
L'ETOILE DU NORD
OMNIBUS
VINCULUM
ARTIBUS
COMMUNE
1868
THE UNIVERSITY OF MINNESOTA.

The Annual Catalogue, published at Commencement by authority of the Board of Regents, is a record of the membership and condition of the University for the University year, and also contains the courses of study and other announcements for the University year following.

The Catalogue will be sent gratuitously, postage paid, to all persons who apply for it.

THE UNIVERSITY OF MINNESOTA.

CATALOGUE

FOR THE YEAR

1890-91,

AND

ANNOUNCEMENT

FOR THE YEAR

1891-92.

BY THE UNIVERSITY.
MINNEAPOLIS,
1891.

ALMANAC--1891-92.

FIRST TERM.

SEPTEMBER	1, T.	Entrance Examinations, for the year 1891-92, begin.
	2, W.	" "
	3, T.	" "
	4, F.	" "
	5, S.	" " ..... 1 w.
	7, M.	Examinations end and Registration begins.
	8, T.	Registration completed and classes called at 10:45.
	9, W.	Library opens.
	12, S.	..... 2 w.
	14, M.	Literary Societies—7:30 p. m.
	19, S.	..... 3 w.
	26, S.	..... 4 w.
OCTOBER	3, S.	..... 5 w.
	4, S.	Hon. Gordon E. Cole died 1890.
	6, T.	Entrance Examinations at 9:00, a. m. (Medical Dept). Condition Examinations, 2 p. m. Opening Lecture of the Medical Department at 8:00 p m.
	7, W.	Medical Lectures begin.
	10, S.	..... 6 w.
	17, S.	..... 7 w.
	20, T.	School of Agriculture opens.
	24, S.	..... 8 w.
	31, S.	..... 9 w.
NOVEMBER	7, S.	.....10 w.
	14, S.	.....11 w.
	21, S.	.....12 w.
	23, M.	Term Examinations begin.
	24, T.	" " continued.
	25, W.	" " concluded.
	26, T.	THANKSGIVING DAY.
	27, F.	Examinations for conditioned students.
	28, S.	" " " " .....13 w.

SECOND TERM.

NOVEMBER	30, M.	Registration for second term.
DECEMBER	1, T.	" " " " ; classes called at 10:45.
	5, S.	..... 1 w.
	8, T.	Annual Meeting of the Board of Regents.
	12, S.	..... 2 w.
	18, F.	..... 3 w.
	19, S.	Holiday Recess begins.
	25, F.	CHRISTMAS DAY.

JANUARY	1, F.	NEW YEAR'S DAY.
	5, T.	Work Resumed in all departments.
	9, S.	..... 4 w.
	16, S.	..... 5 w.
	23, S.	..... 6 w.
	30, S.	..... 7 w.
FEBRUARY	6, S.	..... 8 w.
	13, S.	..... 9 w.
	18, T.	University Charter, 1868. Gen. Sibley died 1891.
	20, S.	.....10 w.
	22, M.	WASHINGTON'S BIRTHDAY.
	27, S.	.....11 w.
	29, M.	Term Examinations.
MARCH	1, T.	" "
	2, W.	" "
	3, T.	Examinations for conditioned students.
	4, F.	" " " "
	5, S.	" " " " .....12 w.

THIRD TERM.

MARCH	7, M.	Registration for third term.
	8, T.	" " " ; classes called at 10:45.
	12, S.	..... 1 w.
	19, S.	..... 2 w.
	26, S.	..... 3 w.
APRIL	2, S.	..... 4 w.
	8, F.	School of Agriculture closes.
	9, S.	..... 5 w.
	15, F.	GOOD FRIDAY.
	16, S.	Holiday. ..... 6 w.
	17, S.	EASTER SUNDAY.
	23, S.	..... 7 w.
	30, S.	..... 8 w.
MAY	7, S.	..... 9 w.
	14, S.	.....10 w.
	17, T.	Senior Examinations begin.
	18, W.	Examinations for promotion and degrees in the Medical Department begin.
	21, S.	.....11 w.
	24, T.	Senior examinations for degrees in the Law Department.
	25, W.	Library closes.
	26, T.	Term Examinations.
	27, F.	" "
	28, S.	" " .....12 w.

COMMENCEMENT WEEK, 1892.

SUNDAY,	MAY 29.	BACCALAUREATE SERVICE,	3:00 P. M.
MONDAY,	MAY 30.	FIELD DAY SPORTS,	2:00 P. M.
		ORATORICAL CONTEST,	8:00 P. M.
TUESDAY,	MAY 31.	SENIOR CLASS DAY EXERCISES,	2:00 P. M.
WEDNESDAY,	JUNE 1.	ALUMNI DAY—	
		Business Meeting,	10:00 A. M.
THURSDAY,	JUNE 2.	COMMENCEMENT DAY—	
		Graduating Exercises,	9:00 A. M.
		President's Reception,	8:00 P. M.
FRIDAY,	JUNE 3.	SUMMER VACATION BEGINS.	

The year 1892-93 will begin August 30, 1892.

BOARD OF REGENTS.

The HON. GREENLEAF CLARK, M. A., ST. PAUL, - - 1892.
The HON. CUSHMAN K. DAVIS, M. A., ST. PAUL, - - 1892.
The HON. KNUTE NELSON, ALEXANDRIA, - - - 1896.
The HON. JOHN S. PILLSBURY, MINNEAPOLIS, - - - 1896.
*The HON. HENRY H. SIBLEY, LL. D., ST. PAUL, - - 1897.
†The HON. GORDON E. COLE, LL. B., FARIBAULT, - - 1891.
The HON. OZORA P. STEARNS, DULUTH, - - - 1897.
The HON. WILLIAM LIGGETT, BENSON, - - - 1897.
The HON. STEPHEN MAHONEY, B. A., MINNEAPOLIS, - 1895.
The HON. S. M. EMERY, LAKE CITY, - - - 1895.
The HON. WILLIAM R. MERRIAM, ST. PAUL, - - *Ex-Officio.*
The Governor of the State.
The HON. DAVID L. KIEHLE, LL. D., ST. PAUL, - *Ex-Officio.*
The State Superintendent of Public Instruction.
CYRUS NORTHROP, LL. D., MINNEAPOLIS, - - - *Ex-Officio,*
The President of the University.

OFFICERS OF THE BOARD.

The HON. JOHN S. PILLSBURY, - - - *President.*
The HON. DAVID L. KIEHLE, - - *Recording Secretary.*
PRESIDENT CYRUS NORTHROP, - *Corresponding Secretary.*
H. P. BROWNE [Address care Commercial Bank], - *Treasurer.*

THE EXECUTIVE COMMITTEE.

The HON. JOHN S. PILLSBURY, *Chairman.*
The HON. DAVID L. KIEHLE.
CYRUS NORTHROP, *Clerk.*

*Died Feb. 18, 1891.
†Died October 4, 1890.

FACULTY AND INSTRUCTORS.

CYRUS NORTHROP, LL. D., President, 519 Tenth Avenue S. E.

WILLIAM W. FOLWELL, LL. D., 1020 Fifth Street S. E.
Professor of Political Science and Librarian; and Lecturer on International Law.

JABEZ BROOKS, D. D., 1708 Laurel Avenue.
Professor of the Greek Language and Literature.

NEWTON H. WINCHELL, M. A., 120 State Street S. E.
Professor of Geology and Mineralogy, in charge of the Geological Survey. Curator of the General Museum.

CHARLES N. HEWITT, M. D., Red Wing.
University Professor of Sanitary Science.

JOHN G. MOORE, B. A., 2850 University Avenue S. E.
Professor of the German Language and Literature.

CHRISTOPHER W. HALL, M. A., 803 Uuniversity Avenue S. E.
Professor of Geology, Mineralogy and Botany. Assistant Curator of the Museum.

JOHN C. HUTCHINSON, B. A., 3806 Blaisdell Avenue.
Associate Professor of Greek and Mathematics.

JOHN S. CLARK, B. A., 1523 University Avenue S. E.
Professor of the Latin Language and Literature.

MATILDA J. WILKIN, M. L., 622 Fifth Street S. E.
Assistant Professor of English and German.

JOHN F. DOWNEY, M. A., C. E., 9 Florence Court.
Professor of Mathematics and Astronomy.

WILLIAM A. PIKE, S. B., 2525 University Avenue S. E.
Dean of the College of Mechanic Arts and Professor of Engineering.

JAMES A. DODGE, Ph. D., 813 Fifth Street S. E.
Professor of Chemistry.

MARIA L. SANFORD, 1401 Sixth Street S. E.
Professor of Rhetoric and Elocution.

CHARLES W. BENTON, B. A., 1427 University Avenue S. E.
Professor of the French Language and Literature.

O. J. BREDA, 612 Fifteenth Avenue S. E.
Professor of the Scandinavian Languages and Literatures.

GEORGE EDWIN MACLEAN, Ph. D., 328 Tenth Avenue S. E.
Professor of the English Language and Literature.

CHARLES F. SIDENER, B. S., 1316 Fifth Street S. E.
Assistant Professor of Chemistry.

HENRY F. NACHTRIEB, B. S., 518 Twelfth Avenue S. E.
Professor of Animal Biology and Zoölogist of the Geological and Natural History Survey.

HARRY PRATT JUDSON, M. A., 316 Tenth Avenue S. E.
Professor of History and Lecturer on Pedagogy.

FREDERICK S. JONES, B. A., 520 Twelfth Avenue S. E.
Professor of Physics.

WILLIAM R. HOAG, C. E., 1516 Seventh Street S. E.
Professor of Civil Engineering.

JOHN H. BARR, M. M. E., 309 Seventeenth Avenue S. E.
Professor of Mechanical Engineering.

CONWAY MCMILLAN, M. A., 803 University Avenue S. E.
Assistant Professor of Botany and Botanist of the Geological and Natural History Survey.

HENRY T. ARDLEY, 1521 University Avenue S. E.
Principal of the School of Free Hand Drawing, Designing and Wood Carving.

WILLISTON S. HOUGH, Ph. M., Assistant Professor of Philosophy.	9 Florence Court.
HON. WILLIAM S. PATTEE, M. A., Dean of the Department of Law and Professor of the Law of Contracts.	Minneapolis.
FRANK B. KELLOGG, Lecturer on Equity Jurisprudence.	St. Paul.
CHARLES A. WILLARD, LL. B., Lecturer on the Law of Bailments,	Minneapolis.
JUDGE JAMES O. PIERCE. Lecturer on Constitutional and Statutory Law.	Minneapolis.
HON. C. D. O'BRIEN, Lecturer on Criminal Law and Procedure.	St. Paul.
CHARLES W. BUNN, LL. B., Lecturer on Suretyship and Mortgages, Practice in United States Courts.	St. Paul.
HON. GEORGE B. YOUNG, A. M., LL. B. Lecturer on the Conflict of Laws.	St. Paul.
PERRY H. MILLARD, M. D., Dean of the Department of Medicine and Surgery and Professor of the Principles of Surgery and Medical Jurisprudence.	St. Paul.
RICHARD O. BEARD, M D. Professor of Physiology.	Minneapolis.
C. J. BELL, A. B., Professor of Chemistry.	514 Tenth Street S.
H. M RRACKEN, M. D., L. R. C. S. E., Professor of Materia Medica and Therapeutics.	Minneapolis.
ALBERT E. SENKLER, M. D., Professor of Theory and Practice of Medicine.	St. Paul.
CHARLES H. HUNTER, A. M., M. D., Professor of Clinical Medicine.	Minneapolis.

EVERTON J. ABBOTT, A. B., M. D., St. Paul
Professor of Clinical Medicine.

CHARLES A. WHEATON, M. D., St. Paul.
Professor of Practical and Clinical Surgery.

FREDERICK A. DUNSMOOR, M. D., Minneapolis.
Professor of Clinical and Operative Surgery.

PARKS RICHIE, M D., St. Paul.
Professor of Obstetrics.

ALEX J. STONE, M. D., LL. D., St. Paul.
Professor of Diseases of Women.

JOHN F. FULTON, Ph. D., M. D., St. Paul.
Professor of Opthalmology, Otology and Hygiene.

FRANK ALLPORT, M. D., Minneapolis.
Clinical Professor of Opthalmology and Otology.

C. EUGENE RIGGS, A. M., M. D., St. Paul.
Professor of Nervous and Mental Diseases.

AMOS W. ABBOTT, M. D., Minneapolis.
Clinical Professor of Diseases of Women.

JAMES H. DUNN, M. D., Minneapolis.
Professor of Diseases of the Genito Urinary Organs.

CHARLES L. WELLS, A. M., M. D., Minneapolis.
Professor of Diseases of Children.

JAMES E. MOORE, M. D., Minneapolis.
Professor of Orthœpædic Surgery.

M. P. VANDERHORCK, M. D., Minneapolis.
Professor of Diseases of the Skin.

W. S. LATON, M. D., Minneapolis,
Professor of Diseases of the Throat and Nose.

J. CLARK STEWART, B. S., M. D., Minneapolis.
Professor of Histology, Pathology and Bacteriology.

J. W. BELL, M. D., Minneapolis.
Professor of Physical Diagnosis and Diseases of the Chest.

E. C. SPENCER, A. B., M. D., St. Paul.
Professor of Surgical Anatomy.

A. B. CATES, A. M., M. D., Minneapolis.
Adjunct Professor of Obstetrics.

A. MCLAREN, A. B., M. D., St. Paul.
Adjunct Professor of Gynecology.

W. A. JONES, M. D., Minneapolis.
Adjunct Professor of Nervous and Mental Diseases.

_____ Minneapolis.
Demonstrator of Anatomy.

WILLIAM E. LEONARD, A. B., M. D., Minneapolis.
Professor of Materia Medica and Therapeutics in the College of Homeopathy.

HENRY HUTCHINSON, M. D., St. Paul.
Professor of Theory and Practice of Medicine in the College of Homeopathy.

GEORGE E. RICKER, A. B., M. D., Minneapolis.
Professor of Clinical Medicine and Dermatology in the College of Homeopathy.

ROBT. D. MATCHAN, M. D., Minneapolis.
Professor of Principles and Practice of Surgery in the College of Homeopathy.

HENRY C. LEONARD, B. C. E., B. S., M. D., Minneapolis.
Professor of Obstetrics, in the College of Homeopathy.

ALBERT E. HIGBEE, M. D., Minneapolis.
Clinical Professor of Gynecology in the College of Homeopathy.

JOHN F. BEAUMONT, M. D., Miinneapolis.
Professor of Opthalmology in the College of Homeopathy.

HENRY W. BRAZIE, M. D., Minneapolis.
Professor of Pædology in the College of Homeopathy.

A. P. WILLIAMSON, M. D., Minneapolis.
Professor of Diseases of the Nervous System in the College of Homeopathy.

WARREN S. BRIGGS, B. S., M. D., St. Paul.
Professor of Clinical and Orthœpædic Surgery in the College of Homeopathy.

EUGENE L. MANN, A. M., M. D., St. Paul.
Professor of Physical Diagnosis and Laryngology in the College of Homeopathy.

B. HARVEY OGDEN, A. M., M. D., St. Paul.
Adjunct Professor of Gynecology and Professor of Genito Urinary Diseases in the College of Homeopathy.

HENRY C. ALDRICH, D. D. S., M. D., Minneapolis.
Adjunct Professor of Materia Medica and Therapeutics in the College of Homeopathy.

D. A. STRICKLER, M. D., Duluth.
Professor of Otology and Rhinology in the College of Homeopathy.

CHAS. M. BAILEY, D. M. D., Minneapolis.
Professor of Prosthetic Dentistry and Metallurgy in the College of Dentistry.

THOMAS C. WEEKS, D. D. S., Minneapolis.
Professor of Operative Dentistry and Dental Therapeutics.

EDWARD H. ANGLE, D. D. S., Minneapolis.
Professor of Histology, Comparative Anatomy and Orthodontia in the College of Dentistry.

ALBERT J. SCHUMACHER, 472 Hopkins Street, St. Paul.
Instructor in Mechanical Drawing.

EDWIN F. GLENN, U. S. A., 220 Nelson Avenue, St. Paul.
Professor of Military Science and Tactics.

