season, they are certainly superior to any kinds which I have fruited, or seen growing in Iowa. For the market, I would plant largely of Davidson and Mammoth Cluster. The Doolittle was injured more by the winter than any variety we have.

In what is termed the "Old Nursery," I have succeeded in growing a very fine lot of evergreens. They were planted out in the Spring of 1869; were composed of Scotch Pines, Norway Spruce Firs, Arbor Vitae, Balsam Firs, Hemlocks, and White Pines, some Larches bought for European, but are American. The latter are mostly too large to transplant. The season in which all of these were set out, was remarkably wet, so that nearly every plant lived, but on account of the excessive wetness they could not be cultivated, and therefore made but a small start. The next spring, (1870,) rather late in the season they were placed under my charge and have ever since then received careful culture, and have made exceedingly rapid and healthy growth. Last Spring three to four hundred of the evergreens were removed into the lawn and elsewhere. Six to seven hundred more are of full size for transplanting next Spring, and are as fine specimens as can be grown anywhere in the western states. Not one of them that I am aware of, has ever been killed, or even injured by the winters. This is mainly due to the condition in which the ground has been kept by constant and careful tillage; and from an experience of twenty-five years in

growing evergreens, I am sure that no trees are more, if so much benefited by model culture, and none suffer more for want of it than the *Coniferae*. A pine or fir which by *good culture* has had a vigorous season's growth, will not winter-kill once in ten times that a neglected and unthrifty tree will do so.

The seedling evergreens received by us from France in the spring of 1870, we supposed were about all lost, by reason of an unprecedented season of drought. It might almost be said that from the time they were planted, (in good season too,) there was no rain till October, and yet by having the ground kept in good order, many of them have resuscitated. There are now about five hundred large enough for replanting in the spring, and in a year from that time there will be three thousand more marketable trees, which will bring an amount sufficient to indemnify the Institution against all losses by reason of the purchase, freights and culture, and leave a reasonable surplus on the credit side of the account.

I have in the old nursery, also, a fine lot of crabs and cherries of the best kinds, (four and five year old trees,) which should be planted out next spring, (or as many of them as are not set out this fall,) around the dwellings on the premises. Also, I have some large European Mountain Ash, and apple trees which were planted out in the spring of 1869, and which can also be re-set if done next spring.

There are also in nursery rows about six hundred white ash, from five to eight feet high, and as they are growing very fast, I think should not be kept in the nursery another year. The experience I have had induces me to believe that much is lost, both in future growth and healthfulness, of either forest, or other trees, by leaving them in the nursery too long or transplanting when of large size. In such case the roots are necessarily mutilated to an injurious extent, and will receive a back set in their removal, from which they cannot recover for many years, and if the seasons are not favorable, often fail altogether; whereas younger trees may be taken up with the rootlets almost entire, and with proper after treatment will not be perceptibly affected by the change.

I have planted out about five acres in forest tree seeds this fall, embracing Black Walnut, Butternut and Shellbark Hickory. These were all, of which I could get good seeds. I should like to have the planting of forest tree seeds extended next spring to twelve or fifteen acres, or even more, comprising a general collection of those trees acknowledged to be the most valuable. I trust that we may be provided during the approaching winter, with the means to purchase a good assortment.

On account of the destruction in my department, especially in the nursery and vineyard, by the root killing of the past winter, I am constrained to ask an appropriation to supply the losses occasioned thereby.

I think we ought to plant in the vineyard, as many as five hundred to one thousand vines of some variety, such as the Taylor, the roots of which are proof against root-killing by the winter, and at the proper time, graft them at the ground with the kinds we want for fruiting. By expert grape culturists, vines are grafted with almost as much certainty as the apple or the pear.

Once grafted upon iron clad roots, they will by the usual protection, secure us a crop every year.

It was my desire to have enlarged the nursery the past Spring, but there were no funds for that purpose.

I have carefully looked over my account and find that I have only spent for *Nursery Stock*, the sum of one hundred and twenty-four dollars. If we embrace such a variety of fruits as we ought to have in a nursery here, even without any ornamental trees, shrubbery, etc., this sum will not stock two acres, making no allowance for losses.

To extend the nursery to what it should be, replant the vineyard, supply the vacancies in the orchard and fill out to the limits originally contemplated, I suggest, that according to the most economical estimate I can make, we should have one thousand dollars for the next two years, to be expended in the purchase of trees, vines and nursery stock. And to this should be added at least two hundred dollars for the purchase of young forest trees, and forest tree seeds.

I trust that for these small sums to be expended in objects of so much importance, both for scientific work and economy, your petition to the Legislature will meet with a cheerful response.

To carry on the work in my department with promptness, and without inevitable loss, my experience has impressed me with the necessity of having a team and two horse plow at my disposal. To carry forward the work as it should and must be done to be successful, with the number of acres embraced therein including forest tree grounds, will require a double team and plow a considerable portion of the time, and a single blow all the balance of the season, whenever the ground is in workable order.

In setting out nursery stock, and in cultivating the nursery, orchard, vineyard, and small fruit garden, if most of the work is not done in *due season* great loss inevitably supervenes. This happens either by

an excessive growth of grass and weeds, which in many instances require more than double the labor to overcome them which would be necessary, if cultivated in time, or by retarding and stunting the development of trees, vines, nursery stock, &c., which to succeed well must have a vigorous early growth. The same thing is also true in regard to *farm work*, and hence your good judgment will dictate the necessity of having matters so arranged that in carrying on the co-operative labors of the Farm and Pomological departments no possible collision or detention of one by the other could occur.

If one has the entire control of the means and implements of carrying on the necessary labor of both departments, and a *rush* of work supervenes, it is human nature, and is to be expected, that he will attend to his own interests first. At any rate, I think you will agree with me that the reverse of my proposition is the exception to the rule. Hence the necessity of conferring upon each the means of discharging his responsibilities and complying with his official obligations. I submit whether the course indicated by me is not the *business way*, and the one which will, in the end, promote in the highest degree the interests of the Institution, and give the greatest satisfaction to all parties concerned?

I have not availed myself of the benefit of your resolution of last year, authorizing me to make an inventory of stock, which would embrace orchard, vineyard, nursery, small fruit garden, evergreens, forest trees, &c. Whether my department is to incur the loss occasioned by the ravages of the past Winter, or whether it shall fall upon the Institution, or the State, is a matter for your sound judgment and sense of right to decide. Whatever way your minds may incline, the loss is such as can scarcely be estimated in dollars and cents. About eight hundred of the vines, which were killed, should have produced a full crop of fruit this year, they being four and five years old. From the average yield, or proceeds, it is easy to estimate the true value of a vineyard or orchard, though, when growing, they have an intrinsic worth at any time after being planted, which, however, depends much upon care, culture and thrift.

My class in Pomology this year was composed of fourteen students, mostly Juniors. They were duly returned to the President, with their several standings, as required by the rules of the College.

May I again suggest the necessity of an appropriation for the erection of a garden-house, so arranged and of such dimensions as to answer all the purposes of both the Horticultural and Pomological

departments. This seems to me absolutely necessary, both as a convenient and safe depository for the tools and implements of these departments, and for the benefits of a green-house, which could be attached to such a building. There are many kinds of seeds, roots, bulbs, &c., which we cannot, without such a building, preserve through the Winter, and these pertain to what is *substantial*, as well as to those which are merely ornamental; but even the latter we cannot entirely ignore. An enlightened public sentiment will require in an Institution like this some degree of attention, to even the finer ornamentals. But, aside from this, can they be dispensed with? Is not their culture absolutely required, not only for scientific instruction in the propagation of plants and flowers, but for the development and advancement of a more refined taste, as well as encouragement for greater attention to home embellishments in Western rural life, where they are as yet too much neglected? Shall this instruction, so refining in its nature, be disregarded in the education of the *Industrial classes*, to which laudable purpose this College is exclusively dedicated?

JAMES MATHEWS.

REPORT ON BOTANY, ZOOLOGY AND HORTICULTURE.

A. S. WELCH, *President*.

I have the honor of herewith submitting my report upon the several departments of Natural Science which have been under my charge, together with a statement of the condition of so much of the department of Horticulture as has been under my superintendence.

BOTANY.

The course of study and work in Botany is now quite fully developed, and stands as follows: At the opening of the Sophomore year, the student takes up the elements of Structural Botany, and by the aid of the text book and the living specimens, acquaints himself with the external and more general anatomy of plants. Original research is encouraged, and the student is taught to depend not so much upon books for his knowledge of plants, as upon his own rightly directed observations. As he becomes familiar with the more simple forms, he is led into the examination and classification of the more difficult groups, much study being required upon *Umbelliferae*, *Composite* and *Gramineae*. The field work consists in excursions from time to time during the year, for securing specimens, which are prepared, mounted and classified by the student, and afterwards submitted for correction and approval. Fifty such specimens, at the least, are required of each student each term.

In the Junior year, by the use of the microscope, the student familiarizes himself with the minute structure of all parts of the plant, studying at the same time its Physiological and Pathological phenomena. The natural orders yielding products of economic or other value are studied, the course pursued being somewhat like that in the study of materia medica. Fungi, and the other orders of Cryptogamia, are studied by means of specimens, text books and familiar lectures, the object being to give to the student so much of the general matter as will enable him to make intelligent observations in this extensive and too little studied branch of Botany. The rusts, smuts, moulds and

other parasitic forms, are investigated by the aid of the microscope, and means for preventing their ravages, are studied and discussed.

The available collections in this department are as follows:

The College collection of from five to six hundred species, and about two thousand specimens.

The private collections of Phanogams and higher Cryptogams about twenty-five hundred species.

Mosses, about four hundred and fifty species.

Fungi, upwards of one thousand species.

Other Cryptogams, about two hundred and fifty species.

These specimens might be made much more valuable, if the necessary cases could be built for properly arranging and preserving them.

Since my connection with this department, it has been my desire to publish, at as early a day as possible, a catalogue of the native plants of the State. This is a work which ought not to be delayed, for as civilization encroaches upon the prairies, the more characteristic wild plants will be exterminated. In a few years it will be impossible to make out such a catalogue with anything like accuracy; even now I find that in the older parts of the State, many of the native species have entirely disappeared.

Two years ago I published a list of upwards of five hundred of our native plants; since then, I have made many additions in species from this immediate locality, as well as from the Northern, Western and South-western Counties, so that the list should now number nearly a thousand species. I have also, during the year, devoted such time as I could spare from my other pressing duties to working up our Mosses and Fungi. In this work I have made some progress, and hope to continue it from year to year, till at least the more important ones are fully known.

GENERAL ZOOLOGY.

This department is now fairly under way. It contemplates a course in Elementary Systematic Zoology, and is intended to give to the students a familiarity with the commoner representatives of the larger groups of the Animal Kingdom. The student is encouraged to make as many observations as possible upon the living animals in their native haunts; excursions being made from time to time for this purpose.

Our Ornithological Cabinet, which is now classified according to the Smithsonian arrangement, contains representatives of most of the

species found in the State. The specimens of Mammals, Reptiles, Fishes and Crustaceans are not on exhibition, for want of suitable shelving, though available for study.

ENTOMOLOGY.

This department is as yet an adjunct of General Zoology, dividing with it the second half of the Sophomore year. The instruction is largely by means of familiar lectures, the text-book being used more for classification than for study. The Entomological Cabinet includes from three to four hundred species, belonging to the several insect sub-orders. It needs a more complete arrangement and classification, though in its present condition it is of great value as a means of illustration, and in the study of the subject, is in daily use by the students. Steps should be taken soon for collecting specimens of all the insects found in this locality, and cases should be provided, suitable for preserving and exhibiting such collection.

COMPARATIVE ANATOMY AND PHYSIOLOGY.

The department of Comparative Anatomy and Physiology was put upon its present footing this year, and is not, of course, very fully developed as yet. Such specimens have been collected as a limited supply of funds would admit; the Cabinet now including a mammoth skeleton of a cow, a number of prepared skulls of domestic and wild animals, besides several dis-articulated skeletons of the smaller quadrupeds. The Cabinet is as yet entirely destitute of representations of the lower forms of animal life, a want which can easily be remedied if the necessary bottles, alcohol and shelving are provided.

The instruction extends through the last term of the Senior year, and is designed to familiarize the student with the general anatomy, physiology, and development of all the great groups of animals.

The student examines for himself so far as is practicable, one day each week being set apart for the dissection of specimens. Especial attention is called to the Anatomy of our domestic animals, including the horse, ox, sheep, hog, and dog. Thus while the end in view is not identical with that of Veterinary Anatomy, yet, in fact, the student by his general knowledge of Comparative Anatomy, will have no difficulty in readily understanding all the details of structure in the few closely related species of domestic animals, which are the subjects of the Veterinarian's study.

SUMMARY OF NEEDS.

DEPARTMENT OF BOTANY:

For cases for collections.....	\$ 80.00
For paper, plants, mounting, etc.....	100.00

DEPARTMENT OF GENERAL ZOOLOGY:

For jars, alcohol and other material.....	\$ 60.00
For labor and expense of specimens.....	40.00

DEPARTMENT OF ENTOMOLOGY:

For cork, pins, alcohol cases and other apparatus.....	\$ 40.00
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DEPARTMENT OF COMPARATIVE ANATOMY AND PHYSIOLOGY:

For human skeleton, with expressage.....	\$ 40.00
For wire and tools.....	5.00
For work and other expenses in securing and preparing specimens.....	50.00

THE VEGETABLE GARDEN.

The garden is intended to secure a two-fold purpose: primarily, it is illustrative and experimental; secondarily, it is designed to furnish supplies of vegetables for the table of the boarding hall. Ever since its opening in the Spring of 1870, its development has been greatly retarded by the want of adequate funds. This has often reduced the experiments to the simplest kinds, for it needs no argument to show that the making of experiments requires, if accuracy is aimed at, the outlay of a considerable amount of both time and money. Still, each year some things have been decided, or at least, brought a little nearer solution. The experiments have been pretty largely confined to the testing of varieties when grown side by side, and the determination of the most practicable means for combating the insects which attack any of the ordinary garden vegetables. The results, so far as definite or important, have been communicated from year to year. This year, but few experiments were attempted, and the excessive and prolonged drouth so seriously interfered with these as to take from them much of their value.

Among half a dozen varieties of potatoes planted at the same time, and having the same conditions as to the method of planting, kind of soil, culture, etc., Campbell's Late Rose made the most favorable showing, and though I am not prepared to speak with certainty as to its

value, yet I can say that at the least, it *promises well*. On the same ground, and with the same culture and time for growth, *Peachblowes* brought but a poor return. *Peerless* stood next to *Late Rose*. *Garnet Chili* next. Of the earlier varieties, *Bresse's Prolific* sustained its reputation for producing many in the hill, but they were *very small*. *King of the Earlies* scarcely produced enough to plant the ground upon which they grew. Of course, it must be remembered that the drouth will account for the poor showing of some of these varieties, yet, as all received the same treatment in this respect, the results are not altogether valueless.

As to insects, it is a fact worth reporting, that the much dreaded striped, and spotted Cucumber Beetles (*Diabrotica vittata* and *D. undecim punctata*,) can be outwitted by simply deferring the planting of Cucumbers, Squashes, Melons, etc., until about the time of the disappearance of the first brood of insects.

These insects are, as is well known, double brooded, appearing in May and June, and again in the latter part of the summer. By waiting until those of the first brood are about ready to die, which is from the middle to the last of June, Cucumbers can be grown with but little trouble, the plants growing large enough before the appearance of the second brood to escape serious injury. The crop will, it is true, be late, but better a late crop than none at all.