SAMUEL B. GREEN, B. S., St. Anthony Park.
Horticulturist of the Experiment Station.

WILLET M. HAYES, B. S. A., St. Anthony Park.
Professor of Agriculture.

OTTO LUGGER, St. Anthony Park.
Entomologist and Botanist of the Experiment Station.

W. W. PENDERGAST, St. Anthony Park.
Principal of the School of Agriculture and Instructor in Physics, Physical Geography.

H. W. BREWSTER, A. B., St. Anthony Park.
Assistant Principal of the School of Agriculture and Instructor in Mathematics.

DAVID N. HARPER, Ph. B., Minneapolis.
Chemist of the Experiment Station.

OLOF SCHWARTZKOPFF, V. M. D., St. Anthony Park.
Professor of Veterinary Medicine. Veterinarian of the Experiment Station.

C. R. ALDRICH, Minneapolis.
Instructor in Drawing and Manual Training in the School of Agriculture.

ALBERT I. JONES, Minneapolis.
Instructor in Metal Working.

HARRY E. SMITH, M. E., Minneapolis.
Instructor in Mechanical Engineering and Wood Work.

GEORGE A. HENDRICKS, M. S., M. D., Minneapolis.
Professor of Anatomy.

SELDEN BACON, LL. B., Minneapolis.
Lecturer on Civil Procedure.

CHAS. B. ELLIOTT, Ph. D., Minneapolis.
Lecturer on Corporations and Insurance.

HON. RALPH WHELAN, LL. B., Minneapolis.
Lecturer on the Law of Torts.

HON. H. F. STEVENS — St. Paul.
Lecturer on the Law of Real Property.

T. DWIGHT MERWIN, A. B., — St. Paul.
Lecturer on Patent Law.

W. XAVIER SUDDUTH, A. M., M. D., D. D. S.,
Secretary of the College of Dentistry and Professor Embryology, Oral Surgery and Pathology.

CLINTON D. SMITH, B. S., — St. Anthony Park.
Director of the Experiment Station.

OSCAR W. OESTLUND, M. A., — 506 Oak Street Southeast.
Assistant in Animal Biology.

KENDRIC CHARLES BABCOCK, B. L., — Minneapolis.
Instructor in History and English.

JOSEPH BROWN PIKE, B. A., — Minneapolis.
Instructor in Latin and French.

E. EUGENE MCDERMOTT, M. S., — 1313 Fifth Street Southeast.
Instructor in Elocution.

ALONZO DRAPER MEEDS, B. S., — Minneapolis.
Instructor in Chemistry.

OSCAR FIRKINS, B. A., — 1530 Fourth Street Southeast.
Assistant in Rhetoric.

LOUISE MONTGOMERY, B. S., — Minneapolis.
Assistant in Rhetoric.

EDWARD P. BURCH, — Minneapolis.
Assistant in Physics.

AMELIA I. BURGESS, — Minneapolis.
Assistant in Freehand Drawing and Designing.

CLARENCE C. BURGER, B. S., — Minneapolis.
Assistant in Chemistry at Experiment Station.

EDMUND P. SHELDON, — Prospect Park.
Assistant in Botany.

WILLIAM ROBERTSON, B. S., St. Anthony Park.
Instructor in Physics and Language in the School of Agriculture.

J. A. VYE, St. Anthony Park.
Instructor in Penmanship and Accounts in the School School of Agriculture.

F. ALLEN, D. V. S., Seven Corners, St. Paul.
Lecturer on Veterinary Anatomy.

S. D. BRIMHALL, V. M. D., 2304 Emerson Avenue.
Lecturer on Veterinary Surgery and Materia Medica.

F. W. M. CUTCHEON, Minneapolis.
Lecturer on Partnership.

F. E. TWICHELL, D. M. D., Minneapolis.
Demonstrator of Prosthetic Dentistry.

JAMES PAIGE, LL. B., Minneapolis.
Quiz Master, Law Department.

OTHER OFFICERS.

E. B. JOHNSON, B. S., 720 Fifteenth Avenue Southeast.
Registrar.

D. W. SPRAGUE, 1116 Hawthorn Avenue.
Accountant.

LETTIE M. CRAFTS, B. L., 610 Fifth Street Southeast.
First Assistant Librarian.

INA FIRKINS, B. L., 1530 Fourth Street Southeast.
Second Assistant Librarian.

GRACE GILBERT, 316 Tenth Avenue Southeast.
Third Assistant Librarian.

WILLIAM H. YATTAW, Main Building.
Janitor in charge of all the University buildings.

STUDENTS.

ALPHABETICAL ROLL BY CLASSES, 1890-91.

I. GRADUATE STUDENTS, 44.

Ames, John McEwen,	B. S., '90, Johns Hopkins.
—Andrews, Hattie L.,	B. A., '90, University of Minnesota.
Babcock, Kendric Charles,	B. L,. '89, University of Minnesota.
Baker, Henry S.,	B. A., '69, Middlebury College.
—Benton, Mary Lathrop,	B. A., '85, University of Minnesota.
—Boardman, Harriet H.,	B. A., '88, Smith College.
Bracken, H. M.,	M. D., College of Pysicians and Surgeons, N. Y.
Bryant, Julien Clarence,	B. A., '78, University of Minnesota.
Childs, Joel N.,	B. A., '77, University of Minnesota.
Clark, Victor Selden,	B. L., '90, University of Minnesota.
Cook, John H.,	B. A., '78, Ohio Wesleyan.
—Countryman, Gratia Alta,	B. S., '89, University of Minnesota.
—Countryman, Lana M.,	B. A., '90, University of Minnesota.
Cross, Norton M.,	B. S., '87, University of Minnesota.
—Daniels, Lulu Celeste,	University of Wisconsin.
—Dunlap, Miss,	Hamline University.
Fox, Martin L.,	B. A., '87, Heidelberg College.
Gilman, Fred Hayward,	B. C. E., '90, University of Minn.
Hadden, (Rev.) Archibald,	B. D., '90, Yale.
Harnes, Jens Marten,	University of Christianna, Norway.
Herron, Clark T.,	Ph. B., '85, Hillsdale College.
Hoffman, M. L.,	B. A., '85, Indiana State University.
Hoyt, (Rev.) Wayland,	D. D.
—Hunt, Caroline L.,	Northwestern University.
Lhamon, (Rev.) W. J.,	M. A., '80, Butler University.
McClary, (Rev.) Thomas,	Minneapolis.
Mann, Eugene L.,	B. A., '83, Hobart College. M. D., '86, Hahnemann Med. College.
Meeds, Alonzo D.,	B. S., '89, University of Minnesota.
—Miner, Viola Fuller,	B. L., '77, University of Minnesota.
—Montgomery, Louise,	B. S., '90, University of Minnesota.
—Noyes, Mary C.,	M. A., '81, Iowa State University.

Pike, Joseph Brown,	B. A., '90, University of Minnesota.
—Porter, Anna A.,	B. S., '77, University of Wisconsin.
Rankin, Albert William,	B. A., '80, University of Minnesota.
Richardson, George Lynde,	B. A., '88, Williams College.
Robertson, William,	B. S., '85, Carleton College.
Schroeder, (Rev.) Edward,	'83, Nienburg College, Germany.
—Sewall, Margaret Louisa,	B. A., '89, University of Minnesota.
Shepherd, Fred S.,	B. A., Beloit College.
—Shepperd, Juniata,	B. A., '81, Drake University.
—Shillock, Anna,	B. L., '88, University of Minnesota.
—Thompson, Maude,	B. L., '89, University of Minnesota.
—Van Vleet, Jessie L.,	B. S., Wellesly College.
West, Max	B. S., '90, University of Minnesota.

II. UNDERGRADUATE STUDENTS.

COLLEGE OF SCIENCE, LITERATURE AND ARTS.

SENIORS, 55.

CLASSICAL, 17.

—Bestor, May,	Minneapolis.
Blethen, Alden, Joseph, Jr.,	Minneapolis.
Bray, Charles William,	Excelsior.
Browne, Squire Fred,	Galesburg, Mich.
—Frye, Nora,	Elk River.
Guthrie, Charles Elise	Minneapolis.
Hammond, Asa John,	Lake City.
Jackson, William Augustus,	Minneapolis.
Leach, Harlan Edward,	Spring Valley.
Merrill, John Ernest,	Minneapolis.
Morris, Henry Stephen,	Sisseton Agency, S. D.
Morris, William Beaumont,	Montclair, N. J.
Purdy, Milton Dwight,	White Hall, Ill.
Soares, Theodoro Geraldo,	Minneapolis.
Stout, Thompson Welliver,	Minneapolis.
Sweigle, Curtiss,	Ortonville.
Webster, Albert Martin,	Hamline.

SCIENTIFIC, 13.

Boyum, Sigurd Johnson,	DeLamere, N. D.
Chase, Charles Lincoln,	Hastings.
Dodge, Albert Arthur,	Farmington.
Gardiner, Edward Brown,	Minneapolis.
—Guthrie, Dora May,	Minneapolis.
Hanft, Frank,	Minneapolis.
Knappen, Theodore McFarlane,	Minneapolis.

Lommen, Christian Peterson,	Spring Grove.
—Montgomery, Frances,	St. Anthony Park.
—Morin, Margaret Belle,	Albert Lea.
Nickerson, Ernest Arthur,	Elk River.
Smith, George Arthur,	Brown's Valley.
Stacy, Albert Wallace,	Washburn.

LITERARY, 18.

—Ankeny, Martha Virginia,	Minneapolis.
—Bebb, Rose Ann,	Minneapolis.
—Chapman, Grace,	Minneapolis.
Chapple, Benjamin Philip,	Beldenville, Wis.
Church, Arthur Bliss,	Minneapolis.
Clark, George Archibald,	Minneapolis.
—Connor, Myrtle,	Minneapolis.
—Cross, Nellie Malura,	Minneapolis.
Dever, Charles S.,	Denver, Colorado.
Harmon, William Webb,	Sauk Center.
Jorgens, Joseph Oscar,	Grand Meadow.
—Kemp, Mary Emma,	Minneapolis.
—Martin, Lillie May,	Minneapolis.
Peirson, Homer Francis,	Grand Meadow.
Sardeson, Fred William,	Minneapolis.
Sias, Edgar Daniel	Pueblo, Col.
Stearns, Victor Alonzo,	Duluth.
Timberlake, Byron, Harvey,	Minneapolis.

CIVIL ENGINEERS, 4.

Carroll, James Edward,	Minneapolis.
Chowen, Walter Abram.	Chowen.
Douglass, Fred Luke,	Minneapolis.
Mann, Fred Maynard,	Minneapolis.

MECHANICAL, ENGINEER, 1.

Aslakson, Baxter Martin,	Willmar.

ELECTRICAL ENGINEERS, 2.

Huhn, George Philip,	Minneapolis.
Gerry, Martin Hugh,	Minneapolis.

JUNIORS, 85.

CLASSICAL, 25.

—Bailey, Clara Edith,	Minneapolis.
Bradford, James Everett,	Kedron.
Cates, Alton M.,	Minneapolis.
Clarke, Benjamin Franklin,	Rich Valley.
—Creswell, Dora D.,	Macalester Park.
Dewey, Rupert Carthalo,	Minneapolis.
Dittenhoefer, Frank Herman,	Minneapolis.

—Friedlander, Esther,	Minneapolis.
Graves, John Wesley,	Spokane Falls, Wash.
—Guthrie, Anna Loraine	Minneapolis.
Hannum, Harry Oliver,	Minneapolis.
Hult, Gottfrid Emanuel,	Scandia.
Keefer, George Lenfesty,	St. Paul.
Leary, William Connor,	Minneapolis.
Nelson, Andrew,	Otisville.
O'Brien, J. Edward,	Lake City.
Paquin, Samuel Savil,	Little Falls.
Pemberton, John,	South Park.
Randall, John Herman,	St. Paul.
Ranum, Arthur,	La Crosse, Wis.
—Rose, Hattie,	Hamline.
Selover, William Arthur,	Minneapolis.
Smith, Carlton Wilbert,	Howard.
—Stearns, Stella, Burger,	Duluth.
Walker, Edward David,	St. Paul.

SCIENTIFIC, 27.

Belden, George Kimball,	Minneapolis.
Berkey, Charles Peter,	Farmington.
Best, Rista Nimmons,	Minneapolis.
—Bradford, Mary Grace.	Empire City.
Cross, John Grosvenor,	Rochester.
Dickerson, Edward Martin,	Minneapolis.
Folin, Otto Knute Olof,	Stillwater.
Head, George Douglass,	Minneapolis.
Holtz, Fred Leopold,	Minneapolis.
Huntington, Elon O.,	Minneapolis.
Hurd, Bradford Coryelle,	Minneapolis.
Kenyon, Paul Emerson,	Fargo, N. D.
Kirk, Everett Buell,	St. Paul,
Krafft, Edwin James,	Minneapolis.
—Lucy, Sarah Bird,	Minneapolis.
Madigan, James Edward,	Maple Lake.
Phoenix, Edward Chauncey.	Cumberland, Wis.
Pierce, Lyman Love,	Stockton, N. Y.
Pillsbury, Alfred Fisk,	Minneapolis.
Rossman, Grant Beebee,	Warren.
Scherer, Robert Walter,	New Ulm.
Sikes, George Cushing,	Rugby, N. D.
Trussell, William Francis,	Minneapolis.
Tunell, George,	Albert Lea.
Walls, James Milton,	St. Paul.
Zeleny, Anthony,	Hutchinson.
Zeleny, John,	Hutchinson.

LITERARY, 20.

—Allen, Emma Frances,	Spring Valley.
—Ames, Effie Frances,	Minneapolis.
—Austin, Mabel Fletcher,	St. Paul.
—Baldwin, Clara Frances,	St. Paul.
Chapple, Charles Loran,	Beldenville, Wis.
—Cheney, Mary Moulton,	St. Anthony Park.
Covell, Arthur Eugene,	Minneapolis.
Elftman, Arthur Hugo,	Prescott, Wis.
Farmer, John Frederick,	Spring Valley.
Hale, Charles Sumner,	Minneapolis.
—Lougee, Mary Holley,	Minneapolis.
—Mathes, Elizabeth Helen,	Minneapolis.
—Palmer, Carrie Adaline,	Pontiac, Ill.
—Robinson, Louise Florence,	Minneapolis.
—Rexford, Minnie Agnes,	Minneapolis.
—Rose, Florence Julia,	Minneapolis.
—Sammis, Eveline Van W.,	Minneapolis.
—Sumbardo, Ava,	Hamline.
—Tombs, Helen Huntington,	Grafton, N. D.
—Wallin, Madeleine,	Fargo, N. D.

CIVIL ENGINEERS, 4.

Hankenson, John Jay,	Glencoe.
Higgins, Elvin Lydiard,	Hutchinson.
Ohnstad, John Christian,	Menomonie, Wis.
Williams, Edwin Robert,	Minneapolis.

MECHANICAL ENGINEER, 1.

Gill, James Herbert,	Cottage Grove.

ELECTRICAL ENGINEERS, 5.

Burch, Edward Parris,	Menomonie, Wis.
Burtis, William Henry,	Oshkosh, Wis.
Gibbs, Milton Traverse,	Rochester.
Gray, William Irving,	Lake City.
Howard, Monroe Sherman,	City Lake.

ARCHITECTS, 2.

Goodkind, Leo,	St. Paul.
Plowman, George Taylor,	Minneapolis.

MINING ENGINEER, 1.

Christianson, Peter,	Bath.

SOPHOMORES, 125.

CLASSICAL, 27.

Angus, William,	Garfield.
Bates, Frank A.,	Minneapolis.
Borncamp, John Edward,	Valley City, N. D.

Ferree, Charles Wesley,	Minneapolis.
Hartley, Heber Lindon,	Minneapolis.
Jenson, Nels,	Minneapolis.
Knudson, Albert Cornelius,	St. Paul.
Larson, Constant,	Alexandria.
Leavitt, Frank Wesley,	Minneapolis.
Lunke, Richard Olaus,	Minneapolis.
McWhorter, Lou Francis Noble,	Austin.
Massey, Freedom Chester,	Louisville.
Mayland, Andrew Unius,	Aspelund.
Merrill, George Plumer,	Minneapolis.
Northrop, Cyrus, Jr.,	Minneapolis.
—Northrop, Elizabeth,	Minneapolis.
—Peters, Elizabeth A.,	Minneapolis.
—Potter, Franc Murray,	Minneapolis.
Powell, John Walker,	Newport.
Pratt, Albert Fuller,	Anoka.
—Rhoades, Grace,	Minneapolis.
Sethre, John Olaf,	Carlisle.
Smith, Walter Olcott,	Detroit, Mich.
Stack, George Franklin,	Anoka.
Wallace, Thomas Freeman,	Minneapolis.
Whitman Clarence Leroy,	Owatonna.
Young, Charles Elon,	Minneapolis.

SCIENTIFIC, 38.

—Aitchison, Kate,	Fargo, N. D.
Bale, James C.,	Duluth.
Ballard, Caswell A.,	Zumbrota.
—Bassett, Mary Elizabeth,	Hastings.
—Berg, Anna Naphtalia,	Minneapolis.
Berseth, Andrew Mikkelson,	Colfax, N. D.
—Bonwell, Sadie L.,	Blue Earth City.
Carel, Hubert Charles,	St. Paul.
Davis, Walter S.,	Minneapolis.
Davis, Wallace H.,	Minneapolis.
—Fleming, Hattie Evelynn,	Minneapolis.
Folwell, Russell Heywood,	Minneapolis.
Frost, William Dodge,	Minneapolis.
—Gibbs, Gertrude,	Monticello.
Godfrey, Charles Irving,	Wabasha.
Grotte, Anthony,	Minneapolis.
Hahn, Roland Bruce,	Minneapolis.
Huntington Arthur Elon,	Luverne.
Huntington, George Lincoln,	Luverne.
Jackson, Robert Lyon,	Minneapolis.

—Kellogg, Clara N.,	St. Paul.
McElligott, Thomas James,	Glencoe.
Macauley, John W.,	Menomonie, Wis.
—Newman, Elizabeth Burwell,	Fargo, N. D.
Patterson, Eugene L.,	Mankato.
Poehler, Franklin Theodore,	Minneapolis.
—Robins, Edith A.,	Merriam Park.
Setnan, John Magnus,	Minneapolis.
Sheldon, Edmund Perry,	Minneapolis.
Sigvaldson, Sigurdur,	Minneota.
—Smith, Mary C.,	Algona, Iowa.
Start, Sampson S.,	Luverne.
Sylvester, Charles A.,	Madelia.
Taylor, Benjamin C.,	Minneapolis.
Triggs, Flloyd W.,	Minneapolis.
Wakefield, Harry B.,	Hutchinson.
—Walther, Louise Grace,	St. Paul.
Wollan, Carl Thomas,	Starbuck.

LITERARY, 34.

—Adams, Ada Edith,	Minneapolis.
Austen, James Frederick,	St. Paul.
Birdsall, Albert Thornton,	N. Y. City.
—Colgrove, Maude C.,	Minneapolis.
—Colter, Mabel Augusta,	St. Paul.
—Cooley, Martha May,	Minneapolis.
—Dresser, Helene Alice,	Minneapolis.
—Elwell, Jessie Helen Campbell,	Minneapolis.
—Firkins, Orra Estelle,	Minneapolis.
—Folsom, Mamie Louise,	Minneapolis.
—Frankenfield, Laura Elizabeth,	Glencoe.
Fridley, Don Phelps,	Becker.
—Fuller, Lillian,	Litchfield.
—Hansen, Oscar Lee,	Argyle, Wis.
—Hayes, Helen Lyon,	Minneapolis.
—Herzog, Ida May,	Chowen.
—Johnson, Lelia Pamelia,	Minneapolis.
—McCormick, Minnie Agnes,	Minneapolis.
—McCoy, Josephine,	Algona, Ia.
—McCoy, Louise,	Algona, Ia.
—McGregor, Jessie,	Minneapolis.
—McGregor, Saidee,	Minneapolis.
—McHenry, Beulah Richardson,	Fargo, N. D.
—Manson, Kathrina Emaline,	Minneapolis.
—Michelet, Maren Bastine H.,	Minneapolis.
—Perkins, Minnie Arabella,	Minneapolis.

Pryor, Leonard Henry,	Redwood Falls.
Salisbury, Percy Pritchard,	Minneapolis.
—Shaugnessy, Gertrude,	Minneapolis.
Spear, George Hancock,	Minneapolis.
—Welles, Isabelle Wenona,	Plainview.
White, Harry Edgar,	Clear Lake.
Wilson, Halsey William,	Minneapolis.
—Zimmerman, Una,	St. Paul.

CIVIL ENGINEERS, 8.

Anderson, Ole J.,	Nicollet.
Batchelder, Frank Leslie,	Stillwater.
Erf, John William,	Monroeville, O.
Gilman, James B.,	Minneapolis.
Hogeland, Justus M.,	St. Paul.
Hoyt, Hiram Patrick,	Minneapolis.
Spry, James Edwin,	Minneapolis.
Weeks, William Charles,	Minneapolis.

MECHANICAL ENGINEERS, 4.

Avery, Henry B.,	Minneapolis.
Dewey, William Henry,	Minneapolis.
Lackor, Harry Daniels,	Minneapolis.
Washburn, Orson Monroe,	Monticello.

ELECTRICAL ENGINEERS, 11.

Chadbourn, Rodney Whitney,	Minneapolis.
Chase, Arthur W.	Hastings.
Goodnow, Merton Stearnes,	Hutchinson.
Guthrie, John De Mott,	Minneapolis.
Iltis, Herman Mathias,	Chaska.
Morse, George Hart,	Minneapolis.
Pitman, John Richmond,	Ft. Snelling.
Reidhead, Frank Erven,	Camden Place.
Rockwell, Thomas A.	Oshkosh, Wis.
Springer, Frank Wesley,	Anoka.
Squires, Roy White,	Minneapolis.

ARCHITECTS, 2.

Bull, Alvah Milton,	Edina Mills.
Washburn, Delos Cuyler,	Otsego.

MINING ENGINEER, 1.

Wakeman, John VanHoesen,	Minneapolis.

FRESHMEN, 199.

CLASSICAL, 40.

Anderson, Frank Maloy,	Minneapolis.
Arnett, Trevor,	Ludlow, Eng.
Avery, Edward Strong,	Minneapolis.

Batchelder, John Davis,	Faribault.
Bradley, Edward Clarke,	Lee, Mass.
Crocker, Roland Douglas,	Minneapolis.
Day, Ernest Ellsworth,	Mazeppa.
Elwell, Talmadge Robert,	Minneapolis.
Erickson, Charles Alfred,	Alexandria.
Foote, Frederic Warner,	Red Wing.
Goldblum, Charles,	Minneapolis.
Goldblum, Hal Sol,	Minneapolis.
—Graham, Olive Belle,	Anoka.
Greene, Eugene Kibbey,	Brooklyn Centre.
Greenwood, Carl DeForris,	Garden City.
Hastings, Walter Henry,	Minneapolis.
Headley Lucius Ambrose,	Luverne.
Helliwell, Arthur Llewellyn,	Minneapolis.
—Hughes, Mabel Lucy,	Anoka.
—Kennison, Alice Maud,	Minneapolis.
Kiehle, Frederick Andrews,	Minneapolis.
Leach, Harris Eaton,	Spring Valley.
Litzenberg, Jennings Crawford,	Minneapolis.
Martin, Harrison Burke,	St. Paul.
May, Albert Edward,	Minneapolis.
Melvin, Fred James,	Mankato.
Miller, Charles Flagler,	Minneapolis.
Neff, Porter Joseph,	Bushnell, Ill.
Nickerson, Archie,	Tamworth, N. H.
Officer, Harvey, Jr.,	St. Paul.
—Pratt, Clare,	Minneapolis.
—Pratt, Roberta,	Minneapolis.
—Rhoades, Jessie Virginia,	Minneapolis.
Richardson, Harold James,	Rochester.
Steenson, James,	Eden Prairie.
VanderHorck, Conrad Zencius,	Minneapolis.
Wallace, William Havelock,	Drayton, N. D.
—Welles, Hattie Eliza,	Minneapolis.
—Wright, Blanche Almeda,	Minneapolis.
—Wright, Ella Theoline,	Rushford.

SCIENTIFIC, 69.

Anderson, Alexander Pierce,	Red Wing.
Andrews, Horace Sherman,	Minneapolis.
Barney, Frank Hadwen,	Minneapolis.
Barrows, Clarke,	Minneapolis.
Bauer, George Neander,	Minneapolis.
Beebe, Dan Goodwin,	Minneapolis.
Bisbee, Edgar Charles,	Madelia.

Bjelland, Adolph Odin,	Albert Lea.
Blake, Robert Pennel,	Lake Owasse.
Brace, Sears Elisha, Jr.,	St. Anthony Park.
Bray, George Eben,	Excelsior.
Brown, Charles Colgrove,	Minneapolis.
Burbank, David R.,	Duluth.
—Burgess, Georgie Annie,	Minneapolis.
—Burnham, Minnie Foster,	Racine, Wis.
Carter, Norton Ellis,	Delevan, Wis.
Carver, Walter M.,	Tracy.
—Clark, Grace Irma,	Brainerd.
Clark, Theodore,	St. Cloud.
Coe, William Tatnall,	Minneapolis.
Corbett, Frank,	Minneapolis.
Crecilius, John Augustus,	Milan, N. D.
Crockett, Seldon,	Moorhead.
Daniels, Jay.,	Minneapolis.
Dickey, Hugh Leavitt,	Marshall.
Eaton, James Clark,	Duluth.
Fuller, Lester Jed,	Minneapolis.
Gale, William Goddard,	Minneapolis.
Gedney, Edward Lee,	Minneapolis.
—Geggie, Iona A.,	Duluth.
Gilman, Walter David,	Rochester.
Glover, Harry Erastus,	Spencer, Iowa.
Harding, Everhart Percy,	Waseca.
Horner, Warren Murdock,	Albert Lea.
House, Henry Allen,	Albert Lea.
Howe, Harry Chapman,	Owatonna.
Hubbard, Jay,	Mankato.
Hultquist, Charles Constantine,	Schafer.
Johnson, Aaron Eugene,	Minneapolis.
—King, Jean Franks,	Washington, D. C.
Lord, Lewis Percy,	Owatonna.
—McDonald, Hope,	Minneapolis.
McDonald, John Flower,	Minneapolis.
—Macé, Blanche Alma,	Hastings.
Manson, Frank Melville,	Minneapolis.
Manuel, Malvern Hill,	St. Cloud.
Muir, William Cyrus,	Hunter, N. D.
Muir, Edwin Stanton,	Hunter, N. D.
Murfin, Arthur M.,	Sleepy Eye.
Pattee, Charles Sumner,	Minneapolis.
Paulson, Alfred Parker,	Waseca.
—Peterson, Jonina Rose,	Newark, S. D.
—Peterson, Johanna Thorunn,	Newark, S. D.

Pierce, George Alfred,	Anoka.
—Poe, Clara L.,	Cannon Falls.
Poehler, August,	Henderson.
Reed, Charles Anthony,	Hastings.
Rees, Soren Peterson,	Stillwater.
Sewall, Ralph Justin,	Minneapolis.
Shepherd, Reuben Spencer,	Dover.
—Sidwell, Martha Ann,	Minneapolis.
Strathern, Fred P.,	Rich Valley.
Sumner, Francis Bertody,	Minneapolis.
Thomas, John William,	Minneapolis.
Topping, Charles Henry,	Litchfield.
Turner, Arthur Lorenzo,	Faribault.
Walsh, Frank L.,	Long Lake.
Whitley, Frank Adams,	Brainerd.
—Williams, Linda,	Roscoe.

LITERARY, 57.

—Alee, Anne May,	Minneapolis.
Andrist, Charles Martin,	Roscoe.
Bagley, Horace E.,	Melbourne, Ia.
Barto, William Allen,	Sauk Centre.
—Bates, Lulu Marilla,	Hopkins.
—Beck, Lily Louise,	Minneapolis.
—Beebe, Inga,	Minneapolis.
—Bradford, Jessie Allen,	Minneapolis.
—Brooks, Grace Jeanette,	Minneapolis.
—Burnes, Clara Thornton,	Hopkins.
—Byrnes, Agnese Paula,	Minneapolis.
—Campbell, Mahala Pillsbury,	Minneapolis.
Case, James Almon,	Charles City, Ia.
—Case, Maud Mary,	St. Peter.
—Cole, Eugenia Louise,	Minneapolis.
—Craig, Marion Jeanie,	St. Paul.
Crossett, Herbert Horatio,	Faribault.
—Doughty, Mary E.,	Lake City.
—Everts, Katherine Jewell,	Prospect Park.
—Fall, Nellie Mae,	Lakeland.
—Farnsworth, Ethel Newcomb,	Minneapolis.
Fuller, Leslie George,	Minneapolis.
Gislason, Christian M.,	Minneota.
—Gjems, Lina Kate,	Willmar.
Gjerset, Knut,	Montevideo.
—Goodsill, Mary Isabel,	Hopkins, Mo.
Gröndahl, Jens Kristian,	Red Wing.
Henderson, Robert Benjamin,	St. Mary's, Ont.

Holasek, Frank Joseph,	Edina Mills.
—Huntoon, Ruth A.,	Minneapolis.
—Husted, Ida Louise,	Chippewa Falls, Wis.
—Jackson, Harriet,	Minneapolis.
—Johnson, Cora Louise,	Elmore.
—Kimball, Ruth,	St. Paul.
LeCrone, John William,	Faribault.
—Mason, Rachel Crawford,	St. Paul.
Metcalf, Wilbert Cecil,	Paullina, Ia.
—Morse, Minnie Frances,	Minneapolis.
—Pabodie, Alice Clarissa,	Baraboo, Wis.
—Pearce, Mary Emma,	St. Paul.
—Phillips, Mary Mc,	Minneapolis.
Poehler, Henry Charles,	Henderson.
Poehler, Walter Charles,	Minneapolis.
—Richards, Clara Viola,	Sauk Centre.
—Rosger, Mildred Frances,	Atchison, Kan.
—Sanders, Grace Gertrude,	St. Paul.
—Selden, Kate Forbes,	Minneapolis.
Silberstein, Edward Albert,	Duluth.
Simonton, William Adair,	Sauk Centre.
Smith, William Austin,	St. Paul.
—Steele, Mary Gertrude,	Minneapolis.
—Sterrett, Lillian Josepha,	Lake City.
—Stone, Judson Floyd,	Minneapolis.
—Thornton, Amanda Loella,	Minneapolis.
Ward, Roscoe Percy,	Waseca.
—Welles, Maude A.,	Plainview.
—Wemott, Alice Augusta,	St. Paul.

CIVIL ENGINEERS, 14.

Abernethy, William Shattuck	Minneapolis.
Cunningham, Andrew Oswold,	Walhalla, N. D.
Crampton, Howard Alvah,	Mantorville.
Fiske, Wilber Canfield,	Minneapolis.
Geggie, James Carlos,	Duluth.
Green, Frank Evard,	Bernadotte.
Gutterson, Frank Alden,	Owatonna.
Johnson, Noah,	Litchfield.
Moffett, James Burch, Jr.,	Minneapolis.
McIntyre, Frank,	Manannah.
Manchester, Bertram,	Lansing.
Pratt, Edward Electus.	Minneapolis.
Townsend, Wilber,	Albia, Ia.
Wentworth, Romeyn Wallace,	Minneapolis.

MECHANICAL ENGINEERS, 2.

Cramb, Rosco Leland,	St. Cloud.
Edwards, George Howard,	Menomonie, Wis.

ELECTRICAL ENGINEERS, 11.

Ashton, Edwin Roland,	St. Paul.
Carswell, Robert Edward,	Minneapolis.
Chalmers, Charles Henry,	Lake City.
Clark, Frank Henry,	Minneapolis.
Fuller, Frank Coe,	Minneapolis.
Melvin, Sidney,	Lowell, Mass.
Munro, James Noble,	Thielmanton.
Schlegell, Frederick von,	Minneapolis.
Smith, Edward Everett,	East Corinth, Me.
Will, Gustave Adolphus,	Minneapolis.
Wright, Ernest Avery,	Minneapolis.