The vegetables used by the Boarding Hall, are pretty largely supplied by the Garden. The staples being Beans, Beets, Cabbage, Corn, Cucumbers, Lettuce, Onions, Parsnips, Radishes, Salsify, Squashes, Turnips, and Tomatoes. The present year, some of these crops failed entirely, on account of the drouth, thus shortening the supply.

At the close of the season, all crops excepting Parsnips, were removed, a portion of the ground was manured, and the whole carefully plowed. I have now stored in the Farm House cellar about twenty bushels of choice varieties of Potatoes, intended for seed, and several barrels of Salsify.

All the work with the exception of the plowing, and some teaming, was done by the students under my charge; the greater part of the time under the efficient superintendence of my foreman, Mr. Stalker, of the Senior class.

In order that the Garden may go on with its proper work, there should be an appropriation of money for defraying its necessary expenses. I would suggest that a certain sum be set apart for carrying on experiments, say not less than one hundred dollars per annum. This

sum though small, might with judicious expenditure, be made to do a great deal of good.

In its illustrative character, there is an annual expenditure of from two to three hundred dollars. To cover this outlay, and for purchasing seeds and tools, there will be required at the least three hundred and fifty dollars.

All of which is respectfully submitted.

C. E. BESSEY.

College, November, 1873.

REPORT ON CHEMISTRY.

Hon. A. S. WELCH, *President*.

SIR:—I have the honor of submitting the following report on the condition of the department of Chemistry, including the work of the year.

During the year I have taught the following classes: First term, Junior class in Organic Chemistry, lectures, recitations and Laboratory practice, from seven to ten A. M., daily; Senior class in mineralogy, lectures and recitations, three times a week, from ten to eleven; Senior class in Agricultural Chemistry, twice per week, from ten to eleven; Sophomore class in Chemistry, lectures and recitations, three times per week, from eleven to twelve; Sophomore class in Chemistry, and Laboratory practice, four afternoons per week, from one to four-forty-five; Laboratory practice in determinative Mineralogy, one afternoon per week, from one to four-forty-five.

This class work necessitated my presence in the class-room, Laboratory and Museum an average of over eight hours and a half daily, without counting the time necessary for getting up class experiments, the selection of specimens for illustrations in Mineralogy, the analysis of substances sent to the Laboratory, or the writing of lectures, all of which, and other miscellaneous work a Professor is supposed to find time for during the twenty-four hours.

During the second term my exercises were as follows: Junior class in analysis of soils, &c., three times per week, from seven to ten; Junior class of ladies in *Domestic Chemistry*, lectures and recitations, daily from ten to eleven; Junior class in *Agricultural Chemistry*, lectures and recitations, twice a week, from eleven to twelve; Sophomore class, lectures and recitations on *General Chemistry*, twice per week, from eight to nine; Sophomore class, Laboratory practice, daily, from one to four-forty-five.

This necessitated my presence in the Laboratory an average of over eight hours a day during the second term, making a daily average of nearly eight hours and a half spent during the year in hearing recitations and giving laboratory instructions.

Eighty-six students have received instruction by Laboratory practice this year. During the first term I wrote out a series of four hundred and sixteen experiments, (many of them original,) for the Laboratory practice of the Sophomore class. I was led to do this from the fact that nearly all the experiments introduced in our text books enter too fully into detail, giving too little practice to the students' reasoning faculties and powers of observation. During the second term, at the earnest request of the class, I wrote out in full a series of tables as a guide for practice in Analytical Chemistry; these, the class had printed at their own expense. The new flame tests of Prof. Bunsen, of Heidelberg, not before printed in the United States, as well as several new processes of my own, were included in them. I have every reason to feel satisfied with the course pursued, as I have never seen a class which seemed to have so thorough a knowledge of the subject as was shown by the review. Some of the practical fruits of this method of teaching are seen in the fact that about twenty of this class will teach Chemistry in their schools this winter.

A large number and variety of substances have been sent to the Laboratory for examination, and as many have been analyzed as the time and apparatus at command would allow. Several ores, limestones and samples of natural waters have been examined. Some analyses have also been made that, it is hoped, may be of value. Lack of apparatus and other proper facilities, has compelled us to refuse many applications for analyses.

The fittings of the Laboratory are still in an incomplete state. Additional tables, cases, &c., are needed. A room is also needed in which the Professor can perform, or have performed under his constant supervision, the numerous analyses that are requested of him. Rooms are also needed for our advanced students in Organic and Agricultural Chemistry. It is exceedingly desirable that each student should have a table to himself, and it is almost indispensable that students pursuing different branches should work in different rooms. These, and other needs, I hope soon to see provided for in the extension of the Laboratory.

No improvements have been made in the Laboratory, except the introduction of a new form of the filter, or vacuum pump, devised by myself. This is a cheap, simple, and efficient piece of apparatus, used for rapid filtration, or evaporation, without the aid of heat.

The state of the College funds allowed of the expenditure of only a small portion of the thousand dollars appropriated by the Board for

apparatus. Nearly all of the bills paid this year were for apparatus ordered nearly two years ago.

I earnestly hope that the Board will renew the appropriation of four thousand dollars, made nearly a year since, the expenditure of which was prevented by the loss of funds consequent upon the Rankin default. The expenditure of the sum then granted is even more urgently needed now than ever before.

It will be remembered, in this connection, that while a saving of from fifty to sixty per cent. is made by ordering directly from Europe, our experience has proved that we do not need to pay for the apparatus for from one year to eighteen months from the time ordered.

Respectfully submitted,

A. E. FOOTE,

Professor of Chemistry.

REPORT OF DEPARTMENT OF PHYSICS.

To the President, A. S. Welch:

SIR—I herewith submit the following report of the Department of Physics for the year 1873:

I have no changes to suggest respecting the present course in Physics. Its scope is as comprehensive as the needs of the College and the present facilities for instruction will warrant. The Board has been very prompt to furnish apparatus for class illustrations, so that the greater part of the matter studied can be rendered interesting as well as profitable to the learner. A complete Physical Cabinet, however, can only be accumulated by adding a little to the collection every year, and it is to be hoped that the Trustees will bear this in mind.

The subjects of *Polarisation of Light* and *Dynamical Electricity* have little or no apparatus with which to illustrate them.

The subject of *Polarised Light* is one of the most abstruse in the entire range of Physics, and one which is of great interest and importance. A small appropriation of six hundred dollars for both these departments is much needed. Such a sum would render the studies much more interesting and profitable.

Our lecture room is too small to accommodate the Freshman Class in Physics, which consists of one hundred and four students, and will doubtless be larger each year. A Laboratory for Physics and Chemistry seems to be one of our most urgent needs, and unless it is soon provided, both these departments must be checked in their growth. With our present facilities, it is impossible to give more than a limited number of students any instruction in the use of apparatus or practical work in Physical experimentation. Although it is not likely that a course in experiments can be introduced for many years to come, I am desirous of so developing the department that any student who wishes to do so can prosecute his studies in the higher fields of Physics. The study, as now pursued, is made as practical as possible, and the principles involved are illustrated by numerous experiments and problems. As

aids to the study there is an excellent Atwood's Machine for demonstrating the laws of falling bodies; one of Ritchie's air pumps, with all the necessary apparatus for experiments on gases; and Melloni's apparatus for studying radiant heat.

There is a fine assortment of mirrors, lenses, prisms, etc., for illustrating reflection, refraction and dispersion of light. There is an imported Holtz machine with Geissler tubes, Leyden jars, etc., for experiments on Frictional Electricity; also a fine Stereopticon and several hundred pictures for illustrating the various subjects.

The study of Physics commences in the Freshman and is completed in the Junior year. The Freshmen complete the subjects of *Solids*, *Liquids* and *Gases*, and begin upon heat. During the Sophomore year *Heat*, *Sound*, *Light* and *Magnetism* are completed, while the Junior's during the last term study *Electricity* and the outlines of *Meteorology*. Recitations come once or twice each week. Text book—Atkinson's Ganot, late edition.

Respectfully submitted,

J. K. MACOMBER.

REPORT ON MATHEMATICS, CIVIL ENGINEERING AND ARCHITECTURE.

IOWA STATE AGRICULTURAL COLLEGE.

HON. A. S. WELCH, PRESIDENT:

SIR—The undersigned Professor of Mathematics, Civil Engineering and Architecture, reports the work of his department for the year just closing, as follows:

The study of Mathematics is divided into two courses; the Lower, designed for all students of the College, embraces Algebra, Elementary Geometry, plane and solid, and plane Trigonometry. It occupies the Freshman year and a part of the first term Sophomore. The Higher course, preparatory to the study of Engineering and Architecture, embraces Analytical Geometry, the Differential and Integral Calculus, Descriptive Geometry, Shades, Shadows and Perspective. It occupies the last half of the Sophomore, and the whole of the Junior year. In the Lower course the respective works of Prof. Loomis are used, and in the higher, those of Professors Church and Binn. Recitations from the text-book are mainly relied on throughout, and, in connection, the solution of numerous problems and other exercises upon the black-board. In the Geometrical drawing, all problems are carefully constructed upon paper in India ink, and again upon the black-board with crayons.

For the study of *Civil Engineering and Architecture*, students have the preparation afforded by the Lower and Higher courses in Mathematics, the courses in General Chemistry, Organic and Inorganic, the course in Physics, the course in Theoretical and Applied Mechanics, and the courses in Mineralogy and Geology. Students in Engineering spend the major part of the Senior year in the study of railway and other higher surveying with the necessary calculations, profiles, maps, cross sections and other drawings of buildings, material, and the various simple and combined structures usually treated of in works on Civil Engineering, and in the designing and drawing of such structures in prospection, plan, elevation and detail, with calculations of strains

and the dimensions of the several parts. The text-books now used are Henop's Field Book, Rankine's Civil Engineering, and Wood's Bridge-building, with occasional use of Stumber's Wrought and Cast Iron Bridges, Gilmore's Limes and Cements and others. Plane surveying is taught to the Sophomore Class during the latter part of the Spring term. The class has daily recitations from Gillespie's work, and weekly practice in the field by divisions, thereby becoming familiar with the ordinary Field Instruments. They have also to make calculations from this, field notes and maps, both outline and topographical, of the land surveyed. Drawing and Road-making are taught to the Junior Class in the Agricultural course during the Fall term, both by recitation from text-books and by lectures, and practice is had in the field and drawing room weekly in the various surveys, and calculations for drains and roads. Waring's Draining and Gillespie's Road-making are used. To this class is also given a short familiar course of lectures on Farm Architecture, embracing the planning, arrangement and construction of various farm buildings, accompanied by original designs for such buildings by the students themselves.

Students in Architecture read Gruitt's Cyclopedia of Architecture Kerre's Gentleman's House, Todgold's Carpentry, and a part of Rankine's Civil Engineering, and study therein the history and principles of Architecture, both decorative and constructive. They make numerous drawings of the orders, and designs for entire structures, with details, estimates and specifications. For the coming year I have no change to suggest in the course of instruction in pure Mathematics. In Civil Engineering some of the text books may be changed, but the substitutes are not yet decided upon. I respectfully recommend that the course in Architecture be stricken from the schedule, inasmuch as the College is not now prepared to give proper instruction therein, and as no good architectural structures are near at hand for study. In Civil Engineering, we are in need of models. Aside from the field instruments, the department is quite destitute of illustrations. We need models in drawing, and especially we need models of engineering structures, such as bridges, arches, derricks, &c. Professor Thompson has kindly offered to construct most of these things at the Workshop, had he authority, and appropriations for that purpose. I am of opinion that no better, or more interesting and instructive labor, could be found for the students in the Mechanical department.

Very respectfully submitted,

GEORGE W. JONES.

REPORT OF MECHANICS.

AMES, November 17, 1873.

TO THE HON. A. S. WELCH, AND BOARD OF TRUSTEES, *Iowa State Agricultural College*:—I beg leave to submit the following report, on the Department of Mechanics:

On entering upon my duties last Spring, I found Engine, Boiler and tools, to the amount of \$6,639.65 according to Professor Roberts' inventory. This equipment I find quite inadequate for the instruction of students. The appropriation of \$1,000 was made to my department at the meeting in the Spring; but by the advice of the President and financial condition of the College, I have expended but a small portion of it; the amount for the Work-shop being only \$113.79, this was spent for tools and material for the Work-shop; there is also material bought to the amount of \$55.60, part of which, has been charged over to the respective departments.

The exact amount I am not able to give, owing to my present state of health. I would, therefore, respectfully ask the Honorable Board of Trustees to grant my department, the sum of \$2,000 for the coming year, also the amount granted my department at the last meeting, making in all, \$2,400. Owing to my sickness, I was unable to draw upon the \$400 appropriated to my department, at the last meeting. I also found the gas works nearly completed. They were finished according to my directions and have given good satisfaction during the Summer, but during the Spring and Fall while the weather was cold, I found it was almost an impossibility to manufacture gas, being obliged to run the boiler at eighty pounds pressure, which is very dangerous for such a large boiler, and at the same time expensive, as it requires about thirteen hours to make a sufficient amount of gas for the building. This results from the steam pipes passing through ground about one hundred feet; this might be remedied, in part, by boxing the pipes and much better by placing a small boiler close to the works. If the latter is done, it cost will in the neighborhood of \$500.00 to purchase the boiler, set the same and make the necessary constructions. The present retorts are now burnt out and must be replaced this winter, in order to supply the buildings with gas next Spring, which will cost, as near as

an estimate can be made, \$200.00. The pumps and engine have given good satisfaction, requiring but few repairs during the entire year; but I found the air compressor entirely inadequate to supply the main building and shops with water, and since we began using water for the gas house, we found it to fail completely. I have, therefore, abandoned its use.

The following is a summary of all the charges up to the 1st of September, against the different departments:

SUNDRIES DR. TO WORK-SHOP.

Chemical Laboratory.....	\$ 215.95
Water Supply.....	133.55
College Repairs.....	246.30
Stock.....	53.87
Gas supply.....	125.60
Physical Laboratory.....	9.34
New Barn.....	6.76
L. C. Compton.....	4.74
Library.....	.56
Orchard.....	.30
Professor Roberts.....	.12
Mr. Porter.....	3.40
Incidentals.....	19.87
Farm implements.....	8.60
Dr. A. E. Foote.....	1.77
Laundry.....	129.21
President A. S. Welch.....	22.10
J. H. Miller.....	3.11
Farm Household.....	17.64
A. Thompson.....	12.52
Fires and Lights.....	287.67
Board.....	77.11
Farm Improvements.....	4.99
Professor Jones.....	2.94
Military Department.....	1.62
Bachelor's Society.....	4.66
Crescent Society.....	1.36
Garden.....	.45
Prof. Mathews.....	3.04

After the 1st of September, Professor Roberts reported all accounts, which may be seen in the Cashier's office.

During the year I have taught the following classes:

First Term.—The Junior class completed Peck's Mechanics.

The Senior Drawing Class was conducted by exercises on the black board, special stress being given to Lettering, Shading, Line Shading, Graining, Mechanical and Civil Engineering Drawings; also, by the Junior Class, the Shop Practice, working every day in the week.

Second Term.—I taught the Junior Class in Applied Mechanics, up to the 3rd of September, when I was taken sick; after this, Professor Jones took charge of the class through the remainder of the term. During this time we have completed Wood's work on Materials and Bridge Building. The Junior Class in shop practice, have worked three days each week, up to the 1st of September; also, the Sophomore Class, working three days each week, up to the 1st of September.

Cash receipts, \$22.65.

Respectfully submitted,

ALEXANDER THOMPSON.

REPORT OF MILITARY DEPARTMENT AND DINING-HALL.

To the Board of Trustees:

GENTLEMEN—I hereby report the condition of the departments under my charge.

MILITARY DEPARTMENT.

From fifty to sixty students were drilled during the year in the *School of the Soldier and Company*, including Bayonet Exercise.

By reason of want of time, the following classes were not taught, viz.: *Sophomore Class.*—Field Artillery.

Junior Class.—Broad-Sword exercise; Dismounted Cavalry Tactics.

Senior Class.—Field Fortification, Topographical Drawing, and Small Sword exercise.

Knowing that it will meet the wishes of a majority of the school, I would also recommend that the male students of the College be requested to uniform themselves in accordance with some approved pattern.

STEWARD'S DEPARTMENT.

Throughout the year, two hundred and thirty-seven Students and Professors have been furnished board by this department.

The amounts received and disbursed on account of this department are as follows:

Received from Students, Professors, and others.....	\$17,053.22
Disbursed on account of supplies, labor, etc.....	16,343.83

Balance to credit of department	\$703.39
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Part of this amount will be expended during the winter in putting up ice for the boarding-hall, and in the Spring, the remainder will be used in purchasing utensils and making necessary repairs.

This department has incurred no expense outside of its ability to pay from receipts, and is self-sustaining in every respect.

During the year, the following amounts were paid for labor in this department:

Students' labor	\$2,212.82
Hired help	873.04
Salaries of Preceptress and Steward	600.00

Total amount paid for labor.....\$3,685.86

Aggregate of students expenses for the Collegiate year.....\$21,695.65

Total amount of labor performed by students..... 7,258.52

This shows that, on an average, students pay 33 2-5 per cent. of their expenses by work.

CONDITION OF BUILDING.

Having charge of the College building proper, I beg to call the attention of the Board to the necessity of painting *all* the wood-work, re-tinning the tower roofs and eaves, re-setting the key stones of some of the door and window arches, re-flooring some of the halls, the floors of which are worn completely through, and general repairs throughout the entire College building. Unless these necessary repairs are soon made, serious injury will accrue to the building and consequent loss to the State.

HEATING APPARATUS.

The system of heating the College building, now in use, I consider a failure, and an expensive one at that, costing on an average \$2,000 over receipts. It is almost impossible to heat the building properly with the fourteen furnaces now used, the constant repairs of which, I find to be a costly item. The present system of heating is also very dangerous from liability to fire.

Respectfully submitted,

JAS. L. GEDDES,

Professor of Military Tactics, Engineering, and Steward.

REPORT OF ENGLISH LANGUAGE AND LITERATURE.

HON. A. S. WELCH, *President Board of Trustees.*

Dear Sir:—I hereby submit my report in the Department of English Language and Literature, for the year of 1873.

The branches ordinarily included under the head of *belles lettres*, together with English Literature proper, and the Science of Language are taught in this Department. They are so arranged as to occupy a reasonable portion of the attention throughout all the years of the Agricultural and Ladies Course; distributed as follows:

FRESHMAN YEAR.

First Term.—Analysis of the English Sentence, and a course in Composition and Rhetoric. Provision has been made for separate and special exercises in Elocution and Essay Writing under competent instructors.

The system of Analysis used (President Welch's admirable text book,) is such as is thought best adapted to young persons having sufficient preparatory training in Grammar to enter the Freshman class.

The examination for admission to College, for the most part, will make it manifest whether the applicant has the required knowledge in General Grammar to enable him to master easily this advanced system of Analysis. If, however, it should become apparent in the course of the first term, that the student is not prepared to take a full standing in this branch, provision is made for his continuing its prosecution through the following term in a sub-freshman course.

Second Term.—Elements of Criticism (Kames'). It is found that portions of this old but invaluable treatise are of service to the student in this opening stage of his career in a variety of ways: his attention is called to the subtler elements of human emotion and character, a degree of self knowledge is gained and a habit of introversion induced which will powerfully influence his conduct for good; the way is thus prepared for English Literature which is to follow; and finally, it is a

very effective test of the student's courage and capacity to go on with the course.

SOPHOMORE YEAR.

First Term.—English Literature proper. In this branch the student is made familiar with the early history and successive epochs of our own language and literature from the days of the Anglo-Saxon Heptarchy down to the present time, special attention being given to the great English classics which distinguish these epochs. When the class, following the course of history, comes upon these great monuments of genius, the text-book is dropped and the work itself is read and analyzed, so far at least, as to get access to the mind of the author, and discover clearly the qualities of his style. The aim is to make criticism and history unite in bringing to the student's mind the rich treasures of a literature confessedly superior to every other in ancient or modern times.

JUNIOR YEAR.

Second Term.—Science of Language. Professor W. D. Whitney's twelve lectures on Language, and the study of Language, is the text-book in this study. The youngest born of all the sciences, it is nevertheless prosecuted with as much energy and success, and is as startling in its revelations as any other, and is, therefore, completely in harmony with a curriculum predominantly scientific. The student makes the structural characteristics of all languages, discovers the laws of phonetic change, the destructive and conservative influences at work in dialectical growth and decay, the principles of classification, the primitive root forms which were the first utterances of the first families of men, and in this way throws light on the great problems of linguistic and ethnological research bearing upon the origin of language and the original unity and diversity of the human race.

Shakspeare readings, and a critical examination of the text of one or two plays during the first term, and a series of rhetorical exercises in chapel during the second term make up the literary labors of the Senior class.

Aside from these branches, the Department has charge of all the public rhetorical exercises that are required in the course; the orations being all carefully scrutinized and corrected before being presented public.

Respectfully submitted,

W. H. WYNN.

STATEMENT

Of accounts for the Fiscal year ending November 12, 1873.

Expenses.	FACE OF LEDGER.		DIFFERENCES.	
	Dr.	Cr.	Dr.	Cr.
Current expenses of the College.....			21,735.73	
Salaries.....	16,936.83			
Contingent expenses.....	2,368.78	\$ 645.39		
Fires and lights.....	5,802.20	3,021.12		
Laundry.....	1,049.16	1,048.70		
Repairs.....				
Workshop.....	8,912.96	8,461.40		
Military Department.....	67.04	1.55		
Diplomas.....	30.00	70.00		
Incidental expenses.....	1,409.93	1,593.01		
Department of Physics.....			46.30	
Physical Laboratory.....	36.80			
Philosophical Apparatus.....	9.50			
Department of Chemistry.....	1,879.07	1,383.23	495.84	
Library.....	238.12		238.12	
Museum.....	521.83		521.83	
Ornamental Grounds.....	407.83	45.00	362.83	
Experimental Grounds.....	6.67		6.67	
Garden.....	268.79	89.79	179.00	
Farm Department.....	43,255.06	42,612.86	642.20	
College Inventory.....				
Inventory of 1872.....		7,454.36		
Inventory of 1873.....	7,320.52			
By balance, decrease of inventory.....				133.84
			24,228.52	133.84
Interest Fund.....				854.69
Balance from last year.....	6,777.07			
Interest on overdrafts on U. N. B.....	22.66			
Amount expended as above.....	24,228.52			
Amount received from treasurer.....		16,046.41		
Amount received from Bassett.....		15,702.69		
Amount trans. from Col. In.....		133.54		
Freight Draw-backs.....				627.56
Amount expended.....	2,457.27			
Balance from last year.....		2,656.22		
Amount received from C. & N. W. R. E.....		428.61		
Bills Receivable.....			1,273.62	
Balance from last year.....	834.71			
Notes received.....	1,146.13			
Notes paid.....		707.22		
Dr. balance.....				649.04
Board.....				
Amount received.....		17,053.22		
Amount expended.....	16,404.18			
Balance unexpended.....				

STATEMENT.—CONTINUED.

Expenses.	FACE OF LEDGER.		DIFFERENCES.	
	Dr.	Dr.	Dr.	Cr.
Personal accounts.....				516.70
Amount due sundry persons.....	1,410.48			
Amount due from sundry persons.....		1,927.18		
Balance.....				
Cash.....				
Balance from last year.....	161.38			
Amount received from all sources.....	61,858.90			
Amount paid out as per vouchers.....		61,885.68		
Balance cash on hand.....			134.60	
Miscellaneous.....				
Seed appropriation.....	41.12	246.62		205.50
Appropriation of 1868.....		118.80		118.80
College extension.....		63.52		63.52
Farm Improvement appropriation.....	4,000.00	2,036.14	1,963.86	
Fixtures for New Wing.....		500.00		500.00
Main Laboratory Building.....	61.30	853.61		792.31
Water Supply.....	243.87	398.56		154.69
School Books.....	3,705.97	3,778.34		72.37
Interest.....	10.18	119.24		109.06
Orchard.....	446.36	178.07	271.29	
Gas supply.....	2,332.88		2,332.88	
Rankin Defalcation Fund.....	268.48		268.48	
Contingent Fund.....	567.70	2,148.19		1,580.49
			6,244.73	6,244.73

SUMMARY.

Resources.	Dr.	Liabilities.	Cr.
Bills receivable.....	\$ 1,273.62	Interest fund.....	\$ 854.69
Cash on hand.....	134.60	Freight Draw-backs.....	627.56
Farm Improvement Appro'n.....	1,963.86	Board.....	649.04
Orchard.....	271.29	Personal accounts.....	516.70
Gas Supply.....	2,332.88	Seed Appropriation.....	205.50
Rankin Defalcation Fund ..	268.48	Appropriation of 1868.....	118.80
		College Extension.....	63.52
		Fixtures for New Wing.....	500.00
		Main Lab. Building.....	792.31
		Water Supply.....	154.69
		School Books.....	72.37
		Interest.....	109.06
		Contingent Fund.....	1,580.49
	\$6,244.73		\$ 6,244.73

SYNOPSIS OF THE

PROCEEDINGS OF THE BOARD OF TRUSTEES

FOR THE YEARS 1872 AND 1873.

MAY 15, 1872.

Board met.

President Welch in the chair.

Messrs. C. C. Carpenter, O. H. P. Buchanan, C. Close and H. D. Noble, presented credentials, and were admitted to seats in the Board.

Messrs. Wright, Buchanan and Welch, Executive Committee, made report as follows:

We have made such changes in the old building as were made necessary by the completion of the wings, seated the Chapel with iron framed settees, and furnished the new student rooms with suitable furniture. We found that all the leases of the College lands would terminate in 1875, in consequence of which, the Institution might be left without revenue. Mr. Bassett, the agent, informed us that it was very difficult to lease the lands for short terms. We therefore thought it best to authorize the agent to lease the lands for ten years from January 11, 1872, such authority to extend to the next meeting of the Board. We authorized President Welch to visit land agent Stone and procure his report.

Owing to the pressing necessity for water, we took the responsibility of authorizing the President and Superintendents to take the necessary steps for procuring a supply from the spring north-east of the barn. The works are nearly completed, and will soon be in operation.

We have also made a final settlement with Fawcett Brothers.

Messrs. Heaton and Pierson presented credentials, and were admitted to seats in the Board.

Standing Committees were elected.

Executive Committee.—Buchanan, Mitchell, Bacon and Welch.

Building Committee.—Buchanan, Mitchell, Bacon and Welch.

Finance Committee.—Noble, Tenney, Kilburn and Welch.

Committee on Faculty.—Close, Pierson, Leffingwell and Welch.

Committee on Farm.—Tenney, Heaton and Allen.

Committee on Stock.—Bacon, Close and Leffingwell.

Committee on Horticulture.—Kilburn and Allen.

Messrs. Tenney and Close were appointed a committee to visit the Ft. Dodge and Sioux City land districts, and report to the Executive Committee the valuation of the College lands. The pay of the members of the Committee to be five dollars per day, and actual expenses.

The Executive and Building Committee were authorized to draw up plans and specifications, make contracts and do all other things necessary to the erection of the New Barn, and Physical Laboratory.

REPORT OF TREASURER.

SAMUEL E. RANKIN, *in Account with Agricultural College Building Fund.*

1871—DR.	
Dec. 1, to balance as per last report.....	\$2,544.64 \$2,544.64
1872—CR.	
Jan. 10, by amount paid Fawcett Bros. (Order, No. 30)	\$3,380.00
Feb. 1, by amount paid J. L. Geddes, Cashier (Order No. 34)	1,693.50 5,073.50
May 4, by amount overdrawn	\$2,528.86

SAMUEL E. RANKIN, *in Account with Agricultural College Endowment Interest Fund.*

1871—DR.	
Dec. 1, to balance as per last report.....	\$5,626.24
1872.	
Jan. 3, to amount received of G. W. Bassett ...	7,193.37
Jan. 3, to amount received of Endowment Fund Interest	206.50
Apr. 3, to amount received of G. W. Bassett...	9,775.87 22,801.98

1871—CR.	
Dec. 5, by amount paid G. W. Jones (Order No. 26)	\$1,001.25
Dec. 15, by amount paid G. W. Jones (Order No. 28)	1,502.50
Dec. 15, by amount paid Fawcett Bros. (Order No. 27)	2,975.00

1872.	
Jan. 3, by amount paid Hon. A. S. Welch (Order No. 26)	1,001.00

Jan. 12, by amount paid Hon. A. S. Welch (Order No. 31)	500.00	
Jan. 12, by amount paid S. E. Rankin (Order No. 32)	1,000.00	
Feb. 1, by amount paid J. L. Geddes, Cashier, (Order No. 35)	3,645.75	
Mar. 9, by amount paid J. L. Geddes, Cashier, (Order No. 36)	2,005.00	
Apr. 5, by amount paid J. L. Geddes, Cashier, (Order No. 37)	4,249.74	
Apr. 5, by amount paid S. E. Rankin (Order No. 38)	683.00	
Apr. 27, by amount paid J. L. Geddes, Cashier, (Order No. 39)	1,501.75	
	<hr/>	20,064.99
May 14, to balance in Treasury		\$2,736.99

SAMUEL E. RANKIN, in Account with Agricultural College Contingent Fund.

1871—DR.

Dec. 1, to balance as per last report	\$8,585.05	
	1872.	
Jan. 3, to interest on State Bonds	301.00	
May 1, to interest on Story County bonds, less express charges	39.20	
	<hr/>	\$8,925.25

GENERAL BALANCE.

Dr.

May 14, to total receipts in Building Fund ...	\$2,544.64	
May 14, to total receipts in Endowment Fund ..	22,801.98	
May 14, to total receipts in Contingent Fund ...	8,925.25	
	<hr/>	\$34,271.87

Cr.

May 14, by disbursements in Building Fund ...	\$5,073.50	
May 14, by disbursement in Endowment Fund ..	20,064.99	
	<hr/>	
May 14, by balance in Treasury		9,133.38

Of the above balance of \$9,133.38 remaining in the Treasury, there is invested in Iowa State Bonds the sum of \$8,600, leaving a cash balance in the Treasury of \$533.38.

All of which is respectfully submitted,

SAMUEL E. RANKIN,

Treasurer Iowa Agricultural College.

The President was authorized to appoint a delegate to the National Agricultural Congress to be held in St. Louis, in May.