MINING ENGINEER,

Cutler, Harry Cleveland,	Red Wing.

AGRICULTURE, 5.

Hoverstad, Torger Anderson,	Holden.
LeVesconte, John,	Hastings.
Pfaender, Herman,	New Ulm.
Thompson, John,	Cottage Grove.
Wise, Charles.	Lake City.

SPECIALS, 134.

—Armstrong, Nellie Edna,	Minneapolis.
—Barker, Alta Marilla,	Rock Creek, O.
—Bartleson, Mabel,	Minneapolis.
—Blaisdell, Abbie Jean,	Minneapolis.
—Bolton, Gracilia E.,	Minneapolis.
Borgholthaus, Fred Hope,	Minneapolis.
Braanaae, Anton Paul,	Starbuck.
Bradbury, Frederick George,	St. Paul.
—Bracken, Mrs. Dr.,	Minneapolis.
—Brewer, Jeanette Jenkins,	Minneapolis.
Campbell, Robert Allen,	Alexandria.
—Charnley, Ida F.,	Minneapolis.
Cirkel, Theodore James,	Minneapolis.
Clark, Hopewell,	St. Paul.
—Cohen, Mrs.,	Minneapolis.
Connable, Alfred Beethoven,	Petoskey, Mich.
Connable, Walter Maxwell,	Petoskey, Mich.
Couper, George Brown,	Northfield.
Cowing, Charles Frank,	Alexandria.
Cowles, William H.,	Minneapolis.

—Decker, Maude M.,	Kasson.
—Dennison, Lottie May,	Minneapolis.
—DeLano, Alma Harris,	Northfield.
Drake, William Thomas,	Minneapolis.
Drew, Arthur Thomas,	Marshall.
—Drought, Mabel Henrietta,	Kellogg, Idaho.
—Eaton, Zaidee,	Minneapolis.
Elliott, Paul Monroe,	Minneapolis.
—Everts, Mary,	Minneapolis.
Farrington, Burton Duane,	Chatfield.
Fenton, Morris Clark,	Minneapolis.
—Fisher, Alberta,	Minneapolis.
Gilstad, Lewis,	Minneapolis.
Glasby, Robert LeRoy,	Minneapolis.
Gray, Vance Isaac,	Lake City.
—Guptil, Ella L.,	Port Angelus, Wash.
—Hale, Helen Virginia,	Minneapolis.
—Hart, Mrs. Abbie J.,	Fall River Mass.
Hatch, Henry Edwin,	Lake City.
Havdal, Martin,	Emmet, S. D.
—Hawley, Elizabeth McK.,	Minneapolis.
—Hawley, Mary Everett,	Minneapolis.
—Hayes, Mary Lyon,	Minneapolis.
Hegge, Oluf H.,	Minneapolis.
Hegge, Ole Ch.,	Minneapolis.
—Holman, Lennora A.,	Minneapolis.
Hoveland, Henry Bert,	Zumbrota.
—Hooker, Nora Louise,	Minneapolis.
—Hoyt, Frances Grace,	St. Paul.
Hutchings, Josiah Blake,	Minneapolis.
—Hutchins, Gabrielle,	Minneapolis.
Johnson, John F.,	St. Paul.
—Jones, Katherine Dumars,	Minneapolis.
—Jones, Elizabeth Ann,	Rockland.
—Keith, Mabel,	Minneapolis.
—Kernan, Maria,	Minneapolis.
Kirwin, Peter Joseph,	Greenleafton.
Kittredge, Frank Hosea,	Minneapolis.
Lang, James Sherburn,	Newbury, Vt.
Laughlin, Herbert Servetus,	Fairmont, Mo.
Laughlin, Jesse Emerson,	Fairmont, Mo.
—Leach, Lucy Wood,	Minneapolis.
—Leavitt, Emma M.,	Minneapolis.
Lewis, Robert Plummer,	St. Paul.
—Livingstone, Katharine, A.,	LaCrosse, Wis.
Lobeck, John Engebretson,	Farwell.

Long, Louis Landers,	Minneapolis.
—Macdonald, Lillian Etta,	Minneapolis.
—MacGregor, Celeste,	Palatka, Fla.
McLean, Hugh Hodge,	Rockford,
McNair, Albert Duy,	Danville, N. Y.
McNamara, Herbert Holmes,	Tower.
Matson, David Ludwell,	Minneapolis.
Matteson, Roy Grow,	Decorah, Iowa.
Medley, Eugene,	Ithica, Mich.
Merrill, George Ernest,	St. Paul.
Mills, Frank Junius,	Minneapolis.
Murphy, John Henry, Jr.,	St. Paul.
Olson, Martin Luther,	Dalton.
O'Neill, Michael,	Minneapolis.
Parker, William,	Menomonie, Wis.
—Parry, Anne Lois,	Mankato.
—Pearson, Adelaide,	Howard Lake.
—Philbrick, Amanda,	Minneapolis.
Pitts, Thomas,	Minneapolis.
—Pierce, Mettie,	St. Paul.
—Raberge, Fannie Lillian,	Minneapolis.
—Rand, Nellie Bachelder,	Minneapolis.
—Rhoades, Mary Eliza,	Minneapolis.
—Roby, Mabel Augusta,	Minneapolis.
—Rose, Virginia Dodge,	Farmington, Ill.
Ross, Robert,	Kansas City, Mo.
—Sanborn, Maude Rena,	Minneapolis.
Schneider, Albert,	Fairbury, Ill.
Scofield, Edward H.,	Zumbrota.
Shelley, Lafayette Helmer,	Minneapolis.
Shepperd, John Henry,	Chariton, Ia.
Sherwood, George Edward,	St. Paul.
—Sherwood, Sanie Pauline,	Minneapolis.
—Shuey, Elizabeth Mahew,	Minneapolis.
—Shuey, Fanny Damon,	Minneapolis.
—Sinsheimer, Estelle,	Minneapolis.
Sletten, Peter R.,	Willmar.
Smith, E. Fay,	St. Paul.
—Smith, Jessie Paine,	Algona, Ia.
—Sommermeyer, Louise W.,	Minneapolis.
—Somermeier, Anna,	St. Paul.
Soper, John,	London, Eng.
—Soule, Winnifred,	St. Paul.
—Spaulding, Susie May,	Minneapolis.
—Spaulding, Maie,	Minneapolis.
—Stephan, Emma,	Minneapolis.

—Stewart, Carrie Evelyne,	Northfield.
—Sutherland, Mrs. E. A.,	Minneapolis.
—Sylvester, Mabel Clare,	Madelia.
Taylor, Edward Wesley,	Alexandria.
—Taylor, Mary Harlan,	Minneapolis.
—Teel, Alice Reece,	Minneapolis.
—Tew, Estella,	Rushford.
—Thompson, Julia Keys,	Glendale, O.
—Thompson, Margaret,	Minneapolis.
—Truesdell, Florence M.,	Minneapolis.
—Turnbull, Minnie Almirah,	Minneapolis.
—Upham, Elsie Calkins,	Marshfield, Wis.
—VanHorn, Lulu Stiles,	Faribault.
—Walker, Harriett E.,	Minneapolis.
Wattis, Warren Lafayette,	St. Paul.
—White, Mrs. Martha Birdora,	Minneapolis.
Wilkinson, Charles Dean,	Minneapolis.
—Wilkinson, Sarah Hannah,	Minneapolis.
—Wilson, Bertha Lee,	Minneapolis.
—Williams, Clara,	Minneapolis.
—Winslow, Gertrude Blanche,	Minneapolis.
York, James,	Minneapolis.

DEPARTMENT OF LAW, 176.

SENIORS, 59.

Bauman, Edward Charles,	Duluth.
Bentley, Lester Howard,	Minneapolis.
Bestor, George Wilbur,	Minneapolis.
Bidderman, James Abram,	Minneapolis.
Bodge, Lincoln John,	Minneapolis.
Bookwalter, Sumner,	Minneapolis.
Brown, William Compton,	Rochester.
Brower, Ripley Bernard,	Minneapolis.
Carey, William Harrison,	Duluth.
Carlton, Linwood Christopher,	Minneapolis.
Carr, Greely E.,	Argyle.
Casey, John Martin,	Waverly.
Davidson, Martin Bradner,	Austin.
Denégre, James D.,	St. Paul.
Dickerman, Gilbert Greene,	St. Paul.
Doerfler, Joseph, Jr.,	Minneapolis.
Ferodowill, Frank Xavier,	St. Paul.
Fiske, Douglas Andrews,	Minneapolis.
Fleming, John Bernard,	St. Paul.
Galbraith, John Patrick,	St. Paul.
Gearhart, Harry Gilbert,	Duluth.

Glenn, Edwin Forbes, (Lieutenant)	St. Paul.
Godfrey, Eugene Harland,	Minneapolis.
Goodsell, Charles Ernest,	Minneapolis.
Gould, Charles Devereaux,	Minneapolis.
Gray, James Edwin,	Lake City.
Gregerson, Lawrence,	Geneva.
Hamblin, Charles Nathaniel,	Minneapolis.
Harden, George William Wallace,	LeRoy.
Higgins, Arthur Minot,	Minneapolis.
Hopp, John W.,	Preston.
Hunt, Alva,	Montevideo.
Ingwaldson, Bjarne Eric,	Buxton, N. D.
Krause, William Augustus,	Paynesville.
Lindsay, John,	Minneapolis.
Lindsey, Frederick Francis,	Minneapolis.
Markham, George Wilber,	St. Paul.
Mayer, William Judson,	Mananannah.
Megaarden, Theodore,	Minneapolis.
Moore, Albert Randell,	St. Paul.
Ofsthum, Andrew Olson,	Glenwood.
Palmer, Monroe Horace,	Minneapolis.
Pettibone, Orrin Harmon,	Minneapolis.
Pilgram, Wi liam Henry Harrison,	Minneapoiis.
Remmen, Martin E.,	Holden.
Robinson, Horace Randall,	Minneapolis.
Ross, Edward Wesley,	Minneapolis.
Selover, George Howard,	Minneapolis.
Smith, Fred Pearson,	Le Sueur.
Snell, William,	Minneapolis.
Stone, John Sheppard,	St. Paul.
Thompkins, Thomas Snowden,	St. Paul.
Thompson, Ralph Defrees,	St. Paul.
Vaule, Ole John,	Osakis.
Walgren, John Arvid,	Minneapolis.
Ware, Francis Lincoln,	Minneapolis.
Wheeler, Thomas Joseph,	St. Paul.
Wyvell, Henry George,	Breckenridge.
Young, George Ellsworth,	Minneapolis.

JUNIORS, 117.

Barrett, Orin Eugene,	Hamline.
Barton, Frederick William,	Wayzata.
Beardsley, Stillson Josiah,	Minneapolis.
Bebb, William Bennett,	Minneapolis.
Benson, Ch arles Stuart,	Anoka.
Benton, Andrew Arthur,	Madelia.

Best, E. N.,	Minneapolis.
*Boyum, Sigurd Johnson,	De Lamere, Dak.
Boughton, Charles Edward,	Osage.
Brightbill, Edwin F.,	Minneapolis.
Brohough, Gustav O.	Red Wing.
Brown, Walter Reynolds,	Minneapolis.
Brown, John,	Minneapolis.
Campbell, John Davis Burdick,	Hinckley.
Campbell, William Francis,	Richwood.
Cheney, Zina Revillo,	Madelia.
Conlin Henry,	St. Paul.
Cooley, Cayton Raretus,	Minneapolis.
†Cooper Anthony P.,	Madison.
Cutler, Will Clarence,	Minneapolis.
Dahl, John A.,	Minneapolis.
Dahl, John Frithiof,	Minneapolis.
Detwiller, John Edward,	Austin.
Drowley, William Gilbert,	Caledonia.
Dullam, George Francis.	Minneapolis.
Eddy, George Sandford,	Willmar.
Erickson, Charles John,	Minneapolis.
Fleming, Calvin Albert,	Lake Crystal.
Fowler, Charles Rollin,	Minneapolis.
Fryberger, Harrison Earl,	Minneapolis.
Gallagher, Robert,	Minneapolis.
Garnes, Botolf Hans,	Mabel.
Giddings, Arthur Eugene.	Anoka.
Gjerset, Oluf,	Montevideo.
Godfrey, Percy Downing,	St. Paul.
Gregory, George,	Minneapolis.
Gruenberg, John,	Minneepolis.
Hammon, Louis Linge,	Minneapolis.
Handlan, Joseph Henry,	Wheeling, W. V.
Harper, Benjamin Franklin,	Minneapolis.
Harris, John Addison,	Kent.
Hawley, Edward Wells,	Minneapolis.
Hedwall, Charles Julius,	Minneapolis.
Helm, James Lawrence,	St. Paul.
Hendricks, John Albert	Sacred Heart.
Henry, William John Cowan	St. Paul.
Hermann, Arthur,	Minneapolis.
Hillman, William Oren,	Merriam Park.
Himle, Andrew Lewis,	Madison.
Hintermeister, John Henry,	St. Paul.
Hobbs, Fred Ezra,	Minneapolis.
Holden, William Harold,	Kearney, Neb.

Holmes, Alfred J.,	Minneapolis.
Hopkins, Frank,	White Bear.
Hutson, Frank Alfred,	St. Paul.
Hvoslef, John George,	Minneapolis.
Ingraham, Alexander,	Lake City.
Iverson, Samuel G.,	St. Paul.
Jackson, Joseph Ansgar	Minneapolis.
Johnson Stephen Adolph,	Austin.
Kelly, John Deminicus,	Madison.
Kenyon, Moses Dibber,	St. Paul.
Kinney, Edmond B.,	Minneapolis.
Law, George Alexander	Northfield.
Lord, Remember L. H.	Hamline.
Ludemann, Fred William,	Ludemann.
Lum, Burt Frank,	Minneapolis.
Lydiard, Livingston,	Minneapolis.
McGregor, Lane,	Minneapolis.
McLean, John Francis,	Graceville.
McMillan, Elvero Lewis,	Minneapolis.
Matteson, Charles Dickeman,	St. Paul.
—Matteson, Flora E.,	Minneapolis
Maurin, Peter P.,	Cold Springs.
Megaarden, Philip Tollef,	Minneapolis.
Merrihew, Frank,	St. Paul.
Michelet, Simon Tenstrup,	Minneapolis.
Miley, Martin Edward	St. Paul.
Moffett, Charles Thomas,	Minneapolis.
Mohler, Arthur Henry,	Redwood Falls.
Moore, Harry,	Minneapolis.
—Morton, Nora L.,	Minneapolis.
Mortonson, Hans Morton,	Lake Park.
Mosness, Leonard J.,	Minneapoiis.
Murphy, Charles Joseph,	Minneapolis.
Nantz, Frank Pleasant,	Minneapolis.
Nilson, Thorwald Eid,	Minneapolis.
Oakes, George,	New Richmond.
Parry, Charles Mordecai,	Minneapolis.
Peterson, Henry,	St. Paul Park.
—Powers, Flora E.,	St. Paul.
*Purdy, Milton Dwight,	Minneapolis.
Putnam, Soreno Newton,	Maine.
Reifsnider, Volney G.,	Oronoco.
Rheutan, William Edwin,	Winona.
Richardson, Herbert Gilman,	Minneapolis.
Rogers, Arthur R.,	Minneapolis.
Shaw, Albert Woodward,	Minneapolis.

Shaw, Charles David,	Minneapolis.
Sölsness, Lars,	Minneapolis.
*Stearns, Victor Alonzo	Duluth.
Stone, Arthur William,	Minneapolis.
Sutherland, Egbert John,	Chatfield.
*Sweigle, Curtiss,	Ortonville.
Swenson, Peter Grinde	Minneapolis.
Taylor, Carl,	St. Paul.
Taylor, Ora Amsden,	Minneapolis.
Thompson, Charles,	Minneapolis.
Teigen, Ole	Lowry.
Trowbridge, Harry H.,	St. Paul.
VanFleet, Charles Jacob,	St. Paul.
Wangness, John S.,	Minneapolis.
Watrous, Martin Wright,	Duluth.
Webb, Robert W.,	Minneapolis.
Webber, Clarence Albert.	Minneapolis.
Wilson, Ole Knute	Gilchrist.
Wood, Albert B.,	St. Paul.

COLLEGE OF MEDICINE AND SURGERY, 124.

FRESHMEN, 62.

Adams, Rollin Theodore,	Mantorville.
—Aubin, Louise Mary,	Minneapolis.
Batchelder, Edwin Josiah,	South Stillwater.
Beek, Richard Hudson,	Larimore, N. D.
Biornstadt, Gisle,	Duluth.
Blumsailgh, Seth Emil,	Minneapolis.
Boehm, John Charles,	Rich Prairie.
Borchardt, Edward Augustus,	St. Paul.
Boxell, Edward Carty,	Duluth.
Brabec, Frank Joseph,	Hutchinson.
Cleveland, J. G.,	Minneapolis.
Cotton, Henry,	Minneapolis.
Cowing, Phi lip George,	Fergus Falls.
Cutts, Rollin Edward,	Forest City.
Dahlquist, Gustaf William,	Minneapolis.
Dodge, Warren Maynard,	Farmington.
Eby, Cyrus Bowers,	Rochester.
Eby, John Robert,	Rochester.
Egge, Throud Swen,	Moorhead.
Erdmann, Charles Andrew,	Milwaukee, Wis.
Farrand, Corydon,	Oronoco.

*Also students in College of S. L. and A.
†Died April 9, 1891.

Finstad, Gustav,	Minneapolis,
Gallup, Edwin Dorvin,	Cheney.
Glenn, William,	Minneapolis.
—Graves, Maud,	Adrian.
Haggard, George Delaney,	Minneapolis.
Hendrickson, Hans Frederick Waldemar,	Watson.
Hendrix, Darwin Robert,	Elkhorn, Wis.
—Higgins, Mary Elizabeth,	St. Paul.
Hilbert, Pierre Alphonse,	Minnieska.
Hirschfield, Adolph,	Minneapolis.
Holmes, Walter B.,	Minneapolis.
Holte, Halvor,	Etna.
Howard, Seth Evelyn,	Viola.
Kinports, John Henry,	Minneapolis.
Kistler, Charles Milton,	Minneapolis.
Koch, Jan Coenraad Theodor,	Minneapolis.
Langehough, Amund Olson,	Red Wing.
Larson, Anders,	Minneapolis.
Larson, John,	Minneapolis.
Liland, Ragnvald,	Minneapolis.
Lowthian, George H.,	Minneapolis.
McKinnon, John Joseph,	St. Paul.
Moen, Johannes K.,	Minneapolis.
Moulton, Shubel Mainord,	Minneapolis.
Nelson, Henry S.,	Minneapolis.
Nelson, Nels Carl Gustaf,	Wheaton.
Nettleton, James Huckstep,	Lewiston.
Ogle, Howard Edward,	Owatonna.
Reiter, Henry William,	Rockville.
Spottswood, Edward Whipple,	Minneapolis.
Stephan, Ernest Leonard,	Pine City.
Sterns, Willis LeRoy,	Owatonna.
Stewart, David McIntosh,	St. Paul.
Stewart, James Lincoln,	Minnesota City.
—True, Augusta Isabella,	Cheney.
Tuke, Harry Crichton,	Dover Center.
Van Slyke, Charles Alexander,	St. Paul.
Van Valkenburg, Byron Frederick,	Minneapolis.
Wachter, Egon,	Minneapolis.
Wilson, Louis Blanchard,	St. Paul.
Wright, Arthur Brownell,	St. Paul.

JUNIORS, 38.

Anderson, Christopher August	Nicollet.
Aurnes, Peter Andreas,	Minneapolis.
Benjamin, Arthur E.,	Hutchinson.

Binder, George Alexander,	St. Paul.
Boleyn, Emile Sidney,	Minneapolis.
—Buell, Mary Catherine,	Minneapolis.
Chilgren, Gustave Arthur,	St. Peter.
Connor, Uri B.,	Minneapolis.
Corliss, John Harry,	Fergus Falls.
Davidson, James,	Minneapolis.
Edlen, Emil Alexius	Minneapolis.
Edsall, Joseph L.,	Minneapolis.
Erickson, John Gustaf,	Minneapolis.
Ferree, George Perry,	Minneapolis.
Free, Earle Perry,	Minneapolis.
Fjelstad, Carl A.,	Norway Lake.
—Garber, Lou Maria,	Berne.
Giere, Eric Olonzo,	Belgrade.
Gilkinson, Andrew Jackson,	Kingston.
Healy, Herbert Henry,	Drayton, N. D.
Hewitt, Leland Grant,	Albert Lea.
Hilbert, Ferdinand,	Minneiska.
Janson, Eiliv,	Minneapolis.
Janson, Ivar,	Minneapolis.
Kirkwook, Samuel Markle,	St. Paul.
Krogstad, Olaf Emil,	Duluth.
Marshall, Nelson H.,	Minneapolis.
Mayland, Martin Lewis,	Aspeland.
—Morrison, Alma E.,	Minneapolis.
Niemo, Louis,	St. Paul.
—Pettit, Loretta Jane,	Minneapolis.
Rothwell, William Philip,	Graceville.
Senkler, George E.,	St. Paul.
Smith, William Sidney,	Waseca.
Thompson, Wm. Mellwain,	St. Paul.
Westeen, Anders Albert,	Minneapolis.
Winberg, Osten Kristenson,	Minneapolis.
Wunder, Henry Edward,	Minneapolis.

SENIORS, 24.

Anderson, August,	Centre City.
Bakke, Peter Halstensen,	Kenyon.
Bergan, Ole Kittleson,	Sacred Heart.
Bohland, Fred John,	St. Paul.
Christison, James Trent,	St. Paul.
—Conant, Harriet Beecher,	Minneapolis.
Fremstad, Ole,	Minneapolis.
Gilbertson, Julius C.,	Minneapolis.
Gibbs, Thomas C.,	Lake City.

Hielscher, Julian Adolph,	Preston.
Hove, John Julius,	Minneapolis.
Ilstrup, Francis,	Buffalo.
Johnson, Andrew E.,	Glencoe.
Lind, Alfred,	Winthrop.
Ringnell, Carl John,	Minneapolis.
Rogers, John Thomas,	St. Anthony Park.
Sabin, Alfred Augustus,	Moorehead.
Sheppard, Prosper Ernest,	Lake Side.
—Smith, Martha Jane,	Yankton, S. D.
Stewart, Allen Blanchard,	Minneapolis.
Wangelin, Hugo Evans,	Minneapolis.
White, James Bartholmew,	Belle Plaine.
Witham, Albion Keith Parris,	Minneapolis.
Wright, Franklin Randolph,	Minneapolis.

COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY, 15.

FRESHMEN, 9.

Beach, Wm. Artemus,	Minneapolis.
Jorgens, Julius Eugene,	Grand Meadow.
Kleine, James Franklin,	Minneapolis.
Lord, Richard,	Kasson.
Richardson, Oscar Kelsey,	Minneapolis.
Spaulding, Edward Martin,	Minneapolis.
Spurr, Stephen Howard,	Morris.
—Young, Esther Hays (Mrs.),	Excelsior.
Wright, Edwin Adams,	Howard Lake.

JUNIORS, 2.

Cooper, Charles McHenry,	Marion.
Prestegar, Torrey T.,	Austin.

SENIORS, 4.

Drought, Warren Wesley,	St. Paul.
King, Ellsworth Emerson,	Minneapolis.
Roberts, Alfonso Adelbert,	Minneapolis.
Wait, Leon Adelbert,	Minneapolis.

COLLEGE OF DENTISTRY, 36.

FRESHMEN, 22.

Bachman, Otto Brayton,	Minneapolis.
Clements, Herbert Dean,	Faribault.
—Edgar, Caroline Augusta,	Sauk Centre.
Edwards, Thomas Francis,	Minneapolis.

Forsyth, John Alexander Douglas,	St. Paul.
Gibson, John Fred,	Minneapolis.
Glidden Samuel Hurd,	Minneapolis.
Haas, Edward Henry,	St. Paul.
—Hartzell, Mary Victorine,	Minneapolis.
Hartzell, Thomas Bradford,	Minneapolis.
Holmes, Eugene Pollock,	Faribault.
Jewett,, William Frederick,	Minneapolis.
Means, George Emery,	Howard.
Monson, George Siles,	St. Paul.
Rochette, Edward.	Minneapolis.
Rogers, Edward Sheffield,	Minneapolis.
Smith, Charles Fremont,	St. Paul.
Store, Arthur Oscar,	St. Paul.
Taylor, Henry Hurlbut,	Minneapolis.
Weiss, Oscar Albert,	Minneapolis.
Whittaker, Frank Noble,	Minneapolis.
Wood, George,	Faribault.

JUNIORS, 6.

Knapp, Miland Austin,	Hastings.
Musgrove, George Johnston,	Minneapolis.
Orton, Forrest Hoy,	Duluth.
Paul, James William,	Minneapolis.
Rose, William Johnson,	Med. College Building.
Williams, Thomas Falvy,	Concord.

SENIORS, 8.

Breck, Henry Towne,	Minneapolis.
—Chandler, Ella Z.,	Minneapolis.
Force, Frank Wilson,	Minneapolis.
Lenox, Fred Augustus,	Minneapolis.
Marshall, Edgar Henry,	Plainview.
Meckstroth, Louis Wesley,	Minneapolis.
Riddell, Edwin George.	Northfield.
Todd, Frank Chisholm,	Minneapolis.

SPECIALS, 15.

Barnes, William Osgood,	Minneapolis.
Bayshow, Johez J.,	Seneca, S. D.
*Cloutier, William,	Minneapolis.
Doty, Lambert Le Roy,	Artesian, S. D.
*Eaton, Roderick Dhu,	Minneapolis.
*Gould, James Nathaniel,	Fairmont.
Heinzel, Henry,	St. Paul.
Johnson, Hastings Henry,	Minneapolis.

*Lyon, George,	Minneapolis.
*MacKenzie, Kenneth John,	Northfield.
Miner, Clarence Jennings,	St. Paul.
Showers, W. M. B.,	St. Paul.
*Stronme, Soren,	Minneapolis.
*Whiting, James Adams,	Taylor's Falls.
*Young, J. R.,	Minneapolis.

†VETERINARY STUDENTS, 8.

Cloutier, William,	Minneapolis.
Eaton, Roderick Dhu,	Minneapolis.
Gould, James Nathaniel,	Fairmont.
Lyon, George,	Minneapolis.
MacKenzie, Kenneth John,	Northfield.
Stronme, Soren,	Minneapolis.
Whiting, James Adams,	Taylor's Falls.
Young, J. R.,	Minneapolis.

SCHOOL OF AGRICULTURE, 104.

GRADUATE STUDENT, 1.

Stark, Albert O.,	Harris.

CLASS A, 18.

Borchert, Arthur,	Bird Island.
Boss, Andrew,	Zumbro Falls.
Fairchild, Percy M.,	Darsville, N. Y.
Fleckten, John,	Kandiyohi.
Gilfillan, Charles O.,	Morgan.
Haigh, Garry S.,	Mankato.
Hummel, August,	New Ulm.
Johnson, John A.,	Hector.
Marvin, Charles A.,	Garden City.
Matterson, Merton L.,	Round Prairie.
Monson, Nils L.,	Buffalo Lake.
Porter, Henry H.,	Murdock.
Porter, Wallace,	Murdock.
Sanders, Wilbur,	Appleton.
Sandsten, Emil,	St. Anthony Park.
Sorkness, Henry O.,	Ashby.
Stene, Edward,	Ashby.
Wein, Hans J.,	Renville.

*Also students in the Veterinary Department.
†Also specials in Department of Medicine.

CLASS B., 32.

Adams, Arthur,	Minnehaha.
Akins, Howard,	Portland, N. D.
Boss, William,	Zumbro Falls.
Bull, Coates P.,	Edina Mills.
Ellerman, Albert,	Owatonna.
Enestvedt, Ole O.,	Sacred Heart.
Galloway, J. E.,	Austin.
Gaumnitz, A. H.	St. Cloud.
Glover, Arthur J.,	Zumbro Falls.
Harris, H. C.,	Howard Lake.
Hiatt, W. G.,	Redwood Falls.
Higbie, H. E.,	Grand Meadow.
Hipple, W. H.,	Bird Island.
Hodgson, A. E.,	Hamline.
*Hodgson, W. C.,	Hamline.
Hodgson, W. T.,	Hamline.
Ilstrup, F. M.,	Buffalo.
LeVesconte, Geo.,	Minneapolis.
Maguer, Jas. L.,	St. Peter.
Moffett, Edwin J.,	Biscay.
Munro, N. A.,	New Auburn.
Pratt, Frank F.,	Bethel.
Preston, H. E.,	Rochester.
Scofield, Carl,	Edena Mills.
Shields, Chas. A.,	Darwin.
Shuman, Harry,	Minneapolis.
Street, A. H.,	Alden.
Ward, Austin,	Stewart.
Winkjer, J. G.,	Garfield.
Winson, H. F.,	New York City.
Wyatt, S. J.,	Minneapolis.
Ziebarth, W. F.,	Delano.

CLASS C, 53.

Anderson, Andrew,	Renville.
Buffington, A. L.,	Minneapolis.
Burns, Mark M.,	Ashby.
Carlson, F. W.,	Grove City.
Cross, Frank,	Red Wing.
Day, Charles,	Richfield.
Degree, Moses,	Stewart.
Diebold, Henry E.,	Odessa.
Dower, Herbert,	Staples.
Emery, L. W.,	Lake City.
Farnham, J. M.	Holloway.

*Died.

Ferch, Michael,	Odessa.
Fjelsta, Anton,	Madelia.
Fleckten, Victor,	Kandiyohi.
Good, George,	St. Anthony Park.
Gusa, R. C.,	Odessa.
Haefer, W. L.,	Hanover.
Ireland, F. M.,	Appleton.
Jancke, Geo.,	New Ulm.
Jones, Richard,	Lake Crystal.
Kellar, Henry,	Sauk Centre.
Kuehn, John,	St. Paul.
Le Borious, John,	Cottage Grove.
Le Vesconte, Alfred,	Minneapolis.
Long, Robert,	St. Anthony Park.
Loomer, H. F.,	Minneapolis.
Monson, Emil,	Willmar.
Nelson, Even,	Madelia.
Norswing, K. B.,	Holden.
Olsen, L. A.,	Grove City.
Pearson, Banhard,	Wastedo.
Peteler, Otto,	Hamline.
Porter, N. H.,	Minnehaha.
Porter, B. W.,	Murdock.
Porter, Geo.,	Red Wing.
Prescott, N. C.	Herman.
Reed, Axel,	Glencoe.
Reed, Frank,	Glencoe.
Schmitz, Edward,	Stewart.
Senescall, Fred M.,	Stewart.
Sherman, Anton C.,	Sleepy Eye.
Shields, William,	Darwin.
Shuman, Fred,	Minneapolis.
Stearns, H. F.,	Minneapolis.
Stegner, L. D.,	Zumbro Falls.
Stevens, T. A.,	Arvilla, N. D.
Stewart, Henry D.,	Benson.
Stone, Carl L.,	St. Paul Park.
Strothern, Samuel,	Rich Valley.
Walters, Richard,	Lake City.
Williams, Edward,	Staples.
Wing, Henry O.,	Aspelund.
Young, Manuel,	Wastedo.

SCHOOL OF PRACTICAL MECHANICS, 35.

A DIVISION, SECOND YEAR, 4.

Bird, Charles E.,	Fairmont.
Day, William H.,	Mazeppa.
Rutherford, Henry W.,	Minneapolis.
Smith, Oluf C.,	St. Ansgar, Ia.

A DIVISION, FIRST YEAR, 3.

Frazee, Arthur M.,	Pelican Rapids.
Gregson, Wallace,	Austin.
Knudson, Kasper O.,	Rushford.

B DIVISION, 9.

Bartley, Frank,	Wahpeton, N. D.
Christison, Hagn B.,	Crookston.
Day, Bert W.,	Mazeppa.
Hoisven, John,	Grafton, N. D.
Kempf, Frank.	Belle Chester.
Settle, Wm. L.,	Hull, Ia.
Severson, Sever M.,	Minneapolis.
Simons, George H.,	Montevideo.
Stillman, Ralph H.,	Glenville.