The Committee on mileage reported as follows:

O. H. P. Buchanan	440 miles	\$66.00.
J. A. Pierson	600 miles	90.00.
W. Allen	260 miles	39.00.
G. F. Kilburn	320 miles	48.00.
J. H. Bacon	420 miles	63.00.
C. Leflingwell	320 miles	48.00.
O. O. Stanchfield	220 miles	33.00.
C. Close	320 miles	48.00.
H. D. Noble	640 miles	96.00.
I. J. Mitchell	40 miles	6.00.
C. W. Tenney	470 miles	72.00.
H. J. Heaton	460 miles	69.00.
C. C. Carpenter	180 miles	26.00.

The itemized bill of President Welch, for \$111.90, for trip to Washington, D. C., allowed.

The President was appointed a committee of one to visit Washington, D. C. to attend to matters relating to the proposed additional Congressional Endowment.

The itemized report of Professor Anthony, of expenditures for Water Supply, read and placed on file. Amount expended, \$3,326.83, up to date.

MAY 16, 1872.

The Executive and Building Committee reported adversely to Professor Anthony's proposition that the New Laboratory should be built by men employed by the day instead of by contract.

The matter of supplying the College building with gas was referred to the Executive Committee.

The President was authorized to employ Dr. Detmers of Manhattan, Kansas, to fill the Chair of Comparative Anatomy and Physiology, and Veterinary Science during the last term of each College year.

The Board appointed Messrs. Welch, Jones, Anthony and Geddes of the Faculty as a Judiciary Committee for the trial of disobedient students.

The Committee on Stock reported in favor of a public sale of surplus stock, and of the purchase of a short-horn bull when the appropriation for stock is received, or sooner, if the bull "Consul" is sold, and recommended that, as from a communication from the Hon. S. B. Hewitt it was learned that the said Hewitt purchased from the College Farm the thoroughbred bull "Alexander," which proved to have been unsound, and in consequence of said unsoundness, died without being of any benefit, a bull calf be selected by the Executive Committee and sent to the aforesaid S. B. Hewitt.

MEMORIAL TO CONGRESS.

To the Honorable Senate and House of Representatives of the United States in Congress assembled:

The undersigned, members of the Board of Trustees of the Iowa State Agricultural College and Farm, respectfully petition your Honorable body to pass the bill now pending before you; the object of which is to make an appropriation of land from the public domain for the use and benefit of the Agricultural Colleges of the country, and urging upon you the importance of this measure, we desire to say, that after a careful investigation of the working of these Institutions, we give our unqualified opinion that the Agricultural Colleges, when properly sustained, are among the very best instruments for the development of our Institutions. We therefore write earnestly, urging upon you the importance of the measure before you, and ask your sympathy and support to pass said measure to a law.

PETITION FOR REDUCED RAILROAD FARE.

WHEREAS, The work of education of the Iowa College and Farm is one to a great extent of a gratuitous character, and in its results calculated to build up and develop the industrial interests of our people and State; and,

WHEREAS, As many of our students are young men and women with moderate financial resources, struggling to acquire an education that will fit them for usefulness in the future; and,

WHEREAS, The long and expensive journeys that it is necessary for many to make to reach the College and return, therefore it is one of

the most serious obstacles in the way of their obtaining the advantages offered by the College, therefore, we, the undersigned members of the Board of Trustees of Iowa State Agricultural College and Farm, respectfully and earnestly request the various Railroad Companies having roads in the State, to furnish reduced rates of fare to all students of said College for passage over their roads when such students are going to and returning from the school.

MAY 17, 1872.

Salaries were fixed as follows, to take effect March 1, 1872:

Professor Geddes, \$1,800 per year, with \$200 additional for house rent.	
Professor Foote.....	\$ 1,700 per year.
Professor Bessey.....	1,500 per year.
Miss McDonald.....	750 per year.
Professor Mathews.....	2,000 per year.
President Welch.....	3,500 per year.

It was also ordered that Professor Anthony be allowed salary for the month of July, 1870.

On motion, it was

Resolved, That it is the sense of this Board that there should be an increase in experiments in forestry under the direction of the Professor of Pomology.

The Cashier was directed to debit interest fund with \$136.60, and credit incidental expenses to correct mistake of an order given to Wright and Buchanan.

The Executive Committee was authorized to employ Secretary Roberts to lecture on Practical Agriculture to the College classes, his pay therefor not to exceed \$400 per annum.

Hon. Suel Foster was appointed as a second delegate to the National Agricultural Congress.

Itemized bill of G. F. Kilburn of \$51.40 for *per diem* and expenses on committee allowed.

Itemized bill of H. D. Noble of \$26.50, actual expenses incurred coming to and returning from the College, May 1, 1872, he having failed to receive notification of the postponement of the meeting of the Board.

President Welch was allowed out of freight draw-back fund the sum of \$190, being the amount expended by him in digging and completing a well on the College Farm near his house.

The Executive Committee was instructed to re-value the unleased lands of the College after receiving the report of the Committee of Examination, and to direct the land agents in Sioux City and Ft. Dodge land districts to lease, until further notice, said lands on their valuation, the terms of said leases to expire on January 1, 1875.

NOVEMBER MEETING.

Board met.

President Welch, at his request, was released from serving on the Finance Committee.

NOVEMBER 9, 1872.

NOVEMBER 12, 1872.

C. C. Carpenter was elected a member of the Committee on Faculty, in place of C. E. Leffingwell, deceased.

The Committee on Stock reported that at the public sale of College stock, held November 9th, 1872, seventeen cows were sold for an aggregate of \$676.00, two half-blood calves for \$84.00, and one pig for \$13.00, amounting in all to \$773.00. And that notes, with approved security, bearing eight per cent. interest, were taken for the whole amount, and deposited with the Cashier of the College.

On motion, the expenses of Dr. Gregory in coming to and returning from the College to deliver an address at the commencement exercises, was ordered paid out of Interest Fund.

Cashier was instructed to purchase an iron box for safe, and repair doors of same.

The following report on freight draw-backs was read and received:

On Dec. 9th, 1871, we find a credit balance of..	\$2,655.54
Collected Feb. 9th, from C. & N. W. R. R.....	268.07
“ Aug. 29th, 1872.....	433.20

Total credits.....\$3,356.81

We also find that the following named persons have received the following amounts from said draw-back fund:

G. W. Jones, per order of Board for well.....	\$ 75.00
“ “ stable.....	120.00
“ “ land.....	100.00

A. S. Welch, Dec. 20, 1871, per order for freight	\$ 15.72
J. L. Geddes, Dec. 20, 1871, per order for freight.....	.22
W. A. Anthony, Dec. 20, 1871, per order for freight.....	1.40
I. P. Roberts, Dec. 20, 1871, per order for freight.....	.30
G. W. Jones, Dec. 20, 1871, per order for freight.....	.22
A. S. Welch, Dec. 28, 1871, per order for freight.....	7.26
A. S. Welch, Jan. 1, 1872, per order for freight.....	.81
A. E. Foote, Jan. 1, 1872, per order for freight.....	.74
A. S. Welch, Jan. 15, 1872, per order for freight.....	2.24
A. S. Welch, July 8, 1872, per order of Board.....	190.00

Total debits.....	\$514.31
Credits as above.....	\$3,356.81
Due from C. & N. W. R. R. to Oct. 26, 1872....	125.27

\$3,482.08

Less..... 514.31

Oct. 26, 1872, to credit of fund..... \$2,967.77

Signed,

H. D. NOBLE.

The Finance Committee made report as follows:

Your committee to whom was referred the Cashier's statement of cash received and paid out from December 9th, 1871, to May 11th, 1872, report as follows: That they have examined said statement and the vouchers therefor, and find the same to be correct; and we would recommend that no allowance of freight drawbacks shall be made to any officer or employe of the College, except by bills presented and ordered paid by the Board of Trustees; and we also recommend that the Cashier charge exchange at the rate of fifteen cents each for all drafts given by him to persons connected with the College.

Adopted.

Committee on Mileage made report as follows, which was adopted:

1st District, O. H. P. Buchanan. 440 miles	\$66.00
2nd District, J. A. Pierson.....	90.00
4th District, W. Allen.....	39.00
5th District, G. F. Kilburn.....	80.00
6th District, J. H. Bacon.....	63.00
8th District, O. O. Stanchfield..	33.00
9th District, C. Close.....	48.00

10th District, H. D. Noble.....	640 miles	96.00
12th District, C. W. Tenney....	470 miles	70.00
13th District, H. J. Heaton.....	460 miles	69.00
<i>Ex-officio</i> Gov. C. C. Carpenter.	180 miles	26.00

Signed,

J. A. PIERSON, *Chairman.*

NOVEMBER 13, 1872.

J. K. Macomber was appointed Instructor in Physics, and E. W. Stanton Instructor in Mathematics, their services to begin March 1st, 1873.

The Finance Committee reported that they had examined the report of G. W. Bassett, Land Agent of the College, and found the receipts and disbursements from the Endowment and Interest Fund to agree with the duplicate receipts of the Treasurer, filed as vouchers in the Cashier's office.

G. W. Bassett reported that at the date of the last Annual Report there were 19,547 1-100 acres of forfeited lands not disposed of, and that since the Report there have been forfeited 2,447 71-100 acres, making a total of 21,994 72-100; leased since last Annual Report 2,936 23-100 acres, leaving unleased 19,058 49-100 acres.

I. P. Roberts was appointed a delegate to the Swine Breeders' Convention at Indianapolis, and John H. Bacon delegate to the Short-Horn Breeders' Convention at the same place, to represent the interests of this College, their actual expenses to be paid per itemized bills.

DECEMBER MEETING.

DECEMBER 11, 1872.

Board met.

Professor Jones was appointed to make up the College Catalogue, and to contract for the printing of the same.

O. H. P. Buchanan, J. H. Bacon, and G. W. Jones, Special Committee, reported that having examined the vouchers and bills of Peter Melendy in the matter of the purchase of furniture in 1868, they believe him to be entitled to a credit of one hundred dollars for *per diem* and expenses, and therefore recommend that the same be placed to his credit, and charged to the Furniture account. Adopted.

Reports from the various departments received and referred to appropriate committees.

The Executive and Building Committee elected in May, 1872, have according to instructions by the Board had in charge the general business of the Agricultural College and the special superintendence of certain new buildings to be erected by appropriations from the Legislature.

Those buildings were the Physical Laboratory and a Barn.

LABORATORY.

There not being money enough appropriated for certain completion of the Laboratory according to the plans adopted, we concluded to lay the foundation this fall, and to build, and inclose the walls the coming summer. Having failed to receive satisfactory bids for the construction of said building, we let the contract by sections, and authorized Prof. Jones and Superintendent Roberts to contract for the excavation and building of the walls, and to superintend the same at a sum not to exceed the sum of 15 cents per yard for excavation, and \$4.20 per perch of twenty-five feet cubic measure and solid wall, the above sums being the lowest estimate made in the proposals for the contract.

For further particulars in regard to building of Laboratory see reports of Prof. Jones and Superintendent Roberts annexed.

WATER SUPPLY.

We authorized President Welch to draw on the treasury for such sums of money as may be in the treasury, of the funds belonging to the College for the payment of bills then due on water supply.

BARN.

We advertised for bids for the building of the Barn, either in whole or by sections, and on examination of the bids, found that F. D. Basket's bid, of \$4,650, was the lowest for the whole construction of said building and the removal of the wagon-shed, and placing it in position and furnishing materials, and accordingly contracted with said Basket, at our August meeting, for the entire completion of the work as follows: The foundation to build the wagon-shed, and the barn was to be finished by Nov. 1st, 1872, the balance of the contract to be finished by June 1st, 1873. The said Basket failing to give the requisite security, (after we had adjourned and left for home) much to our regret, compelled us to authorize Superintendent Roberts to employ hands to excavate for the barn cellar, at a sum not to exceed 14 cents

per yard, and to have the walls built at a sum not to exceed \$4.25 per perch, of twenty-five feet cubic measure or solid wall, the said sum being the lowest estimate by the proposals for the contract for the same, and we appointed Superintendent Roberts and Prof. Jones as superintendents of said barn.

Upon inquiry by the Superintendent, it was found, that under the pressure of the money market, the lumber for the barn could be purchased at a price less than that estimated by the contractors, and we authorized him to purchase said lumber.

For the particulars, we refer you to the report of Superintendent Roberts and Professor Jones.

STOCK.

By a resolution of the board at this May meeting, we authorized the Superintendent of farm and the Chairman of stock committee to purchase a Durham bull. Said committee attended the sale of Col. M. S. King, of Minnesota, and purchased the young bull, Sam. Jr., for which they paid the sum of one thousand dollars.

Also, by a resolution of the board at the same meeting, we authorized Superintendent Roberts, to select a bull calf, and present it to Hon. S. B. Hewitt to replace the bull "Alexander" purchased by said Hewitt, which died from disease contracted before the sale to said Hewitt. See report of Superintendent Roberts.

WATER-PIPE.

A petition from President Welch, asking the privilege of attaching a pipe to the main pipe, for the purpose of conveying water to his residence at his own cost, said improvements to belong to the College, was granted and privilege given, provided it does not become necessary to make an additional cost to the College for running the machinery for that purpose.

DIPLOMAS.

We authorized President Welch to procure diplomas for the College and to charge the students receiving them the sum of five dollars each.

PROFESSOR ANTHONY.

The resignation and claim against the College, presented to the Board by Professor Anthony and referred to the committee by said Board was duly considered and the resignation was accepted, but the claims were

rejected and the matter of settlement between the parties is under consideration at the present time.

FAUCETT AND BROS.

The unsettled claim of Faucett & Bros., for the building of the College extension has, upon the report of the Superintendents, (Anthony and Roberts) been satisfactorily settled and receipts passed.

BEES.

President Welch, having purchased five stands of bees, an order was ordered to be drawn on the interest fund for the sum of seventy dollars for the payment of said bees.

LECTURER ON AGRICULTURE.

According to resolution of the Board at their May meeting, we employed I. P. Roberts to lecture on Agriculture, and he is to receive the sum of four hundred dollars per year for said services, commencing on the tenth of May, 1872.

The sum of \$3,000 was appropriated out of the Laboratory appropriation for the purchase of gas works and Professor Anthony instructed to attend to the purchase of materials and erection of the same.

All of which is respectfully submitted,

O. H. P. BUCHANAN,
J. H. BACON.

AMES, December 11, 1872.

To the Executive and Building Committee:

GENTLEMEN—The Superintendents of Works make the following report. Upon the new barn the following work has been done and expenses incurred:

Excavation has been made and other miscellaneous work done \$	136.61
The greater part of the stone work at \$2.10 per perch.....	241.50
About two-thirds of the stone work has been laid at \$1.25 per perch.....	151.25
Lime has been bought for the whole work, cost.....	42.00
Lumber for the whole work is on the ground, cost in Lyons..	1,730.49
Freight bills on lime and lumber.....	610.60

Certain work under direction of Prof. Anthony, in supplying water.....	25.76
Advertising for proposals.....	3.00
Expenses of Building Committee.....	57.25
Total expenses.....	\$ 2,998.46
Lumber and material transferred to other accounts.....	36.30
Net total expenses on new barn to date.....	\$2,962.16

Upon the main Laboratory building the work and expenses are as follows:

Excavation for basement and trenches for walls.....	\$ 107.80
Work on drainage of building; excavation filling	85.60
Sewer pipe	29.50
Sundry work and material.....	88.80
Stone, about one-fifth.....	89.00

A small part of the stone work has been laid but no payment made. It is contracted at \$1.50 per perch, solid measure. A car load of 70 pounds water lime was purchased at a cost of \$157.50 and freight, \$63.00; making.....	\$ 229.50
Freight on sewer bill.....	32.13
Expenses of Building Committee.....	71.25
Miscellaneous work.....	7.34

Total cost of work and material..... \$ 726.92

Full detailed plans for the new barn have been prepared and approved by you. The general plan for the main Laboratory building has been prepared and approved by you; the details are now in course of preparation. Contracts have been let for the stone work upon both buildings; the stone has been purchased, and the timber for the barn is upon the ground.