C DIVISION, 19.

Ackerman, Christ,	Young America.
Anderson, Gilbert,	Minneapolis.
Bird, Edward G.,	Sioux Falls, S. D.
Blaisdell, Benjamin H.,	Minneapolis.
Chalker, Victor,	Minneapolis.
Chant, Theodore M.,	Minneapolis.
Cohen, Harry,	Minneapolis.
Danielson, Wesley R.,	Belle Chester.
Gray, Jesse W.,	Minnetonka.
Hanson, Andrew,	Minneapolis.
Johnson, Albert, J.,	Kindred, N. D.
Johnson, Louis P.,	Sacred Heart.
Ladue, Samuel C.,	Fertile.
Lien, George E.,	Mainard.
McGough, Thomas,	Minneapolis.
McKenny, Duston, W.,	Brookings, S. D.
Maddaus, George S.,	Minneapolis.
Stack, William,	Minneapolis.
Stickney, Rolla G.,	Sioux Falls, S. D.

SCHOOL OF DESIGN, 39.

—Ardley, Mrs. H. T.,	Minneapolis.
—Bicknell, Florence E.,	Minneapolis.
—Bliss, Mrs. A. S.,	Minneapolis.
—Bolton, Gracilia E.,	Minneapolis.
—Brooks, L. May,	Minneapolis.
—Burdick, Maude,	Minneapolis.
—Cogger, Birdie E.,	Minneapolis.
—Cullum, Clara,	Minneapolis.
Erickson, Carl,	Minneapolis.
—Frost, Nellie L.,	Minneapolis.
—Funk, Louis Mrs.,	Merriam Park.
—Gardiner, Helen M.,	Minneapolis.
Glasby, DeCloise,	Minneapolis.
—Hirsch, Alpha,	Minneapolis.
—Hood, M. May,	Minnehaha Park.
—House, Lizzie,	Minneapolis.
Jerome, Charles W.,	Minneapolis.
—Kellogg, Ella M.,	St. Paul.
—Lane, Celeste,	Minneapolis.
—Leonard, Gertrude J.,	Minneapolis.
—Loemans, Lizzie Bertha,	Minneapolis.
McNinch, Neil,	Minneapolis.
—Perrine, Francesca W.,	Minneapolis.
—Peterson, Marian,	Minneapolis.
—Pike, Mrs. W. A.,	Minneapolis.
Quale, Thor,	Minneapolis.
—Rickey, Nellie,	Minneapolis.
—Rogers, Helen L.,	Minneapolis.
Saugstad, Olaf,	Crookston.
—Sloat, Floy,	Chicago.
—Smith, Kate,	St. Paul.
—Sproul, Annie B.,	Minneapolis.
Steen, Ener,	Holmes City.
—Thwing, Harriett H.,	Minneapolis.
Towne, Burton A.,	Minneapolis.
Towner, M. H.,	Minneapolis.
—Truesdell, Florence M.,	Minneapolis.
—Turner, Josephine E.,	Minneapolis.
—Wingate, Mary L.,	Minneapolis.

PHILOSOPHICAL ORATORS.

Awarded upon the basis of scholarship.

CHRISTIAN PETERSON LOMMEN, - - - - *Valedictorian.*

THEODORO GERALDO SOARES, - - - - - *Salutatorian.*

FRANK HANFT, THEODORE MCFARLANE KNAPPEN, ASA JOHN HAMMOND, JOHN ERNEST MERRILL, ARTHUR BLISS CHURCH.

SUMMARY 1890-91.

DEPARTMENT	Class	Gentlemen	Ladies	Total
Graduate Students		28	17	45
College of Science, Literature and Arts, and College of Mechanic Arts	Senior	43	12	55
	Junior	62	23	85
	Sophmore	84	41	125
	Freshmen	140	59	199
	Special	61	73	134
School of Practical Mechanics		35	.....	35
School of Design, Free-hand Drawing and Wood Carving		9	30	39
School of Agriculture		104	.....	104
Department of Law	Seniors	59	.....	59
	Juniors	114	3	117
College of Medicine and Surgery	Seniors	22	2	24
	Juniors	34	4	38
	Freshmen	58	4	62
College of Homeopathic Med. and Surg	Seniors	4	.....	4
	Juniors	2	.....	2
	Freshmen	8	1	9
College of Dentistry	Seniors	7	1	8
	Juniors	6	.....	6
	Freshmen	20	2	22
Special Medical Students		15	.....	15
Department of Veterinary Medicine	Freshmen	8	.....	8
		923	272	1,195
Twice counted		12	.....	12
Total		911	272	1,183

THE UNIVERSITY.

The University of Minnesota is a State institution, endowed by the general government and supported by the State, being a part of the State educational system. It is situated in the city of Minneapo is, about a mile below and in full view of the Falls of St. Anthony. The grounds are now about forty-five acres in extent, undulating in surface, well wooded with native trees, and by reason of the natural advantages and contour, very attractive.

The experimental farm of the Agricultural College is situated on Como avenue, about two miles distant.

DEPARTMENTS.

The University is composed of the following Departments:

In the COLLEGE OF SCIENCE, LITERATURE, AND ARTS there are three courses of study, called Classical, Scientific, and Literary. The Classical course has for its leading studies the Greek and Latin languages; the Scientific course, has the natural sciences; the Literary course, the modern languages. The regular college courses are of four years' duration. The completion of these courses leads respectively to the degrees: Bachelor of Arts, Bachelor of Science, and Bachelor of Literature.

A SCHOOL OF MINING AND METALLURGY has been opened in connection with the scientific course of the College of Science, Literature, and Arts. On completion of the prescribed course of study the degree of Bachelor of Mining Engineering, wi l be conferred.

The COLLEGE OF MECHANIC ARTS offers courses of study in civil engineering, mechanical engineering, electrical engineering, and architecture, leading to the degrees of Bachelor of Civil Engineering, Bachelor of Mechanical Engineering, Bachelor of Electrical Engineering, and Bachelor of Architecture.

The *School of Practical Mechanics* and the *School of Design, Free-hand Drawing and Wood Carving* are departments of this college and offer courses of practical instruction in shopwork, drawing, designing, and wood carving, but no degrees are conferred.

The COLLEGE OF AGRICULTURE offers a regular college course in agriculture of four years of college work. The degree of Bachelor of Agriculture is granted upon completion of the course.

The SCHOOL OF AGRICULTURE is a training school for the college of Agriculture, and also for practical farm life.

An EXPERIMENT STATION at the University farm.

The DEPARTMENT OF LAW offers a two years' course of instruction leading to the degree of Bachelor of Law. There is also an evening course (of three years) in this college. The terms and vacations of this department are the same as those of the College of Science, Literature, and Arts.

The DEPARTMENT OF MEDICINE. This department is composed of the following colleges:

A COLLEGE OF MEDICINE AND SURGERY.

A COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY.

A COLLEGE OF DENTISTRY.

The course of study extends through three years of eight months each.

The DEPARTMENT OF VETERINARY MEDICINE offers a three years' course veterinary medicine and surgery and sanitary science, leading to the degree of Doctor of Veterinary Medicine. A Veterinary Hospital, for clinical instruction, is situated at the University farm at St. Anthony Park.

The GRADUATE DEPARTMENT. In all the colleges, except those of Law and Medicine, there is an advanced course of study leading to the Master's degree. These courses are open to graduates of any reputable college upon presentation of diploma.

SPECIAL COURSES. In all the departments students of an advanced age are permitted to pursue, under direction of the faculty, one or two distinct lines of study.

BUILDINGS ON THE CAMPUS.

The MAIN OR ACADEMIC BUILDING is 168 feet in length and 90 feet in breadth, exclusive of porches, having, three stories above the basement. The walls are of blue limestone. The rooms, 53 in number, as well as all the corridors, are heated by an efficient steam apparatus. Water is supplied from the city mains, and there is a standpipe running from the basement through the roof, with hose attached on all the floors, for protection against fire. The assembly hall in the third story, 87x55 feet, and 24 feet high, will seat with comfort 700 people, and 1,000 can be accomodated.

Fire having broken out in the upper part of the main building during the Christmas vacation of 1889, the library was in danger, and was removed as rapidly as possible to the law building. Considerable damage was done to the upper part of the building, and when the necessary repairs were made, the opportunity was embraced to improve some portions of the building that had long sadly needed attention. The assembly room or chapel in the fourth story, and many of the recitation rooms were repapered. The library was restored to its old quarters. In this building, also, the rooms formerly occupied by the museum have been fitted up as recitation rooms, furnishing excellent accommodations to the departments of Latin and Psychology. The removal of the various scientific departments to the new building erected for their especial accommodation, has

relieved the pressure for room in the main building, and it is belived that all departments in this building are now reasonably well accommodated. The main building has been so greatly improved, and so many changes have been made in its rooms, that it now seems proper to place its record with that of the "new buildings."

The MILITARY BUILDING was completed in the summer of 1884. It is the largest drill hall in the country, and is so constructed as to serve the additional purpose of a large assembly hall. It will seat with comfort 3,500 people.

The COLLEGE OF MECHANIC ARTS building is of red brick, with brown stone trimmings, and a slate roof. It has two stories, with a high basement, and a one story wing in the rear; and is 89x53 feet, not including the wing. The building contains 20 rooms, exclusive of the cloak and wash rooms, including large engineering rooms, drawing rooms, shops and apparatus rooms. It is thoroughly ventilated, heated by steam and supwith water from the city mains.

The removal of the department of physics to the new laboratory, and of the school of design to Pillsbury Hall, relives the college of mechanic arts from unpleasent restriction in room, and gives it ample space for the prosecution of its work.

PILLSBURY HALL AND MUSEUM. A new building for the purpose of instruction in science, and for a museum. It is 245 feet in length, is built of stone. It has two stories with a high basement, and contains two rooms for museums, each containing 4,000 feet. In it are the most ample accommodations for the departments of geology, mineralogy, animal biology and botany, of which a more detailed statement is given elsewhere in this report; and also accommodations for the geological survey, the school of design, the school of mines and the museums. The building is the munificent gift of the Hon. J. S. Pillsbury to the University and to the State.

The CHEMICAL AND PHYSICAL LABORATORY is built of Roman brick with red sand stone basement. 192 feet front, is now ready for use and furnishes accommodations to the departments of physics and chemistry, of which a more detailed statement is given elsewhere. This building covers the ground formerly occupied by the agricultural and chemical building that was badly damaged by fire in the fall of 1888, but it is very much larger and in every respect better than the building whose place it takes.

The LAW BUILDING, 80 feet front, built of pressed brick with red sandstone trimmings, was finished in 1889, and has been in use by the department during the past year. It contains a large room for library, a large lecture room, four lecture and recitation rooms of smaller size and offices for the dean and professors.

The HEATING PLANT, containing the heating apparatus for the university, and large enough to contain boilers in suffient numbers to meet the requirement of twenty years to come, was built of brick, and finshed in 1889, and has been in use for the past year. At the rear of this building,

and resting on a part of its foundation, is the plant house, of which a more detailed account is given under the subject of Botany.

UNIVERSITY FARM BUILDINGS.

THE OFFICE OR EXPERIMENT STATION building was burned Oct. 5, 1890, but is being replaced with others more commodius and much better suited to the growing needs of the station and school work. CHEMISTRY HALL just completed, gives ample room on the lower floor, for the chemical work of the station, and on the second floor, are model, lecture and laboratory rooms, for instruction and practice in agricultural chemistry. The BARN is very large well constructed and adapted to the varying needs for the many experiments in live stock, etc, annually carried on. For the lack of as yet separate buildings, the barn also furnishes rooms, for the experimental and school dairy, and for manual training in carpentry. It has ample storage room for feed stuffs, and the collection of farm machinery, several silos, and root-cellars, grinding, cutting, threshing and other machines and an engine. Several smaller farm buildings, furnish room for swine, grain, machinery, etc. The FARM HOUSE, originally built large enough to accommodate a number of students in a summer course in agriculture, which was discontinued, is much larger than is needed for a family, and with slight remodeling will answer for a dormitory for students. A GREEN HOUSE, with over two thousand feet of glass, with vegetable cellars, offices, etc., is provided for the division of horticulture. The green house is used for propogating plants to be used in botany and horticulture and for experimental work in this line. A VETERINARY HOSPITAL building provides quarters for sick animals and rooms for clinics and lectures, horse shoeing shop, etc.,

Two commodious DORMITORY AND SCHOOL BUILDINGS for the School of Agriculture have also been erected.

THE MUSEUMS.

In addition to the collection representing the geology, flora and funa of the state, and collections obtained by exchange and purchase, the general museum contains the following special collections: Complete series of zinc and iron minerals and their associates, and a collection of about seventy-five meteoric stones, and irons from different parts of the world. An archæoligical collection of several hundred specimens, chiefly from the region of the Mound Builders of Ohio, has been deposited in the museum by Dr. H. E. Twichell.

Sets of the United States Fish Commission from the Atlantic and Pacific coasts, have also been presented by the Smithsonian Institution.

Besides the collections here mentioned, there are very valuable collections, illustrating Geology, Mineralogy, and Animal and Plant Biology, which are placed in rooms, in the same building, devoted to their respective departments. A general idea of these special collections may be obtained by reading the statements under the heading, "Facilities for the teaching of the Sciences," page 53 of this catalogue.

The rooms are open daily during the University year, for the convenience and use of students and visitors.

THE MUSEUM OF TECHNOLOGY. A cabinet of specimens illustrating the products and processes of applied chemistry is being collected by the professor of chemistry, as opportunity offers. This collection embraces fuel, ores, furnace products, textile materials, both raw and manufactured; dyewoods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woolen goods, earthenware, pottery, etc.,

THE CLASSICAL MUSEUM, a beginning of which has been made, will comprise all *materia* that may illustrate classical geography, topography, chronology, mythology, archæology, and art, such as plans of ancient cities, temples, battle-fields, camps, etc.; busts (original and plaster casts); coins and medals; specimens (original and plaster casts); of ancient sculpture, friezes, capitals, columns, vases, etc.; books and plates of costumes, military weapons, armor, household and agricultural affairs, and naval illustrations, etc.; architecture; ancient books, and manuscripts; specimens of inscriptions and implements used in writing, and in the arts.

THE LIBRARY.

The library is open to everybody from 8:00 A. M. to 6:00 P. M. every day of the university year, except sundays and holidays. During the vacation the library is open on Wednesday and Saturday evenings at 7:30 o'clock for the issue and receipt of books borrowed. Members of the University are allowed to borrow books for home reading, to be kept seventeen days; but works marked in the catalogue with a * (called "starred books,") comprising books of reference, illustrated books, and rare and costly books, cannot be removed. These books, as well as others, may be read and consulted in the reading room.

The bound volumes number more than 25,000.

About one hundred and twenty periodicals are received regularly by the library, including the leading quarterlies, bi-monthlies, weeklies, and semi-weeklies.

STUDENTS' SOCIETIES.

THE STUDENTS' CHRISTIAN ASSOCIATION. This association has as its object the mutual, moral and spiritual improvement of its members. Its work lies in two general lines: Sunday afternoon lectures by prominent clergymen of the state, and students' prayer meetings held at such times as seem most expedient. All Christian students are eligible to membership in the association and are cordially invited to join it after coming to the University.

The boarding committee of the association will be glad to assist students gratis in securing rooms and board at the beginning of the year. In order that the committee may be of the greatest usefulness, new students are requested to communicate with them before entering the University. All com-

munications will receive careful and prompt attention. Address Harry O. Hannum or Miss Clara E. Bailey, care of University of Minnesota, Minneapolis.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION was established "to promote growth in grace and Christian fellowship, among its members and aggressive Christian work, by and for students." The active membership is composed of members of good standing in evangelical churches; and all young men of good moral character may become assoctiate members. The association is connected with the Intercollegiate Y. M. C. A. movement.

On the first Saturday of the college year, the association holds a general reception for all students. On Wahington's birthday a reception is given to the Freshman class.

A Students Hand Book, containing items of information, especially valuable for new students, issued at the beginning of the college year. A copy will be mailed by Sept. 1st to any one address ng Y. M. C. A., Box 404, University of Minnesota.