G. W. JONES,
I. P. ROBERTS,
Superintendents of Works.

It was ordered that all lands hereafter forfeited should be withdrawn from the market, until the Land Committee had re-valued the same, and at the price so fixed, the Land Agent may then proceed to re-lease the same.

It was ordered that hereafter the heads of departments shall make

annual inventories of all property under their charge, and file the same in the Cashier's office.

DECEMBER 12, 1872.

MILEAGE.

The Committee to whom was referred the matter of mileage for members, respectfully report as follows:

1st District, O. H. P. Buchanan.....	440 miles	\$66.00
2nd District, J. A. Pierson.....	600 miles	90.00
4th District, W. Allen.....	260 miles	39.00
5th District, G. F. Kilburn.....	536 miles	80.00
6th District, J. H. Bacon.....	420 miles	63.00
8th District, O. O. Stanchfield.....	220 miles	33.00
9th District, C. Close.....	320 miles	48.00
10th District, H. D. Noble.....	640 miles	96.00
12th District, C. W. Tenney.....	470 miles	70.00
13th District, H. J. Heaton.....	460 miles	69.00
<i>Ex-Officio</i> , C. C. Carpenter.....	180 miles	26.00

Report adopted.

Signed,

O. H. P. BUCHANAN,
O. O. STANCHFIELD,
C. W. TENNEY,

Committee.

President Welch was authorized to go to Washington, D. C., to present the memorial of the Board to Congress, whenever, in his opinion, it becomes necessary to do so; and further, that the sum of \$200, (two hundred dollars,) or so much thereof as is necessary, is hereby appropriated out of the Interest Fund therefor.

Professor Geddes, Steward of the Boarding Hall, made a report to the Board, presenting bills and vouchers, giving the prices of provisions used in the Hall.

Itemized bills of C. W. Tenney of \$179.46, and of C. Close of \$154.50, for per diem and expenses in visiting and re-appraising College Lands, allowed.

Itemized bill of J. H. Bacon of \$30.20, for expenses as delegate to the Shorthorn Breeders' Convention, allowed.

Itemized bill of G. F. Kilburn of \$10.00, for two day's service on Finance Committee, allowed.

Itemized bill of C. W. Tenney of \$10.00, for two day's service on Finance Committee, allowed.

Appointments were made and salaries fixed as follows:

Alexander Thompson, Professor of Mechanics; salary, \$1,600 per annum, with use of half of Anthony House.

J. K. Macomber and E. W. Stanton's salaries were fixed at \$600 per annum each.

Professor J. M. B. Sill was appointed Lecturer on Geology, for two months' each year, at a salary of \$200 per month.

Dr. H. J. Detmers was appointed Professor of Veterinary Science, for the Fall term of each year; salary, \$1,000 per annum.

Professor Mathews' salary was fixed at \$1,600 per annum.

Professor Wynn's salary was fixed at \$1,600 per annum.

I. P. Roberts was appointed to the chair of Practical Agriculture at a salary of \$400 per annum.

Miss McDonald's salary was fixed at \$800 per annum.

The use of half of the Anthony House was tendered to Professor Foote.

On motion, the itemized bill of I. P. Roberts, of \$22.60, for expenses incurred while attending the National Swine Breeders' Convention held at Indianapolis, was read and allowed.

On further motion, by Mr. Kilburn, the Cashier was directed to charge the bills receivable account with the sum of \$506.13, and credit the interest fund account with the same, in order to make the balance of the bills receivable account agree with the invoice of notes on hand.

The Special Committee on Leasing Lands made a report in the form of a resolution, through their chairman, Governor C. C. Carpenter, as follows, which was adopted:

Resolved, That the Land Agents of the Iowa State Agricultural College be authorized and instructed to accept from persons holding leases of the College lands terminating in the year 1875 a surrender of such leases, and in consideration therefor to issue to such persons new leases terminating December 31, 1880, with similar terms, conditions, and price of land, except that the interest shall be at the rate of 10 per cent. per annum, payable as provided in the old lease, and commencing at the date to which interest shall have already been paid. And the further sum of one dollar per annum, as a collection fee, after the year 1875, and that the agents be authorized to charge and receive from persons

making such surrender, and taking such new lease, the sum of five dollars for each lease as full compensation for his services and expenses therein.

Signed,

C. C. CARPENTER,

C. CLOSE,

G. F. KILBURN,

Committee.

The Executive Committee were instructed to contract with G. W. Bassett for the re-leasing of the above named lands, and to require of the said Bassett an additional bond if they deem it necessary.

The itemized bill of H. D. Noble, of \$10.00, for two days services on Finance Committee read and allowed.

The Treasurer's report read and referred to the Committee on Finance.

On motion the Finance Committee was instructed to confer with Treasurer Rankin in relation to the condition of the funds appropriated to the Agricultural College and Farm by the Legislature of 1872.

I. P. Roberts was instructed to purchase coal for the College for 1873.

DECEMBER 13.

Appropriations were made for the various departments as follows:

Department of Chemistry.....	\$2,000 a year for two years.
For Equipment of Workshop.....	\$2,000
“ Library.....	500
“ Museum.....	800
“ Farm.....	1,000
“ Orchard and Nursery.....	500
“ Ornamental Grounds.....	500
“ Department of Horticulture [Botany]..	100
“ Models in Mechanical Drawing.....	100
“ Models in Free-hand Drawing.....	100

The President was instructed to employ a teacher for the German classes.

The Finance Committee was instructed to report the *exact* state of the Appropriation Fund in the Treasurer's hands.

The itemized bill of O. H. P. Buchanan of \$36.25, for expenses and *per diem* on Executive and Building Committee for July 25, 1872, read and allowed.

The itemized bill of O. H. P. Buchanan of \$35.00, for expenses and *per diem* on Executive and Building Committee on Aug. 13, 1872, read and allowed.

The itemized bill of O. H. P. Buchanan of \$12.78, for expenses and *per diem* on Executive and Building Committee on Sept. 13, 1872, read and allowed.

The itemized bill of J. H. Bacon, for expenses and *per diem* on Executive and Building Committee was read and allowed with amounts as follows:

July 23d, 1872.....	\$29.28
August 13th, 1872.....	29.00
September 13th, 1872.....	5.00
To correct error in former bill (voucher 1076).....	1.00

The itemized bill of A. S. Welch for \$9.30 for expenses while attending a meeting of College Presidents, held in Chicago, November 1872, as per instructions of the Board, read and allowed.

The Finance Committee reported through Chairman Noble, by returning the Treasurer's report duly signed by themselves, and reported verbally that they had examined the Treasurer's report, and that to the best of their knowledge and belief, it was correct.

SAMUEL E. RANKIN in account with Iowa Agricultural College Extension Fund, from Dec. 1, 1871 to Dec. 1, 1872, inclusive.

1871.	
Dec. 1.	Dr.
	To balance as per last report..... \$ 2,544.64
1872.	
Dec. 1.	To amount transferred from Endowment
	Interest Fund..... 2,535.10— 5,079.74
1872.	Cr.
Jan. 10.	By amount paid Faucett Bros., (Order
	No. 30) 3,380.00
Feb. 1.	By amount paid J. L. Geddes, cashier,
	(Order No. 34)..... 1,693.50
Dec. 1.	By error in transfer of extra charges to
	Contingent Fund..... 6.24— 5,079.74

SAMUEL E. RANKIN in account with Barn Stock and Farm Improvement Fund, from Dec. 1, 1871 to Dec. 1, 1872, inclusive.

1872.	Dr.
July 6.	To appropriation of 1872..... \$ 7,000.00— 7,000.00
	Cr.
July 19.	By amount paid J. H. Bacon for Red
	Bull 1,000.00
Oct. 11.	By amount paid J. L. Geddes, cashier,
	(Order No. 50)..... 2,000.00
Dec. 1.	By amount paid J. L. Geddes, cashier,
	(Order No. 51)..... 3,000.00— 6,000.00
	Balance of appropriation not expended 1,000.00

SAMUEL E. RANKIN in account with Main Laboratory Building Fund from Dec. 1, 1871 to Dec. 1, 1872, inclusive.

1872.	Dr.
July 6.	To appropriation of 1872..... \$ 25,000.00—25,000.00
	Cr.
Nov. 3.	By amount paid J. L. Geddes, cashier,
	(Order No. 49)..... 3,000.00— 3,000.00
	Balance of appropriation unexpended.. 22,000.00

SAMUEL E. RANKIN in account with Orchard, Vineyard and Nursery Fund from Dec. 1, 1871 to Dec. 1, 1872, inclusive.

1872.	Dr.
July 6.	To appropriation of 1872..... \$ 1,000.00
Nov. 8.	To amount from Contingent Fund, ex-
	change 63— 1,000.
	Cr.
Sept. 6.	By amount paid J. L. Geddes, cashier,
	(Order No. 47)..... 1,000.00
Sept. 6.	By exchange on above..... 63— 1,000.63
SAMUEL E. RANKIN,	in account with fund for fixtures for new wing
	from Dec. 1, 1871 to Dec. 1, 1872, inclusive.
1872	Dr.
July 6.	To appropriation of 1872..... \$ 500.00
Nov. 8.	To amount transferred from Contingent
	Fund..... 62— 500.6

1872.

Cr.

Aug. 9. By amount paid J. L. Geddes, (Order No. 45).....	\$ 500.00
Aug. 9. By exchange on above.....	62— 500.62

SAMUEL E. RANKIN in account with Water Supply Fund from Dec. 1, 1871 to Dec. 1872, inclusive.

1872.

Dr.

July 6. To appropriation of 1872.....	\$ 5,000.00
Nov. 8. To amount transferred from Contingent Fund.....	5.00— 5,005.62

Cr.

July 13. By amount paid J. L. Geddes, (Order No. 43).....	5,000.00
July 13. To amount paid exchange on order....	5.00— 5,005.00

SAMUEL E. RANKIN, in account with Endowment Interest Fund from December 1, 1871, to December 1, 1872, inclusive.

1871.

Dr.

Dec. 1. To balance as per last report.....	\$ 5,626.24
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1872.

Jan. 3. To amount from G. W. Bassett.....	7,193.37
Jan. 3. To amount interest on bonds.....	206.50
April 3. To amount from G. W. Bassett.....	9,775.87
July 3. To amount from G. W. Bassett.....	6,452.96
Oct. 7. To amount from G. W. Bassett.....	10,265.28
Nov. 8. To amount charged Contingent Fund, exchange.....	38.35
Dec. 1. To amount transferred from Contingent Fund.....	556.52—40,115.09

1871.

Cr.

Dec. 5. By amount paid G. W. Jones, Cashier (order No. 26).....	1,000.00
Dec. 5. By amount paid exchange on above ..	1.25
Dec. 15. By amount paid G. W. Jones, (order No. 28).....	1,500.00
Dec. 15. By amount paid exchange on above...	2.50
Dec. 15. By amount paid Fawcett Bros., (order No. 27).....	2,975.00

1872.

Jan. 3. By amount paid A. S. Welch, (order No. 28).....	\$ 1,000.00
Jan. 3. By amount paid exchange on above...	1.00
Jan. 3. By amount paid A. S. Welch, (order No. 31).....	500.00
Jan. 12. By amount paid S. E. Rankin, (order No. 32).....	1,000.00
Feb. 1. By amount paid J. L. Geddes, (order No. 35).....	3,642.00
Feb. 1. By amount paid exchange on above...	3.75
Mar. 9. By amount paid J. L. Geddes, (order No. 36).....	2,000.00
Mar. 9. By amount paid exchange on above...	5.00
Apr. 5. By amount paid J. L. Geddes, (order No. 37).....	4,241.64
Apr. 5. By amount paid exchange on above...	8.10
Apr. 5. By amount paid S. E. Rankin, (order No. 38).....	683.00
Apr. 27. By amount paid J. L. Geddes, (order No. 39).....	1,500.00
Apr. 27. By amount paid exchange on above...	1.75
May 21. By amount paid J. L. Geddes, (order No. 41).....	1,000.00
May 20. By amount paid exchange on above...	1.25
June 5. By amount paid J. L. Geddes, (order No. 41).....	2,000.00
June 5. By amount paid exchange on above...	2.50
July 8. By amount paid J. L. Geddes, (order No. 42).....	3,500.00
July 8. By amount paid exchange on above...	2.50
July 24. By amount paid J. L. Geddes, (order No. 44).....	2,000.00
July 24. By amount paid exchange on above...	2.50
Aug. 9. By amount paid J. L. Geddes, (order No. 46).....	3,000.00
Aug. 9. By amount paid exchange on above...	2.50
Sept. 6. By amount paid J. L. Geddes, (order No. 48).....	5,000.00
Sept. 6. By amount paid exchange on above...	3.75

Dec. 1.	By amount paid J. L. Geddes, (order No. 53).....	\$ 1,000.00
Dec. 1.	By amount transferred to College Extension Fund.....	2,535.10—40,115.09

SAMUEL E. RANKIN, in account with Contingent Interest Fund, from December 1, 1871, to December 1, 1872, inclusive.

1871.	DR.	
Dec. 1.	To balance from last report.....	8,585.05
1872.		
Jan. 3.	To interest on bonds.....	301.00
May 1.	To interest on Story County bonds ...	39.20
July 1.	To interest on bonds.....	104.50
Sept. 6.	To amount from T. J. Stone.....	2,567.67
Dec. 1.	To error in transfer to College Extension Fund, Nov. 30, 1871.....	6.24—11,603.66
	CR.	
Nov. 8.	By amount (exchange) transferred....	45.85
Dec. 1.	By amount paid exchange.....	7.50
Dec. 1.	By amount transferred Endowm't Fund	556.52— 609.87
	Balance unexpended	10,993.79

GENERAL BALANCE.

Dec. 1.	Farm Improvement Fund unexpended.	1,000.00
Dec. 1.	Main Laboratory Building Fund unexpended	22,000.00
Dec. 1.	Contingent Fund unexpended.....	10,993.79—33,993.79
	Deduct bonds.....	600.00
	Balance unexpended	33,393.79

SAMUEL E. RANKIN,
Treasurer Agricultural College.

H. D. NOBLE,
C. W. TENNEY,
G. F. KILBURN,
Committee on Finance.

The Executive reported the following instructions which were adopted.

TO G. W. BASSETT, LAND AGENT:

You are hereby authorized to proceed in the re-leasing of College lands, and renewal of leases, upon filing with the Secretary an additional bond in the sum of five thousand dollars with securities certified as sufficient by the Hon. B. F. Gue.

On motion, Messrs. Noble, Buchanan, and Close were appointed to proceed forthwith to Des Moines, with full authority to examine into the state of the funds in the hands of our Treasurer, Samuel E. Rankin, and to make a settlement in full with him, and that the President draw a warrant in full for all funds in his hands, countersigned by the Secretary, and that said committee have full power in all matters to act for the Board of Trustees, and to report as soon as possible to the President.

J. L. Geddes was elected book keeper and cashier, and his bonds fixed at \$15,000.

On motion, the President was instructed to have the cashier give bonds and approve of the same.

The President and Secretary were authorized to settle the claim, on land sold by the College to Mr. Little.

On motion, the Board proceeded to the election of treasurer. Mr. Close nominated Hon. S. E. Rankin. In this connection Mr. Noble, Chairman of the Special Committee, made a verbal report to the Board; of which the substance is: "That Treasurer Rankin acknowledged that he was unable to pay over the appropriations, having used it for his own purpose; that if he could have a little time he could find bondsmen who would guarantee payments to the College as needed, and that he would deed property to secure, meantime, the payment of the deficiency; that he thought he could get bondsmen, more certainly if continued in the office of treasurer."

On motion, the Secretary was instructed to cast the vote for S. E. Rankin for Treasurer of the State Agricultural College and Farm.

Such vote was cast and Mr. Rankin was declared unanimously elected.

On motion, resolved that the said S. E. Rankin be required to give bonds at the discretion of the Special Committee above appointed; said bond not to exceed \$50,000.

SPECIAL MEETING.

DECEMBER 28, 1872.

Board met at the call of the President.

Present, Messrs. Welch, Bacon, Close, Tenney, Stanchfield, Noble, and Buchanan.

G. W. Jones was appointed Secretary *pro tem*.

The resignation of Treasurer Rankin was received and accepted.

On motion, John F. Ely, of Cedar Rapids, was elected Treasurer of the Iowa State Agricultural College, and his bond was fixed at eighty thousand dollars (\$80,000).

On motion, the appointment of Dr. Detmer's to the Class of Veterinary Science, was recalled.

On motion, Miss Lovelace's salary was advanced fifty dollars (\$50).

On motion, the order making appropriations for the ensuing year was reconsidered, and the President was instructed to expend, not to exceed one thousand dollars in each of the departments of Chemistry and Mechanical Engineering, and the smallest possible sum necessary to protect the interests of the other departments.

The Committee on Mileage reported as follows:

1st District, O. H. P. Buchanan, 440 miles	\$66.00
6th District, J. H. Bacon..... 420 miles	63.00
8th District, O. O. Stanchfield... 220 miles	33.00
9th District, C. Close..... 320 miles	48.00
10th District, H. D. Noble..... 640 miles	96.00
11th District, C. W. Tenney..... 470 miles	70.00
<i>Ex-Officio</i> C. C. Carpenter..... 180 miles	26.00

NOTE.—Gov. C. C. Carpenter in obedience to the call reached Ames the next day (Sunday) after the adjournment and dispersion of the Board. He gave his assent to the action of the Board in full, and his name was placed upon the list for mileage.

G. W. JONES, Secretary *pro tem*.

MARCH MEETING.

MARCH 18, 1873.

Board met.

WHEREAS, Under an imperative necessity caused by the defalcation and resignation of S. E. Rankin, Treasurer, a meeting of the Board of Trustees was called to meet on the 28th day of December 1872, and

WHEREAS, The short term allowed for giving notice of the same prevented a quorum from being present, and

WHEREAS, Under said imperative necessity, J. F. Ely was chosen Treasurer of this College, and other important business transacted, now therefore

Resolved, That the election of the said J. F. Ely as Treasurer, and the business transacted at that meeting be approved as fully as though the same had been done by a full Board. Adopted.

The President reporting that he had in his possession the bonds of the Cashier, Treasurer, and Land Agent Bassett, Messrs. Kilburn, Pierson, and Heaton were appointed a committee to examine all bonds of College affairs.

On motion, C. C. Carpenter was allowed mileage for attending the meeting held December 28, 1872.

MARCH 19, 1873.

The Committee on Finance reported as follows, which report was adopted:

We have examined the Cashier's Report in detail, and counted the cash in the safe, and find all to be correct from Dec. 1st, 1872, to March 17th, 1873.

The following Standing Committees were elected.

Executive and Building Committee—Messrs. Buchanan, Stanchfield, and Pierson.

Committee on Faculty—Messrs. Kilburn, Allen, Heaton, and Welch.

Committee on Farm—Messrs. Tenney, Allen, and Close.

Committee on Stock—Messrs. Close, Tenney, and Noble.

Committee on Horticulture—Messrs. Noble, Heaton, and Allen.

Committee on Finance—Messrs. Bacon, Noble, and Tenney.

Hon. Suel Foster was elected member of the Board from the 7th District, to fill the vacancy caused by the death of Hon. C. E. Leffingwell.

Messrs. Tenney, Close, and Kilburn were elected a committee to visit the classes in the various departments, and to report any matters of interest to the Board, such committee to receive no extra pay for such services.

Professor Roberts was elected to fill the vacancy in the Judiciary Committee.

The Special Committee on Bonds reported as follows:

Bond of J. F. Ely, as Treasurer of College, elected Dec. 28th, 1872: bond fixed at \$80,000; given Dec. 30th, 1872 to the Board of Trustees of Iowa Agricultural College and Farm, with William Green, D. W. Rowley, G. Carpenter, Geo. Green, J. L. Beaver, J. S. Cook, J. W. Fraer, S. L. Dows, F. J. Upton, and S. C. Beaver, securities qualified to \$10,000 each. Mr. Ely has failed to take and attach the oath of office. Not approved.

We recommend that Mr. Stanchfield be appointed a committee to obtain from Treasurer Ely the oath of office to be attached to said bond, and that those on said bond be declared approved and an endorsement to that effect be entered on said bond, and that said approval be signed by the President.

First bond of Gen. J. L. Geddes, \$5,000, given April 17th, 1872, to State of Iowa; John Gilmore and James Chapin securities, not qualified to the amount; do not know anything about the parties; approved by President Welch April 18th, 1872; no record of approval.

Second bond of J. L. Geddes, given for \$15,000, Dec. 1872, with John Gilmore, James Chapin, and Harmon Stanton securities; not approved; the securities have not been qualified to the amount, and we have been unable to ascertain any reliable information in regard to their reliability.

We would recommend that the Secretary be directed to procure an affidavit of the above named securities, that they are worth the above named amount exempt from execution and upon the receipt and attachment of said affidavit the same be declared approved and the President directed to certify to the same.

Bond of I. P. Roberts, as Superintendent, elected June 1st, 1870; bond for \$3,000, dated October 11th, 1870; given P. A. Lee and R. S. Cole securities; approved, April 18th, 1872 by the President.

We do not find any amount fixed by the Board, nor any approval except as above.

Several re-elections have been made of Mr. Roberts to this office since the appointment, but we deem these uncalled for and not required by law; and consequently that in our opinion said bond would cover all the time that Mr. Roberts may remain in said office. From information, we deem the securities ample, and recommend that the action of the President be confirmed.

Additional bond of Geo. W. Bassett, for amount fixed by Board

\$5,000, with Webb Vincent and J. Hutchison securities; certified that securities are good by Hon. B. F. Gue.

We recommend its approval and proper indorsement by the President.

We recommend that the above bonds be recorded in the record book of the Board and afterward forwarded to the Secretary of State for safe keeping, by the Secretary of this Board.

Respectfully submitted,

G. F. KILBURN,
J. A. PIERSON, } Com.
H. J. HEATON.

The Committee on Mileage reported as follows:

1st District, O. H. P. Buchanan. 440 miles	\$66.00
2nd District, J. A. Pierson..... 600 miles	90.00
4th District, W. Allen..... 260 miles	39.00
5th District, G. F. Kilburn 536 miles	80.00
6th District, J. H. Bacon..... 420 miles	63.00
8th District, O. O. Stanchfield . 220 miles	33.00
9th District, C. Close..... 320 miles	46.00
10th District, H. D. Noble 640 miles	96.00
12th District, C. W. Tenney.... 470 miles	70.00
13th District, H. J. Heaton 460 miles	69.00

Bill of Daniel McCarthy of \$25 for potatoes furnished the College in 1869; read and allowed; Daniel McCarthy making affidavit and proving to the satisfaction of the Board, that he had not received pay for the same.

The claim of Isaac Black, in regard to the purchase of a diseased cow, was allowed, and his note refunded.

The sum of \$15 was appropriated out of the Contingent Fund to be paid to Hans Musland for damages done to his property by the running away of the College team.

The Superintendent of the Farm was instructed to make the best show possible of sheep and hogs at the next Fair, but not to exhibit cattle.

Itemized bills of the following gentlemen were read and allowed:

A. S. Welch, bill at Des Moines	\$ 30.50
A. S. Welch, bills at Washington, D. C.....	132.25
C. W. Tenney	70.20
H. D. Noble.....	247.46
J. L. Geddes	4.15

O. H. P. Buchanan	53.95
G. F. Kilburn	15.00

Professor Geddes was appointed to act as President *pro tem.* during the necessary absence of the President.

MARCH 20, 1873.

It was ordered that Messrs. ———— claims against the College for gas-works be paid out of the Freight Drawback, or Contingent Fund, as soon as the work is finished, provided that it gives satisfaction.

The President was authorized to employ a Lecturer on Geology, and the sum of three hundred dollars was appropriated therefor.

ON THE DEATH OF HON. C. E. LEFFINGWELL.

WHEREAS, Under the dispensation of a wise Providence, death has called from our number an honored and respected member of the Board, the Hon. Charles E. Leffingwell, of Wheatland, Clinton County, who has occupied the position of Trustee from the Seventh District for the past five years; and,

WHEREAS, We desire to express our respect for the memory of our departed friend; therefore,

Resolved, That in the death of Mr. Leffingwell, the College has sustained the loss of an efficient officer; a constant and devoted friend; an adviser in its management of sound judgment; one who has labored faithfully from the first organization of the College Department to promote the welfare and the prosperity of the Institution, and constant in his attendance upon all of the meetings of the Board.

Resolved, That as members of the Board, we acknowledge the many obligations we were under to our departed brother, while we have been associated together; his kind and cheerful disposition, fraternal treatment at all times, good advice upon the important questions coming before us, and his earnest labor for the success of the College, which endeared him to us as a friend and counselor, and his death at this time we sincerely deplore.

Resolved, That we extend to the friends of the deceased our sympathy in their bereavement.

Resolved, That these resolutions be spread upon the minutes, and a

copy of the same be sent to the family of the deceased, and forwarded to the Farmer's Journal and Homestead for publication.

G. F. KILBURN,
C. W. TENNEY,
O. H. P. BUCHANAN,
Committee.

On motion, President Welch was elected a member of the Executive and Building Committee.

The following was adopted:

Resolved, That after hearing the verbal report of the action taken at Des Moines, (by the special committee) the amount therein stated of funds in the hands of S. E. Rankin, as Treasurer of the College, exclusive of nine hundred and seven dollars and sixty-seven cents, (907.67) interest, be taken as the true amount due the College from said Rankin, but that the Board, in accepting the securities taken by the committee, do not relinquish any rights and legal remedies against the said Rankin and his sureties.

On motion, it was

Resolved, That a sum not to exceed five hundred dollars, (\$500) be appropriated for the use of the Special Committee on Rankin defalcation.

Resolved, That all Professors and other annual employees of this Institution be required to perform all duties without extra pay, that the exigencies of the case may require, whether the same be in term time or vacation, unless by special contract in writing, the contrary be agreed upon. Adopted.

The whole matter relating to the building of the new barn was, by a vote, referred to the Executive and Building Committee.

H. D. Noble was appointed to represent the College in the National Agricultural Congress at Indianapolis.

SEPTEMBER MEETING.

SEPTEMBER 1, 1873.

Board met.

The credentials of Hon. Suel Foster received and the gentleman admitted to a seat in the Board.

H. D. Noble resigned his position as a member of Committee on Horticulture.

Snel Foster was elected member and Chairman of Committee on Horticulture.

On motion, it was

Resolved that the Board proceed at this time to make a full, complete and final settlement with J. L. Geddes, Cashier of this College.

H. D. Noble was chosen as a member *pro tem* of the Executive and Building Committee.

The itemized bill of J. A. Pierson, of \$34.25 for services on Executive and Building Committee was read and allowed, and ordered paid out of Interest Fund, by unanimous vote.

The itemized bills of O. H. P. Buchanan of \$54.40, and H. D. Noble of \$34.60 for expenses and *per diem* on special committee read and allowed, and ordered paid out of Contingent Fund, by unanimous vote.

On motion, there was appropriated out of Interest Fund, the sum of twelve dollars per month, during the present year, beginning March 1st, for the payment of a clerk in the President's office.

Ayes:—Bacon, Close, Foster, Heaton, Kilburn, Noble, Pierson, Tenney, Allen.

Nays:—None.

By unanimous vote the sum of ten dollars (\$10.00) was appropriated out of the Stock Sale account for payment of advertising in the *Aurora*.

The Committee on Mileage reported as follows:

No. of distr't.	Names.	Miles.	Amou't	Days.	Amou't	Total.
2	J. A. Pierson	600	\$ 30.00	6	\$ 36.00	60.00
4	Washington Allen	260	13.00	4	20.00	33.00
5	G. F. Kilburn	426	21.30	6	30.00	51.30
6	J. H. Bacon	420	21.00	6	30.00	51.00
7	Snel Foster	340	17.00	5	25.00	49.00
9	C. Close	320	16.00	5	25.00	41.00
10	H. D. Noble	640	32.00	6	30.00	62.00
11	I. J. Mitchell	32	1.60	9	10.00	11.60
12	C. W. Tenney	470	23.50	6	30.00	53.50
13	H. J. Heaton	460	23.00	6	30.00	53.00
	Total	3,968	\$198.40	52	\$260.00	458.40

On motion, the President and Secretary were authorized to sell or dispose of such animals, implements and products as in their judgment they may think proper.

SEPTEMBER 2d, 1873.

President Welch was elected Chairman of the Board.

Resolved, That the thanks of this Board of Trustees be extended to the officers of the Iowa State Agricultural Society for the complimentary tickets to the Iowa State Fair.

On motion, the following amounts, or so much thereof as is necessary, were appropriated to be paid out of such funds as can legally and lawfully be applied to the same:

Payment to be made on the order of the auditing committee under the most urgent necessity.

Members voting on the affirmative:

Bacon, Foster, Heaton, Kilburn, Mitchell, Noble, Pierson, Tenney, Welch and Allen.

Members voting on the negative. None.

Salaries at \$1,600 per month for three months	\$ 4,800.00
Contingent expenses for three months	1,000.00
Farm Department for three months at \$600	1,800.00
Board to pay for Students' labor	800.00
Fires and lights	1,000.00
Repairs	400.00
Work-shop, pay for workmen, etc.	400.00
Students' labor on sundry accounts	1,000.00
Chemical Laboratory	500.00
Amount required as set forth in Cashier's report to meet present liabilities	4,884.25

Total

\$16,384.25

Department of Pomology and Horticulture	\$ 50.00
Contingent Liabilities	100.00
Barn	300.00

The Finance Committee would respectfully report that they have examined the Cashier's books, vouchers and accounts, and find the same to be correct; and that the sum of \$318.63 cash, and \$33.67 in Union Bank, Chicago, is the balance on hand; and hereby direct said Cashier to turn all of said property, as shown by his report hereto attached, over to the Treasurer, and upon his so doing and taking his receipt therefor, the said Cashier together with his sureties upon his bond shall be fully exonerated from all liability thereon.

Adopted.

NOVEMBER MEETING.

NOVEMBER, 10, 1873.

Board met.