LITERARY SOCIETIES. There are two literary societies, meeting every Monday evening during the school year, which furnish excellent and much prized opportunity for practice in extemporaneous speaking and parliamentary procedure. Besides these two societies. which are open to all students, several of the college classes have debating clubs of a simular nature.

THE ATHLETIC ASSOCIATION is a University organization, having for its object the general physical culture for the students, and the encouragement of a proper spirit in favor of hearty, manly sports. The Monday before Commencement is the Annual Field Day of the association.

THE PI BETA NU is an honorary society established in the spring of 1888. Its object is the selection of five men from each junior class who shall be decided to have attained the highest intellectual culture at the University. The society was founded by Helmus W. Thompson, William D. Willard, Ulysses S. Grant, Albert Graber, Albert A. Finch, of the class of '88; T. G. Soares, W. W. Harmon, T. M. Knappen, A. J. Hammond, C. P. Lommen, are members from the class of '91; A. W. Selover, C. P. Berkey, A. Nelson, G. Tunell, A. Ranum, are the members from the class of '92.

ALUMNI ASSOCIATION. This association was organized in 1875. The graduates of the existing colleges of the University are members. The members of the Board of Regents and the general Faculty are honorary members. There are the usual officers charged with the customary duties. An Executive Committee conducts business not otherwise provided for. The annual meeting is on the day preceding Commencement, at 10 o'clock A. M. The Alumni attending commonly dine together after the public exercises on Commencement day. Judge Stephen Mahoney, '77, is president of the association.

FELLOWSHIP ASSOCIATION. This association was incorporated March 10, 1888. Its object is to encourage graduate students in special lines of

study and for that purpose to raise a fund by endowment gift, grant, bequest, or annual contribution of its members. Awards of $250 each have been made to the following recipients, known as "Fellows of the University, 1890-91." Louise Montgomery, Political Science; J. B. Pike, Classical Philology; O. L. Triggs (continued with our stipend) is studying English Literature at Oxford. Fellows for the coming year have not yet been chosen.

Alumni, former students and other friends of the University become members of the association by pledging financial support of not less than five dollars annually for five years. Life membership certificates are issued upon payment of $100. The annual meeting is held at the Univsity during the forenoon of the day preceding Commencement. John F. Goodnow, '79, is president of the association.

THE ARIEL ASSOCIATION. Is an association formed by the Junior and Senior classes of the University. A board of editors is elected annually, who publish a paper called the ARIEL. This paper holds a very high rank among similar papers published in the colleges of this country. (Price $1.00 per year.)

THE JUNIOR ANNUAL. Is a book published annually by the Junior class of the University. The book represents the students' side of college life in a delightful manner. Copies may be had by addressing the Business Manager of the Junior Annual, care of the University. (The usual price is one dollar.)

PRIZES.

Three prizes of $30, $25 and $20, offered by the Hon. J. S. Pillsbury, will be awarded every year for the best work in the Rhetorical Department as evidenced finally by an oration in public.

A prize of twenty-five dollars, known as the "'89 Memorial Prize," established by the class of 1889, is given for the best work done in the Historical Department as evidenced by a thesis.

A fellowship yielding $250 a year, known as "The '90 Fellowship," has been established by the class of '90 as a memorial, and is awarded annually under the direction of the Fellowship Association.

THE MOSES MARSTON SCHOLARSHIP IN ENGLISH.—Some of the friends and pupils of the late Prof. Moses Marston, Ph. D., have given and pledged one thousand dollars as a memorial fund. The annual income of the fund is to be used to help some student in the long English course. The award of the income will be made on the basis of pecuniary need and of deserving scholarship.

GEOLOGICAL AND NATURAL HISTORY SURVEY.

The University is charged by law with the work of the geological and natural history survey of the state, under direction of the board of regents. This survey has been in operation since 1872, but has been confined principally to the geological portion of the work. More lately the regents have

also ordered the beginning of botanical collections, with a view to the creation of a full herbarium of the flora of the state, and instituted systematic observation and reports on the birds, mammals and insects of Minnesota.

The professor of animal biology, Mr. Nachtrieb, has been placed in charge of the zoölogical work of the survey as state zoölogist, and the assistant professor of botany, Mr. McMillan, has been placed in charge of the botanical work as state botanist.

The law creating the survey embraces not only a geological survey, including a complete account of the rocks and minerals of the state and their chemical analysis, but also a natural history survey, comprising an examination of all species of trees, shrubs, herbs, grasses, native or naturalized, and a complete account of the animal kingdom as represented in the state, including all mammalia, fishes, reptiles, birds and insects. It also orders the tabulation of meteorological statistics and an investigation of the climatic peculiarities of Minnesota. It orders the collection of topographical and hypsometrical data, and the compilation of an accurate map, which, with the approval of the governor, is to be the official map of the state. The law also requires a permanent exhibition to be made in the buildings of the University for public inspection, free of cost, in well warmed and furnished rooms. The regents make annual reports of progress, and on the completion of any portion of the work, the final report is made to the governor. The first two volumes of the final report have been published. These reports are placed in all the public libraries in the state, and in each High School working under the supervision of the State High School board. The remainder of the edition is sold at the cost of printing ($3.50 per copy), and can be had by addressing the state geologist, Prof. N. H. Winchell.

FACILITIES FOR THE TEACHING OF THE NATURAL SCIENCES.

THE DEPARTMENT OF CHEMISTRY—Occupies the west half of the new physical and chemical laboratory. The chemical department has twenty-one rooms devoted to its use. Of these the most important are the lecture room, the qualitative analytical laboratory, and the quantitative analytical laboratory. The lecture room, on the second floor, dimensions 30 ft. by 40 ft., seats about one hundred persons. It is intended to be used for lectures on general chemistry, with experiments, for which the customary arrangements have been provided. It will also be used as a recitation room for large classes. The qualitative analytical laboratory, on the second floor, dimensions 34½ by 52 ft., has work tables for the accommodation of forty students. Water, gas and other facilities are arranged for convenient use. This room, as the name implies, is designed for practice in qualitative analysis. It will also, at different hours of the day, be used for instruction in certain parts of general chemistry. Immediately connected with this room, and to be used in the same work, are three small rooms, each about 11 by 15 ft., namely, a spectroscope room, a microscope room, and a room

for keeping glassware and other apparatus. Considering the partitions as removed, the qualitative analytical laboratory is 34½ by 68 ft., extending across the whole west end of the building. The quantitative analytical laboratory, on the first floor, 34½ by 42½ ft., contains work tables for thirty-two students. It is intended for chemical work of the upper classes, who have already pursued the courses in general chemistry and qualitative analysis. Immediately connected with this room are a balance room, 16 by 24½ ft., and apparatus room, 17½ by 24½ ft. Including these, the quantitative analytical laboratory is 34½ by 68 ft., extending across the whole west end of the building, under the qualitative laboratory.

On the first floor is a recitation room, 24½x27½ feet, for classes of moderate size. It is also fitted with arrangements for lectures with demonstrations. Other rooms on the first floor are: a room for water analysis, 15x30 feet, a private laboratory for the professor, 18x24½ feet, and a private laboratory for the assistant professor, 12½x30 feet.

Rooms additional to those mentioned on the second floor are: a preparation room, 13½x24½, near the lecture room, and intended for keeping the apparatus used in lectures and for preparing the experiments for the day, and a room for the technological museum, 24½x28 feet, furnished with large cases of shelves and drawers.

Passing to the basement, the department has two rooms opening into each other, each 17x29 feet, for an organic analytical laboratory, a room, 17x24 feet, for gas analysis, and a balance room, 16x24 feet. These four rooms occupy the whole west end of the building, directly under the quantitative laboratory already mentioned. In addition, there are in the basement a room for assaying and other furnace work, 24x27 feet, a storeroom for chemicals, 17½x24 feet, and a storeroom for glassware, 12x29 feet.

The classes in chemistry have for years been well attended and the equipment even in the old laboratory, previous to the fire, was fairly good. Some additions in the way of apparatus for special purposes have been made the last year, of which the following are the most notable:

Three analytical balances, with sets of weights; three microscopes, and a large spectroscope, Bunsen's model, for use in analysis; a Scheibler's saccharimeter; a photometer, and other apparatus for tests and analysis of gas; a gas furnace and accessories for organic analysis; a set of apparatus for the projection of spectra, and similar lecture-room experiments; a number of technological wall charts: several gas generators; an ice machine, using ammonia; a number of steam water baths; a steam distilling apparatus; three furnaces for crucibles and similar work. Besides the foregoing, a large number—about twenty-four hundred—of reagent bottles, a corresponding supply of glass and other ware of various kinds for regular and constant use in the laboratory, and a large stock of chemicals have been purchased, provision being thus made for fitting up nearly eighty students' work tables, more than double the number of tables that have previously been furnished.

THE DEPARTMENT OF PHYSICS in the east half of the physical and

chemical laboratory, has seventeen rooms, as follows: In the basement; (1.) Precision room, 948 square feet, solid masonry pillars for support of sensitive instruments. (2.) Pendulum room, 567 square feet, masonry pillars. (3.) Cathetometer room, 567 square feet, masonry pillars. (4.) Engine, dynamo and moter room, 839 square feet, masonry beds for engine and machines; Westinghouse 10 horse power engine. (5.) Workshop, 282 square feet, carpenter and vice benches, lathe, etc. (6.) Battery and accumulator, 480 square feet. On the first floor. (7.) General physical laboratory, 1,190 square feet. (8.) Apparatus room, 1,590 square feet. (9.) General lecture hall, 1,316 square feet, amphitheatre seats, lecture desk, etc. (10.) Coat room, 256 square feet. (11.) Recitation room, 816 square feet. On the second floor, (12.) Electrical laboratory, 1,200 square feet. (13.) Photometer room, 398 square feet. (14.) Professor's study and private laboratory, 495 square feet. (15.) Assistant's study and private laboratory, 432 square feet. (16.) Magnetometer room, 360 square feet. (17.) Library, reading and drawing room.

All rooms in this department are wired for electric light, for time, experimental current and call bells. Gas, water and sink in every room. In the attic are a meteorological room and a photograph room, provided with exposed window, skylight, &c. The whole available space for the department, exclusive of halls and stairways, is 12,712 square feet.

The department of physics possesses a large and valuable collection of instruments for lecture room purposes and practical laboratory work. Among the important pieces of apparatus are, a Societe Genevoise cathetometer, a Bianchi dividing engine, a spherometer, Atwood's machine, apparatus for illustrating all of the laws of elementary mechanics, hydraulic press, U. S. signal service barometer, a complete set of thermometers, Breguet metallic thermometer, complete sets of hygrometers and hydrometers, three good chemical balances, one reversion pendulum, rotating table and attachments, three normal tuning forks, complete Lissajou's apparatus, Helmholz resonance globes, Chladni's plates, compound pendulum, manometric flame apparatus with mirror, sonometer, two heliostats, Browning spectroscope, Fresnel's mirrors and prisms, one Zeiss compound microscope, Duboscq optical bench and attachments, one W. and Q. spectrometer, diffraction grating, lantern polariscope, two students' polariscopes, an assortment of lenses and prisms, projecting lantern with Browning electric lamps, one Bunsen photometer, Goniometer, Holtz, Toepler-Holtz and frictional electric machines, storage batteries, Thompson's quadrant electrometer, spark micrometer, electric condensers, a variety of direct reading and reflecting galvanometers, two magnetometers, two induction coils, large and small, a collection of magnets of various forms, Verdi's chronograph, the complete set of meteorological instruments as furnished by the U. S. weather service, and the requisite glassware and mirror instruments to render the above a very complete physical equipment.

In addition to the apparatus of the physical laboratory, the electrical engineering department possesses Westinghouse 10 horse power engine,

Edison 150 light dynamo, sets of lamps and sockets, eight tangent galvanometers, two differential galvanometers, eight potential galvanometers, three Torsion galvanometers, two dynamometers, eight S. and H. resistance boxes, three normal ohms, two box bridges, six wire bridges, Thompson's reflecting galvanometers, three astatic galvanos copes, sixty Daniell cells, twelve Bunsen cells, three storage cells, four ammeters, four voltmeters, one Kruss incandescent lamp photometer, twelve reading telescopes and scales, magnetometer, one water voltometer, one copper voltometer, two silver voltometers. During the summer of 1891 an alternating dynamo for experimental work and a small motor are to be placed in the dynamo room, completing the equipment of the department.

THE DEPARTMENT OF GEOLOGY AND MINERALOGY occupies rooms on the first floor of Pillsbury Hall. The laboratories are large and perfectly lighted, and the lecture room is well furnished for illustration.

The field work carried on under the department is bringing in large quantities of material, of the rocks and fossils of our state; a system of exchanges is adding largely to our material from neighboring states and from abroad, and a constantly increasing series of thin sections, both of rocks and fossils, is being prepared. This illustrative material is being arranged into several *study collections.*

These study collections embrace the following:

1. A series of crystals illustrating the six crystal systems.
2. A collection of minerals of the native elements and of the sulphide group.
3. A general collection of the more common minerals; this collection is at all times accessible to every student of the department.
4. A representative collection of the clastic and crystalline rocks.
5. A collection of Palaeozoic fossils, particularly those of our own state and their allies.

A very complete outfit of instruments for the study of physical mineralogy and lithology has been purchased within the last year. The list embraces some of the finest instruments made for optical investigations and axial measurements. Determinative mineralogy is carried on during the second term into the quantitative determination—assaying—of gold, silver, lead, copper, etc.

The rooms occupied by the department measure 6,000 square feet of floor space and are very thoroughly equipped, not only for undergraduate students, but also for the advanced work and investigations of graduate students and specialists.

DEPARTMENT OF ANIMAL BIOLOGY. The general laboratory for animal biology can accommodate forty-two students at a time, and is thoroughly equipped with microscopes (for thirty), reagents, excellent collections of models, skeletons, and preparations in alcohol, glycerine, etc. The arrangement of this laboratory, and its equipment, are second to none in the country. The collection of physiological apparatus for purposes of demonstration and investigation is an excellent one. In immediate connection

with the general laboratoy is a reference library. This does not yet contain all the most desirable publications, but it contains most of those desirable for general work, and is gradually being supplied with the special works necessary for the investigation of the fauna of the state.

The lecture room, "preparation" and store rooms, photographic rooms, professor's study, and room with special aquaria and terraria are all convenient to the general laboratory.

THE DEPARTMENT OF BOTANY occupies a suite of seven rooms in Pillsbury Hall, viz: (1) a lecture room, 34x38 feet; (2) a herbarium and seminar rooms, 33x18 feet; (3) a student's morphological and chemical laboratory, 33x52 feet; (4) an experimental physiology laboratory, 33x18 feet; (5) a special laboratory office and reading room, 21x34 feet; (6) a dark room, 8x8 feet; (7) a work room, 21x34 feet; giving in all a floor space of 5,288 square feet.

The furnishing of all parts is very complete for under-graduate work, and believed to be unexcelled in this line by any similar equipment in America. The laboratory contains forty-eight compound microscopes, of Leitz, Beck, and Bausch, and Lomb make, anxanometers, Klinostat's after Peffer's patterns, thermo-electric apparatus, Mackintosh lantern, minotomes after Minot and Jung-Thoma, centrifugal wheels, induction coils, heliostat, Lautenschlager's bacterioscopic and sterilising apparatus, water-motor, balances, thermometers, etc., giving full facilities for elementary, advanced and original work in the field of botany, considered in its widest sense.

The herbarium contains 20,000 specimens of flowering plants—including a very complete collection of Eastern North American species—the sets of Lydow, Thuemen, Ellis & Everhardt, Krieger, Roumeguere, Kellermen, and some other minor sets of fungi—in all about 18,000 specimens, the algae-collections of Wiltrock & Nordetedt, and Lugger, the mosses, ferns, lichens, etc., of Lugger, besides a number of other collections, which bring the total of specimens in the herbarium not far from 43,000 at the present time.

A botanical museum and economic collection has been begun.

The plant-house contains plants of almost all the groups, and is designed to accomplish the following objects: (*a*) to furnish material for courses in anatomy, embryology, physiology, and special investigation; (*b*) to illustrate the Minnesota spermaphytic flora by type-species from each order.