President Welch tendered his resignation as Chairman of the Board of Trustees, which was accepted, and O. H. P. Buchanan was chosen to fill the vacancy.

NOVEMBER 11, 1873.

Board met, and adjourned to attend the examination of classes.

NOVEMBER 12, 1873.

Board met.

President Welch tendered his resignation as President of the Iowa State Agricultural College and Farm, which was referred to the Committee on Faculty.

COMMUNICATION FROM THE FACULTY, RECOMMENDING CERTAIN STUDENTS
FOR GRADUATION.

To the Board of Trustees of Iowa State Agricultural College:

GENTLEMEN:—At the regular meeting of the Faculty, on the 27th of October, 1873, the following resolution was adopted by unanimous vote:

Resolved, That Edward Beard, Rowena Estelle Edson, George Rollins Flower, Wesley Green, George Harvey, David Alvin Kent, John Spencer Lee, Charles Benjamin Maben, Willis Orville Robinson, Milikan Stalker, Kate Krater, Sally Stalker, Harriet Ellen Raybourne, Allen May Hawkins, and William Filmore Marshall, be recommended to the Board of Trustees for graduation, as they have complied with the conditions of the law of the Faculty with regard thereto.

The above named students having complied with all the conditions referred to, are recommended to your honorable body for graduation.

C. E. BESSEY,

Secretary of Faculty.

A. S. WELCH,

President.

Mr. Beard, Miss Edson, Mr. Flower, Mr. Green, Mr. Harvey, Mr. Kent, Mr. Lee, Mr. Maben, Mr. Robinson, Mr. Stalker and Miss Stalker have finished their course of study in the department of Agriculture;

Miss Krater and Miss Raybourne have finished the course of study in the department of General Science for ladies.

Mr. Hawkins and Mr. Marshall have finished the course of study in the Department of Mechanics, including Civil Engineering.

IOWA STATE AGRICULTURAL COLLEGE, }
November 12, 1873. }

On motion, the hereinbefore named students were declared graduates of the Iowa State Agricultural College, and justly and honorably entitled to their diplomas.

The Board proceeded to reorganize, and elected O. H. P. Buchanan, Chairman.

On motion, the Standing Committees were elected as follows:

Executive and Building Committee.—Messrs. Close, Noble, and Pierson.

Committee on Faculty.—Messrs. Kilburn, Allen, and Mitchell.

Committee on Farm.—Messrs. Tenney, Allen, and Close.

Committee on Stock.—Messrs. Close, Tenney, and Noble.

Committee on Horticulture.—Messrs. Noble, Heaton, and Allen.

Committee on Finance.—Messrs. Bacon, Noble, and Tenney.

Visiting Committee.—Messrs. Tenney, Kilburn, and Close.

The reports of the heads of departments were received and referred to the various committees.

On motion, I. P. Roberts was elected Secretary of the Board for the ensuing year.

On motion, William D. Lucas was elected Treasurer of the College.

The Committee on Faculty referred the resignation of President Welch back to the Board.

On motion, the resignation of President Welch was accepted, to take effect December 10, 1873.

The resignation of I. P. Roberts, as Secretary of the Board, and Professor of Agriculture, was tendered, and, on motion, accepted, to take effect January 1, 1874.

The Finance Committee, to whom was referred the report of Mr. Bassett, Land Agent, would state that they have examined said report, and have compared it with the Treasurer's and Secretary's books, and find said amounts correct, and vouchers for the same filed in the Secretary's office.

All of which is respectfully submitted,

J. H. BACON,

Chairman Finance Committee.

BASSETT'S REPORT.

To the Board of Trustees of the Iowa Agricultural College:

The following report of the Land Department of the College for the years 1872-73, is hereby submitted for your consideration.

During the year 1872, interest has been collected and paid over to the Treasurer as follows:

Mar. 1.	First quarter ending Mar. 30 1872.....	\$ 9775.8
June 30.	Second quarter ending June 30, '72.....	6422.96
Sept. 30.	Third quarter ending Sept. 30, '72.....	10265.28
Dec. 31.	Fourth quarter ending Dec. 31, '72.....	7154.81
Mar. 30.	Paid Treasurer, voucher No. 33....	\$ 9775.87
June 30.	Paid Treasurer, voucher No. 34....	6452.96
Sept. 30.	Paid Treasurer, voucher No. 35....	10265.28
Dec. 31.	Paid Treasurer, voucher No. 36....	7155.81

Amt. collected and paid over in 1872 \$33649.92—33649.92

During the year 1873 interest has been collected and paid over to the Treasurer as follows:

Mar. 31.	First quarter ending Mar. 31, 1873.....	\$8248.68
June 30.	Second quarter ending June 30, '73.....	6060.48
Sept. 30.	Third quarter ending Sept. 30, '73.....	8991.11
Dec. 31.	Fourth quarter ending Dec. 31, '73.....	
Mar. 31.	Paid Treasurer, voucher Nos. 37, 38, 39..	\$8248.68
June 30.	Paid Treasurer, voucher Nos. 40, 41....	6060.48
Sept. 30.	Paid Treasurer, voucher No. 42.....	8991.11
Dec. 31.	Paid Treasurer, voucher No. 43.....	

The following Endowment Fund was collected and paid over during the years 1872 and 1873:

Mar. 31.	First quarter ending Mar. 31 1872.....	\$ 360.00
June 30.	Second quarter ending June 30, '72.....	1370.00
Sept. 30.	Third quarter ending Sept. 30, '72.....	792.00
Dec. 31.	Fourth quarter ending Dec. 31, '72.....	697.00
June 30.	Second quarter ending June 30, '73.....	720.00
Dec. 31.	Fourth quarter ending Dec. 31, '73.....	
Mar. 31.	Paid Treasurer, voucher No. 10.....	\$ 360.00
June 30.	Paid Treasurer, voucher No. 11.....	1370.00
Sept. 30.	Paid Treasurer, voucher No. 12.....	792.00
Dec. 31.	Paid Treasurer, voucher No. 13.....	697.00
July 1.	Paid Treasurer, voucher No. 14.....	720.00
Dec. 31.	Paid Treasurer, voucher No. 15.....	

There were at date of last Biennial Report forfeited

lands not disposed of.....	19547.01 acres.
No. of acres forfeited since last report.....	6809.31
	<hr/>
	26356.32
No. of acres leased since last Biennial Report.....	3591.15
Remaining undisposed of.....	22765.17

The case which at date of last Biennial Report was pending in the Supreme Court, involving the question of taxation of the College lands while held by lease has since been decided, the Court holding that lands so held are exempt from tax during the term of the lease.

During part of the present year at the request of the Board of Trustees, payments have been made to the Treasurer monthly.

Accompanying the report is a tabular statement of lands leased during the years of 1872 and 1873.

Reports of lands forfeited and duplicate statements of all interest and endowment funds received, have been regularly filed in the office of the Secretary. Also duplicate receipts of money paid to the Treasurer.

All of which is respectfully submitted,

GEO. W. BASSETT, *Agent*.

ABSTRACT OF SALES, IOWA AGRICULTURAL COLLEGE LANDS.

Number of Entry.	Part of Section.	Section.	Township.	Range.	Quantity.	Acres.	Price per 100ths.	Total value.	Name of Purchaser or Lessee.	Date of purchase or Lease.			Amount re-ceived.	Entrance Fee.
										Month.	Day.	Year.		
1458 ne qr	27	27	98	28	160.00	3.50	560.00	560.00	Heman F. Hesse.....	January	10	1872	44.80	14.00
1459 se qr	27	27	98	28	160.00	3.50	560.00	560.00	H. W. Chambers.....	January	10	1872	44.80	14.00
1460 nw qr	26	26	98	28	160.00	3.50	560.00	560.00	W. J. Barnsback.....	January	10	1872	44.80	14.00
1461 sw qr	26	26	98	28	160.00	3.50	560.00	560.00	Nancy J. Barnsback.....	January	10	1872	44.80	14.00
1462 ne qr	30	30	87	41	160.00	5.00	800.00	800.00	Thomas Faltershall.....	March	13	1872	64.00	14.00
1463 nw qr	30	30	87	41	131.32	5.00	656.60	656.60	John Love.....	March	13	1872	52.52	14.00
1464 sw qr	30	30	87	41	132.52	5.00	662.60	662.60	J. A. Carpenter.....	March	13	1872	53.52	14.00
1465 se qr	32	32	87	41	160.00	5.00	800.00	800.00	E. K. Carpenter.....	March	13	1872	64.00	14.00
1466 ne qr	10	10	86	42	160.00	5.00	800.00	800.00	E. N. Clark.....	March	13	1872	64.00	14.00
1467 ne qr	10	10	86	42	160.00	5.00	800.00	800.00	S. A. Clark.....	March	13	1872	64.00	14.00
1468 nw qr	10	10	86	42	160.00	5.00	800.00	800.00	G. A. Clark.....	March	13	1872	64.00	14.00
1469 sw qr	13	13	100	35	160.00	5.00	800.00	800.00	E. J. Clark.....	March	13	1872	64.00	14.00
1470 ne qr	31	31	93	33	160.00	4.00	640.00	640.00	Alexander Stillwell.....	May	8	1872	51.20	14.00
1471 se qr	32	32	93	33	160.00	5.00	800.00	800.00	W. H. Shea.....	May	13	1872	64.00	14.00
1472 se qr	28	28	94	36	160.00	5.00	800.00	800.00	Margaret White.....	May	21	1872	64.00	14.00
1473 nw qr	28	28	94	36	160.00	5.00	800.00	800.00	Lucius S. Pratt.....	May	23	1872	64.00	14.00
1474 se qr	28	28	94	36	160.00	5.00	800.00	800.00	Thomas Pickett.....	May	30	1872	64.00	14.00
1475 nw qr	28	28	94	36	112.39	4.00	449.56	449.56	C. A. Yarns.....	May	30	1872	35.96	14.00
1476 sw qr	28	28	90	33	160.00	5.50	880.00	880.00	J. M. Terry and S. M. Cole.....	June	15	1872	70.40	14.00
1477 ne qr	28	28	90	33	160.00	5.00	800.00	800.00	Christopher Reed.....	December	26	1872	64.00	14.00
1478 ne qr	28	28	93	36	160.00	7.00	1120.00	1120.00	Edgar W. Constock.....	January	7	1873	80.00	14.00
1479 ne qr	18	18	97	32	160.00	5.00	800.00	800.00	George B. McCarty.....	February	1	1873	64.00	14.00
1480 nw qr	18	18	90	33	174.92	5.00	874.60	874.60	Richard Hodts.....	July	5	1873	63.96	14.00
					3,391.15									

SALARIES.

The salaries of the Professors and employes of the College were fixed as follows:

President, \$3,500 per annum, with use of house.

Professor of Mathematics, Civil Engineering, and Architecture, \$1,600 per annum, with use of house.

Professor of Mechanics, \$1,600 per annum, with use of one-half of Anthony house.

Professor of Chemistry, \$1,600 per annum, with use of one-half of Anthony house.

Professor of Military Tactics and Engineering, and Steward, \$1,600 per annum, with \$200 additional, for house rent.

Professor of Botany and Horticulture, \$1,500 per annum.

Professor of English Literature, \$1,600 per annum.

Professor of Horticulture and Forestry, \$1,200 per annum.

Instructor in Physics, \$1,000 per annum.

Instructor in Mathematics, \$1,000 per annum.

Farm Superintendent and Instructor in Agriculture, \$800 per annum and board.

Matron, \$850 per annum.

Preceptress, \$850 per annum.

Assistant in Chemistry, \$500 per annum.

Matron of Farm House, \$200 per annum, and board.

On motion, the salary of I. P. Roberts was continued at the same rate as heretofore, viz: \$1,400 per annum, with board.

It was ordered that the future Superintendent of the Farm act as Secretary of the Board until the May meeting.

There was appropriated out of Interest Fund a sufficient amount to pay all salaries fixed by the Board, and it was ordered that the accounts be audited and paid monthly.

On motion, it was resolved that all professorships and offices connected with the Iowa Agricultural College be declared vacant, after the expiration of the time for which they were chosen, none to extend beyond the first of March, next.

On motion, the Board proceeded to fill vacancies; when the following persons were elected:

For President, A. S. Welch.

Professor of Mathematics, Civil Engineering and Architecture. —

Professor of Chemistry. —

Professor of Military Tactics and Engineering, J. L. Geddes.

Professor of Botany and Horticulture, C. E. Bessey.

Professor of English Literature, W. H. Wynn.

Professor of Mechanics, Alexander Thomson.

Professor of Horticulture and Forestry, P. H. McAfee.

Matron, Margaret P. McDonald.

Preceptress, Mary Lovelace.

Instructor in Physics, J. K. Macomber.

Instructor in Mathematics, E. W. Stanton.

Instructor in Agriculture and Superintendent of Farm, Millikan Stalker.

Assistant in Chemistry, J. S. Lee.

Librarian, Mary A. Palmer.

Assistant Librarian, Eva Paul.

Matron of Farm House. _____

The special committee on the Rankin defalcation made an itemized report of progress, which was accepted, and placed on file.

RESOLUTIONS RELATING TO THE RESIGNATION OF PROFESSOR ROBERTS.

WHEREAS, Professor Roberts, who has filled the office of Farm Superintendent and Secretary, for the last three and a half years, a portion of the time as Professor of Practical Agriculture, has resigned his position in this College, and is about to sever his connection with this Institution; therefore,

Resolved, That this Board has received the said resignation with deep regret, having found Professor Roberts to be an earnest, efficient, and faithful officer, and an enthusiast in his profession, and eminently qualified for the position he has filled in this Institution, and that our best wishes will go with him to his future fields of labor.

On motion, there was appropriated out of Drawback Freight, or Contingent fund, the sum of \$125, or so much thereof as may be necessary, to build a wood-house, and double windows on the east side of the President's house, such additions being necessary for the protection of the water-pipes, the erection of the same being referred to the Building Committee.

On motion, it was resolved to ask the Legislature for an appropriation of \$25,000 to finish the Physical Laboratory.

On motion, Miss Lovelace was allowed a credit to the amount of her laundry bill for the months of March and April, 1873, to be paid out of board account.

The Committee on mileage reported as follows:

No. of distr't.	Name.	Miles.	Amou't	Days.	Amou't	Total.
1	O. H. P. Buchanan	440	\$22.00	7	\$35.00	\$57.00
2	J. A. Pierson	600	30.00	8	40.00	70.00
4	Wm. Allen	260	13.00	4	20.00	33.00
5	G. F. Kilburn	536	26.80	8	40.00	66.80
6	J. H. Bacon	420	21.00	5	25.00	46.00
7	Suel Foster	340	17.00	5	25.00	42.00
9	C. Close	320	16.00	6	30.00	46.00
10	H. D. Noble	640	32.00	8	40.00	72.00
11	I. J. Mitchell	32	1.60	2	10.00	11.00
12	C. W. Tenney	470	23.50	6	30.00	53.50
13	H. J. Heaton	460	23.00	8	40.00	63.00

The Committee on Stock reported that they would recommend no change in the management and sale of stock from the policy heretofore pursued, and directed that not more than one-third of the sheep now on hand should be sold, the same to be culls of the flock.

On motion, the Secretary was directed to receive the President's report and place it on file and have it published in the Biennial Report.

The Executive and Building Committee report that they authorized the building of the new barn at their April meeting, and appointed Professor I. P. Roberts and G. W. Jones to superintend the construction of the same. The barn is completed, and is of size and capacity as follows: Seventy by fifty-four feet, and is in elevation twenty-four feet to top of plate, with a rise of twenty-one feet to the ridge, and a stone basement under all of nine feet. The basement is arranged for stabling forty-eight head of cattle with necessary breeding and calf pens, with a root cellar, estimated to hold four thousand bushels. Upon the principal floor is a drive-way sixteen feet wide, and the length of the barn, and upon either side thereof there are five rooms, each fourteen by nineteen feet; one is set apart as a herdman's room; one for farm implements; four for granaries, and four for breeding boxes. These several rooms are eight feet in height. Over these rooms, and a part of the drive-way, is space for one hundred and fifty tons of hay. Shoots have been erected for carrying the hay to the basement. The barn is built of well-seasoned pine lumber, and covered on the side with good stock boards and battened. It is roofed with the best of pine shingles and mounted with a cupola with slotted sides for ventilation. The wing designed for a wagon shed is sixty-two by twenty-four, with

twelve-foot posts built and covered like the barn, under which is a nine-foot stone basement containing a covered passage between the two barns, with four bull boxes. The whole is built and furnished in a good and workman-like manner at a cost without eve troughs or painting, of \$4,916.44. President A. S. Welch and Professor I. P. Roberts were appointed to accept the barn when finished, which duty they have performed. (See minute of building.)

Your Committee authorized the construction of a gravel road from Professor Thompson's, and a footpath to the Workshop and Laboratory under the direction of President A. S. Welch, which we find has not been done.

Your Committee, hearing of a disagreement of opinion between the State Treasurer, the Register of the Land Office and Mr. G. W. Bassett, the College Land Agent, in regard to the disposition of the money arising from the sale of College lands, we instructed G. W. Bassett to send all moneys arising from the sale of College lands to the State Treasurer; and whenever full payment for any land embraced under a single contract has been made, to notify the College Treasurer of such full payment in order that he may certify the same on the certificate of purchase according to law.

Your Committee authorized President A. S. Welch to obtain legal advice with regard to the prosecution of the Rankin bond, and to correspond with the Committee with reference to the action in the matter,

Signed,

J. A. PIERSON,

Chairman.

The Committee on Farm made report as follows, which was adopted:

To the Board of Trustees of the Iowa State Agricultural College and Farm:

We, the Committee on Farm, to whom was referred that portion of the report of Professor Roberts, relating to the Farm, would respectfully beg leave to report as follows:

We would recommend the improvements suggested, viz.: The continuation of the open ditch, the extra pens for breeding blooded pigs, tile drain, etc., be made so far as our Superintendent is able with the work at his command, and the State of our finances will permit.

That we regard the purchase of a new express wagon, painting the new barn, and making some improvements and repairs on the farmhouse, as among the most imperative wants of this department.

Your committee would take this opportunity to express their satisfaction of the very able management of Professor Roberts, the results showing a thorough knowledge and acquaintance with the work of his department, also of his arduous labors and untiring energy in his varied duties; for, in connection with the limited means at his command, and the difficulties encountered, we consider the Farm proper in a very fine condition.

Respectfully submitted,

C. W. TENNEY, *Chairman.*

On motion, resolved, that the Board convene on Tuesday, December 16, 1873, and that the Finance Committee be instructed to meet and settle with the Treasurer.

On motion, the President was requested to take charge of the publishing of the reports.

On motion, the Board adjourned.

I. P. ROBERTS, *Secretary.*

REPORT OF SPECIAL COMMITTEE ON RANKIN DEFALCATION.

The Special Committee on the Rankin defalcation from former report of date December 24, 1872, do report as follows:

The committee leased the furniture factory to S. E. Rankin for the term of four months as follows: For the first month fifteen dollars; second month, twenty-five dollars; and the two last months, ending June 27, 1873, the sum of eighty dollars; and at the expiration of the above lease, the committee released the same property for six months for sixty dollars per month.

We also took a full and complete inventory of the stock and materials on hand, for which see the same on the records of Polk County, Iowa.

The said Rankin was permitted to use any or all of the stock and material on hand at the inventory price. For the sale or return of said property and rents due, the said Rankin gave bonds. And upon the terms of the said lease we have received the following amounts:

March 12, 1873.	Cash on office desk.....	\$50.00
March 12, 1873.	Money order.....	10.50
March 12, 1873.	Recording lease.....	7.00
March 13, 1873.	Postage on lease.....	.31
March 31, 1873.	Cash.....	3.50

We held a public sale on Rankin's farm, near Des Moines, the 32d of October, 1873, as per notice by advertising and otherwise, at which the following property was sold to the following parties:

1 two-horse wagon, W. S. Case.....	\$ 22.00
1 double harness, L. G. Loughlin	4.50
1 stirring plow, H. McMerly	3.00
1 double harrow, John Scholes	8.00
1 plow, W. T. Case	2.00
1 single corn plow, H. McMerly	4.50
1 double corn plow, A. Scholes	7.00
1 double corn plow, W. McGuire	8.00
1 drill, Thos. Watts.....	37.50
1 corn-planter, M. Knadle.....	33.00
1 short-horn bull, "Duke of Virginia," W. W. Johnson....	205.00
1 reaper, A. Scholes.....	21.00
3 two-year old steers, at \$21, C. B. Terhune	63.75
4 two-year old steers, at \$23, C. B. Terhune	92.00
4 two-year old steers, at \$20.50, C. B. Terhune	82.00
5 two-year old steers, at \$15.00, C. B. Terhune	75.00
5 two-year old steers, at \$21.00, W. Maguire	105.00
3 two-year old steers, at \$15.00, C. J. Shackelford.....	46.50
3 two-year old steers, at \$14.50, D. A. Kent	43.50
6 two-year old heifers, at \$20.00, D. A. Kent	120.00
1 cow, W. S. Bennett	23.00
1 cow, D. A. Kent	27.00
1 two-year old white cow, J. Scholes	24.00
1 two-year old cow, D. A. Kent	20.00
1 white cow, A. R. Wilson	16.00
1 speckled heifer, D. A. Kent	12.00
1 speckled heifer, D. A. Kent.....	19.50
2 heifers, at \$20.50, A. R. Wilson.....	41.00
2 white heifers, at \$25, D. A. Kent.....	50.00
1 roan heifer, at \$18, A. R. Wilson	18.00
2 spotted and white heifers, at \$28, J. Zern	56.00
1 red heifer, J. R. Casebier	22.00
1 muley heifer, T. Watts	23.00
1 spotted heifer, S. J. Harris	23.00
1 light-colored cow, J. R. Casebier	24.00
2 calves, at \$14.50, John Shackelford.....	29.00

1 red calf, at \$11.50, W. S. Bennett	11.50
10 hogs, as \$5, S. G. Harris	50.00
47 pigs, at \$2, D. A. Kent	94.00
3 calves, at \$12.85, John Shackelford.....	38.75
1 white heifer, A. R. Wilson	16.50

Total sales.....\$1,619.50

1 bay mare, bought by College

74.00

The terms of the above sale were for all steers and all sums under ten dollars, cash. On all other sales, a credit of twelve months, at eight per cent. from date, or eight per cent. discount for cash.

On above sales there was cash received.....\$ 811.35

On above sales there were notes received

764.50

Discount for cash received on sales

43.65

Total

\$1,619.50

1873.

April 12. Cash	\$ 49.15
May 19. Cash.....	65.00
June 27. Cash.....	165.00
June 27. Cash.....	3.00
July 5. Cash.....	250.00

Total cash.....\$603.46

1873.

July 9. School order No. 18, Liberty Tp., Johnson Co.....	\$171.90
Aug. 20. School order No. 66, Colfax Tp., Dallas Co.....	74.65
Aug. 30. School order No. 8, Saylorsville, Polk Co	77.70
Aug. 30. School order No. 9, Saylorsville, Polk Co	77.75

Total orders.....\$401.40

CONTRA.

1873.

April 12. Amount draft on Chicago paid Ely.....	\$ 60.25
April 12. Exchange on same.....	.25
July 7. Draft on Chicago, Ely.....	117.40
July 7. Exchange on same.....	.30

Mar. 12.	Paid on recording lease.....	\$ 7.00
Mar. 12.	Postage on lease.....	.31
July 7.	Tax received, Hardin Co.....	12.09
July 7.	Tax on Union county lands.....	23.73
July 9.	Paid W. T. Cornell letter information on land.....	.50
Aug. 15.	Redemption of O'Brien Co. land.....	67.44
Aug. 15.	Tax on Washington county land.....	59.28
Aug. 15.	Exchange on Drafts.....	.50
Oct. 27.	Paid Treasurer Lyons Co. on land tax....	194.00
		<hr/> \$343.05

Paid on the above sales Oct. 24, 1873, J. O. Mahana auctioneer	\$24.00
Received of J. H. Bacon for 80 bushels of oats from Rankin farm in Washington county.....	20.00
Paid J. H. Bacon expenses for Rankin Committee.....	18.00
	<hr/> \$2.00
Cash balance.....	\$2.00

The balance of the crop raised on the Rankin farm in Washington county consists of about two hundred bushels of corn, and one or one and a half tons of hay, all of which is sold but not delivered. The corn at 25 cents a bushel, and the hay at \$5.00 per ton, part of which is prairie hay.

Stock estimated to have been used in the Rankin factory and not paid for up to October 27, 1873.....	\$607.26
Rents due but not paid.....	240.00
	<hr/> \$847.26

RECAPITULATION OF BALANCES.

Balance of cash on hand from factory.....	\$ 60.41
Total school orders on hands.....	401.40
Cash received from sale on farm (Des Moines balance).....	787.35
Notes.....	764.50
Balance cash from Washington county farm.....	200.00
	<hr/> \$2015.66

H. D. NOBLE,
O. H. P. BUCHANAN,
CICERO CLOSE,
Committee.

REPORT OF LAND AGENT, THOMAS J. STONE.

Paid at different times, and made report in full each time, and sent copy to Secretary.

Sept. 11, 1872, To Samuel E. Rankin, paid	\$2,567.67
Feb. 5, 1873, To J. F. Ely, paid	467.20
Aug. 25, 1873, To J. F. Ely, paid	1,466.87

Very Respectfully Yours,

THOMAS J. STONE,
Agent Agricultural College and Farm.

SIoux CITY, December 10, 1873.

The following is a statement of money received by Thomas J. Stone, Agent Iowa Agricultural College, at Sioux City, Iowa, interest on leases for lands leased by him and collected since August 25, 1873.

Parts of Sections.	Sec.	Tp.	R'nge.	Acres.	Names.	Am't.
N E $\frac{1}{4}$	24	93	36	160	Jas. Gilmore	32.00
N W $\frac{1}{4}$	24	93	36	160	Eliza Gilmore	32.00
S E $\frac{1}{4}$	18	99	47	160	Wm. G. Smith	25.60
S W $\frac{1}{4}$	17	99	47	160	Levi Patterson	25.60
S E $\frac{1}{4}$	2	99	38	160	Weaver & Marsh	25.60
S E $\frac{1}{4}$	24	99	45	160	J. S. Daniels	25.60
S W $\frac{1}{4}$	24	99	45	160	G. P. Morris	25.60
N E $\frac{1}{4}$	17	99	47	160	L. E. Darling	25.60
S E $\frac{1}{4}$	17	99	47	160	A. H. Moore	25.60
N E $\frac{1}{4}$	20	100	48	160	Edward Bernard	25.60
S W $\frac{1}{4}$	20	100	48	160	Eleanor Bernard	25.60
N W $\frac{1}{4}$	36	90	41	160	G. W. Jones	28.80
S E $\frac{1}{4}$	36	90	41	160	Wm. Menhennett	28.80
N E $\frac{1}{4}$	36	90	41	160	Mary J. Menhennett..	28.80
All	12	99	38	640	W. H. Fife	102.40
All	32	100	48	640	W. H. Fife	102.40
S W $\frac{1}{4}$	28	93	36	160	Nils Newberry	32.00

REPORT

OF THE

JOINT COMMITTEE

OF THE

FIFTEENTH GENERAL ASSEMBLY OF IOWA,

APPOINTED TO VISIT THE

STATE

AGRICULTURAL COLLEGE AND FARM.

DES MOINES:
R. F. CLARKSON, STATE PRINTER.
1874.

REPORT.

To the Fifteenth General Assembly:

The Joint Committee appointed to visit the State Agricultural College and Farm, have discharged that duty and have the honor to submit the following report :

Your Committee made careful examination of the buildings erected and improvements made with appropriations furnished by the Fourteenth General Assembly, and are of the opinion that the funds, so far as used, have been expended in a judicious manner. The report of the Trustees, Faculty, and Committees, being very full and carefully made, is already in your hands, and your Committee deem a reference to their report of more value than a detailed account by us.

It is well known that the time your Committee's visit was made, is not one in which the institution shows to best advantage, but from what your Committee has been able to learn, we are satisfied with the general workings and plan of the institution.

A careful examination of the stables, pens, and yards, satisfied the Committee that prudence and economy were used in feeding. Among the pure breeds of cattle we found Short-Horns, Ayshires, Devons, and Jerseys; also grades and common cattle. Of hogs, we found Poland China, Chester White, and Berkshire breeds. Of sheep, Cotswold, South Downs, and Merinos. The stock, of all kinds, looked well and showed that the proper care and attention was bestowed upon them.

Your Committee examined thoroughly the new barn erected the past year, and are of the opinion that the funds appropriated have been judiciously expended in its construction. For a complete description of said barn, your Committee would refer to the fifth biennial report of the Board of Trustees, pages 151 and 152.

In regard to the condition of the College building, your Committee find certain repairs absolutely needed to protect the property from dilapidation and destruction. Eleven of the furnaces in the basement of

said buidng are in an unsafe and dangerous condition. The hot air pipes are worn and rusted so that large apertures are found in several of them. The flues are burnt out, and the brick work about the furnaces in a dilapidated condition and about to fall down. The water closets need repairing; the eave-troughs and gutters are worn out so that the rain penetrates the building, causing great damage thereto. The plastering has fallen off from many rooms of the building, and the hall floors are worn out.

Your Committee would recommend that the sum of thirty-five hundred dollars (\$3,500) be appropriated for the following specific purposes, to wit:

For plastering	\$200.00
For repairing eleven furnaces, \$75 each.....	825.00
For piping for furnaces	150.00
For repairs to water-closets	150.00
For repairing eave-troughs.....	200.00
For furniture	1,012.00
For new flooring	500.00
For matting for halls.....	40.00
For carpets for rostrum and reception rooms.....	100.00

FOR FARM HOUSE.

Plastering.....	60.00
Carpeting	150.00
Bed-clothing	20.00
Dishes.....	40.00
Painting, etc.....	28.00
Tables and chairs.....	25.00

Total amount..... \$3,500.00

E. A. HOWLAND,
On part of the Senate.

C. C. PLATTER,
CHAS. J. ROGERS,
On part of the House.

REPORT

OF THE

Joint Committee

OF

INVESTIGATION

APPOINTED BY THE FIFTEENTH GENERAL ASSEMBLY
TO EXAMINE INTO THE AFFAIRS OF THE

IOWA STATE

Agricultural College and Farm.

EVIDENCE AND TRANSACTIONS OF THE COMMITTEE
COMPLETE, AS REPORTED BY C. A. MOSIER,
SHORT-HAND REPORTER FOR THE
COMMITTEE.

FEBRUARY, 1874.

DES MOINES:
E. P. CLARKSON, STATE PRINTER.
1874.