The department of botany subscribes for all the important English, French, German, and Italian periodicals in its field. It offers, in connection with the botanical survey of the state, excellent facilities for under-graduate work, and for the highest lines of special investigation.

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

THE FACULTY.

CYRUS NORTHROP, LL., D.
President.
WILLIAM W. FOLWELL, LL., D.
Professor of Political Science.
JABEZ BROOKS, D. D.
Professor of Greek.
JOHN G. MOORE, B. A.
Professor of German.
CHRISTOPHER W. HALL, M. A.
Professor of Geology, Mineralogy and Botany.
JOHN C. HUTCHINSON, B. A.
Associate Professor of Greek and Mathematics.
JOHN S. CLARK, B. A.
Professor of Latin.
MATILDA J. WILKIN, M. L.
Assistant Professor of English and German.
MARIA L. SANFORD,
Professor of Rhetoric and Elocution.
JOHN F. DOWNEY, M. A., C. E.
Professor of Mathematics and Astronomy.
JAMES A. DODGE, PH. D.
Professor of Chemistry.
CHARLES W. BENTON, B. A.
Professor of French.
O. J. BREDA,
Professor of Scandinavian.
CHARLES F. SIDENER, B. S.
Assistant Professor of Chemistry.
HENRY F. NACHTRIEB, B. S.
Professor of Animal Biology.
GEORGE EDWIN MACLEAN, PH. D.
Professor of English.
HARRY PRATT JUDSON, M. A.
Professor of History.
FREDERICK S. JONES, B. A.
Professor of Physics.
CONWAY MCMILLAN, M. A.
Assistant Professor of Botany.

ALBERT J. SCHUMACHER,
Instructor in Physics.
W. S. HOUGH, PH. M.
Assistant Professor of Philosophy.
OSCAR W. OBSTLUND, M. A.
Assistant in Animal Biology.
KENDRIC CHARLES BABCOCK, B. L.
Instructor in English and History.
JOSEPH BROWN PIKE, B. A.,
Instructor in Latin and French.
E. EUGENE MCDERMOTT, B. S.
Instructor in Elocution.
ALONZO D. MEEDS, B. S.
Instructor in Chemistry.
OSCAR FIRKINS, B. A.
Assistant in Rhetoric.
LOUISE MONTGOMERY, B. S.
Assistant in Rhetoric.
EDWARD P. BURCH,
Assistant in Physics.
EDMUND P. SHELDON,
Assistant in Botany.

EXPENSES.

These depend largely upon the tastes and habits of the individual. The University has no dormitories, except for the School of Agriculture, but students find no difficulty in obtaining board among the people of the city. Good board can be obtained in private families at prices ranging from $4 upwards. Some of the students board in clubs at a cost of from $2.50 to $3 a week.

The University cannot promise employment to those desiring to earn their own living. The public bounty stops at furnishing free instruction. Many of the students support themselves while in college, and a young man who really wants work, and will look for it, can generally find it.

The only University charge except in professional schools, is the annual fee of $5 for incidental expenses. This fee must be paid before the student can join his classes, and no deduction is made for absence or late entrance. Students provide their own books. Laboratory charges depend upon the amount of material used.

The average necessary expenses of students boarding in families appear to be about $275; those of students boarding in clubs, about $200.

In the departments of law and medicine tuition fees are charged.

TERMS.

The University year embraces thirty-eight weeks, beginning on the Tuesday before the first Thursday in September, and is divided into three terms. The first term has thirteen, the second twelve, and the third thirteen weeks. Commencement day comes on the first Thursday in June. See calendar for days and dates on pages four and five.

COURSES OF STUDY.

The College of Science, Literature and the Arts offers three courses of

study called the Classical, Scientific, and Literary. Applicants desiring to pursue Greek and Latin will select the Classical course. Those desiring specially to pursue English, German, and French, with or without Latin, will select the Literary course. Those desiring specially to pursue scientific studies, will select the Scientific course. Mathematics is required to the same extent in all. These courses lead, respectively, to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Literature. Applicants are free to select their courses of study on admission, but cannot thereafter change them except as allowed by vote of the General Faculty.

The courses of this college are open, free of all charges for instruction, to all persons over fourteen years of age, whether residents of the state or not.

ADMISSION.

Examinations for admission will be held at the beginning of the year. See calendar on page four and program of examinations in appendix. Entrance examinations cannot be held at any other time unless permission is granted by the General Faculty. Students prevented from entering at the beginning of the year may be admitted at a subsequent date, when the circumstances are such as to justify the faculty in examining them privately. Such students are, however, at a great disadvantage, being behind the class, and all students expecting to enter the University during the year are earnestly requested to be present at the beginning of the year.

Apply to the Registrar for a blank application and registration number. Fill up the blank as indicated, retaining the coupon containing the number. Preserve this number as long as you have any connection with the University. If you do not enter at once use the same number when you apply again.

Present yourself in the examination room at the hour appointed, and bring with you a lead pencil and eraser; paper will be furnished. Put your number, not your name, at the top of every sheet you use.

A box in the postoffice on the first floor of the main building will be assigned to each candidate. As soon after the close of the examination as the papers can be read, the result will be made known through the postoffice.

ADMISSION ON DIPLOMA.

By a special resolution of the Board of Regents, graduates of St. Paul and Minneapolis High Schools, and the Minneapolis Academy, will be admitted to the Freshman class without examination upon presentation of their diploma. The State High School Board has inspected and classified the schools under its supervision. Graduates of the schools of the first rank are admitted to the Freshman class upon presentation of their diploma. At present the following schools are in this rank: Alexandria, Anoka, Austin, Duluth, Hastings, Lake City, Mankato, Owatonna, Red Wing, Rochester, Spring Valley, Stillwater, Winona, Faribault.

It is found that students who present diplomas of first-class high schools, and who are therefore entitled to admission, have not, in some cases, taken very important studies in their course, but substitute studies have been ac-

cepted in place of those omitted. To remedy this evil, principals are requested to furnish their pupils who come to the University, and students are required to bring to the University, a certified list of the studies actually covered by the diploma in each case. The diploma will be accepted by the University for all that it really represents of work done. And if important subjects required by the University have been omitted by the student, in his preparatory work, he will be required to make it up, notwithstanding his diploma. Candidates holding diplomas from high schools of the first rank should therefore present their diplomas (at the time of making their application for admission) accompanied by a certificate of the principal of the school granting such diploma, showing the studies covered by the diploma. Candidates holding certificates of the High School Board should present their credentials on making application.

Those coming from other schools or from Normal schools should present their credentials upon making application, and then take such examinations as they are prepared for. The enrollment committee will then decide upon the particular cases, taking into account the showing make in the examination and the marks which the student brings.

REQUIREMENTS FOR ADMISSION.

Applicants for admission to the Freshman class will be examined in the following studies:

TO THE CLASSICAL COURSE.

Three books of the Iliad will be accepted in place of any subject required for admission to the Classical Course except Latin and Mathematics.

ENGLISH GRAMMAR.—The examination will cover, in general, the essentials of grammar as indicated in the following particulars: The classification of letters, and derivation and composition of words; the inflection of words, declensions, and synopsis of conjunction; the classification of words, according to their office, as parts of speech, their definitions, and their properties or attributes. The syntax; the relations of agreement and government; the various kinds of sentences, simple, compound or complex as to form, and declarative, etc., as to meaning. Sentential analysis; definition of parts or elements of a given sentence, whether primary or secondary elements and whether words only or phrases or clauses, and the office of each of these elements. In short, the candidate should be prepared to parse, including the etymology and syntax, each word, and to analyze each sentence in a given exercise. He should be trained to illustrate by specimen-words, phrases, clauses, and sentences selected or composed by himself. He should be able to correct grammatical errors and give reasons for the corrections.

ENGLISH COMPOSITION—The candidate should have such knowledge of form, penmanship, orthography, punctuation, syntax and constructions as will enable him to write with ease and elegance any letter of business or friendship; to draft resolutions and petitions; to prepare for the press, reports of meetings and brief notices of current events. Accuracy upon these fundamental points will cover three-fourths of the examination. In addition to this some knowledge of English composition as a fine art is expected; of the power and beauty gained by the right use of rhetorical figures; of what is meant by purity, precision, brevity and harmony and style; and this not merely by committing to memory definitions and rules, but by studying the English classics and learning to appreciate the life and vigor of the great masters of English poetry and prose.

ESSAY.—The essay will be on a subject to be announced at the examination, preparation for which will require the careful reading of Shakspere's Julius Cæsar, Goldsmith's Vicar of Wakefield, Scott's Lady of the Lake and Irving's Sketch book. Equivalents of these four books will be accepted.

ELEMENTARY ALGEBRA.—The Elementary Algebra of any one of the following authors will furnish the necessary preparation: Ray, Greenleaf, Wells, Sensenig, Olney. If Olney's Complete Algebra or Wentworth's Elements of Algebra be used, selections can be made equivalent to the above.

HIGHER ALGEBRA.—Factoring, highest common divisor, lowest common multiple, fractions, involution, evolution and radicals.

PLANE GEOMETRY.—Olney's text-book, or equivalent, including the unsolved problems.

SOLID GEOMETRY.—Olney's text-book, or equivalent, including the exercises.

HISTORY OF THE UNITED STATES.—For grammar school grades the text-book prepared by Horace E. Scudder, is recommended. But if, as is much better, this subject is systematically studied in the high school, with elementary work in lower grade, the book of Alexander Johnson will be found valuable. In either case it is suggested that much more time be given to the development of the United States since the revolutionary war than to the story of the colonial period. The main feature of the constitution should be clearly understood, and its practical working as interpreted by the Supreme Court, and seen in operation in the growth of the nation. The chief object of this study should be that the student may understand the institutions of the republic, by learning how they came to be what they are. It should be noted that a definite portion of the examination will be devoted to geography.

HISTORY OF GREECE AND ROME.—The history of Greece and Rome should be made a study of the evolution of Greek and Roman institutions. Events should be considered in their bearing on that evolution. Any good outline history will answer as a text-book; but it should be supplemented by other material. Allen's Short History of the Roman people, and the Greece in Myer's Ancient Nation and Greece are suggested as indicating the amount of knowledge expected. It should be noted that a definite portion of the examination will be devoted to geography.

PHYSIOLOGY.—The candidate should be thoroughly familiar with as much anatomy, histology and physiology of the human body as is given in Martin's "Human Body," briefer course. As much knowlege of Hygiene and the effect of stimulants and narcotics on the human body as can be gained from both the general text and the special chapter on narcotics and stimulants in the briefer course of the "Human Body," is also required.

NATURAL PHILOSOPHY.—As much as is contained in Gage's Introduction to Physical Science.

LATIN GRAMMAR,—This will include the subjects of orthography, etymology, and syntax, as found in Harkness, or etymology and syntax, as found in Allen & Greenough's Latin Grammar. Greater proficiency than has heretofore been shown is particularly desired in the following subjects: Classification of letters. Rules of phonetic changes as given in sections 19-36 inclusive, in Harkness, or sections 9-11 (and elsewhere) in Allen & Greenough. The analysis of the verb forms. The rules of syntax, and the principal parts of the irregular verbs.

CÆSAR.—First three books of the Gallic war. Translation of passages of the text into correct and idomatic English. Grammatical questions connected with the text, more especially on the subjunctive mood, indirect discourse and the sequence of tenses. The pupil should be able to rewrite in the *oratio recta* all the passages in the *oratio obliqua* that occur in these books. The life of Cæsar and an account of his wars, especially those carried on in Gaul, with the geography of that country and the location of the different tribes mentioned in the text. The organization of the Roman army, the method of reckoning time, distance, etc.

CICERO.—Six orations: Four against Catiline, and any two of the three following: "Poet Archias," "Ligarius," and "Marcellus." Translation as in Cæsar. Grammatical questions, more especially in the syntax of the cases, the infinitive mood and participals. Composition of words as given in sections 313-343 of Harkess' grammar; historical and geographical references found in the text; the life of Cicero and the history of his times, and of the Catilinian conspiracy; the antiquities connected with the text, particularly the Roman Senate, its origin, constitution, powers, duties, etc., the functions of the consulship, praetorship, and their offices.

VIRGIL.—Six books of the Aeneid, peculiarities in the form and construction of words, the life of Virgil, and an account of his times and writings, the geography, antiquities, biographies, and mythology connected with the text.

GREEK GRAMMAR.—As much as is contained in Brook's Attic Greek.

XENOPHON'S ANABASIS.—Three Books.

TO THE SCIENTIFIC COURSE.

ENGLISH GRAMMAR.
ENGLISH COMPOSITION.
ESSAY.
ELEMENTARY ALGEBRA.
HIGHER ALGEBRA.
PLANE GEOMETRY.
SOLID GEOMETRY.
U. S. HISTORY.
HISTORY OF GREECE AND ROME.
PHYSIOLOGY.
NATURAL PHILOSOPHY.

For more extended statement of the work covered by these subjects see requirements for admission to the classical course.

DRAWING.—Two terms of Freehand or Mechanical Drawing.

Physical Geography may be offered in lieu of Drawing, but only in schools where drawing cannot be taught.

CHEMISTRY.—The non-metalic elements, as presented in the elementary text-books, such as Cooley's, Remsen's, etc.

BOTANY.—Phanerogamic, Gray's Lesson's and Manual.

LATIN.—As in the Classical Course.

OR { **ENGLISH.**—Latin Elements of English and History of English Literature.
GERMAN.—Meissner's German Grammar, [Parts I, II, III], H. Grimm's Maerchen.

OR { **FRENCH.**—Chardenal's Course, first two books of Telemaque.
ENGLISH.—Latin Elements of English and History of English Literature.

TO THE LITERARY COURSE.

ENGLISH GRAMMAR.
ENGLISH COMPOSITION.
ESSAY.
ELEMENTARY ALGEBRA.
HIGHER ALGEBRA.
PLANE GEOMETRY.
SOLID GEOMETRY.
U. S. HISTORY.
HISTORY OF GREECE AND ROME.
PHYSIOLOGY.
NATURAL PHILOSOPHY.

For more extended statement of the work covered by these subjects, see requirements for admission to the classical course.

LATIN.—As in the Classic Course.
AND
GERMAN OR FRENCH.—As in the Scientific Course.

OR { **ENGLISH.**—Latin elements of English and History of English Literature.
GERMAN.—Meissner's German Grammar [Parts I, II, III,] H. Grimm's Maerchen.
FRENCH.—Chardenal's Course, first two books of Telemaque.

In lieu of French students may offer the following:
{DRAWING.—Two terms of Freehand or Mechanical Drawing.
{SHAKSPERE.—One term.

CLASSICAL COURSE.

FRESHMAN YEAR.

FIRST TERM.

GREEK [5],—Xenophon's Hellenica (begun); history and Greek composition.
LATIN [5],—Livy First Book; review of syntax, composition of words, history of the period of the Kings, especially the growth of civil institutions.
MATHEMATICS [5],—Higher Algebra; simple equations, proportion, progression, variation, quadratic equations, simultaneous equations of the second degree, inequalities, binomial theorem, indeterminate co-efficients, and higher equations.
MILITARY DRILL [3],—Drill and recitations in Tactics.

SECOND TERM.

GREEK [4],—Xenophon's Hellenica (completed); Xenophon's Symposium; history and Greek composition.
LATIN [4],—Livy—selections, with history and Latin composition based on the text.
MATHEMATICS [5],—Logarithms and Plane and Spherical Trigonometry with numerous applications.
MILITARY DRILL [3],—Target practice; recitations and lectures.
RHETORICAL WORK [1],—Elocution.
DRAWING [3],—Freehand—six hours a week (OPTIONAL).

THIRD TERM.

GREEK [4],—Demosthenes' Olynthiacs and Phillipics; history and Greek composition.
ENGLISH [5],—Old English (Anglo-Saxon) Elements, and history of the English language.
CHEMISTRY [5],—Elementary general Chemistry, consisting of lectures and recitations, with some laboratory exercises.
MILITARY DRILL [3],—Drill and recitations in Tactics.
RHETORICAL WORK [1],—Compositions.
SURVEYING [2],—Four hours a week (OPTIONAL).

SOPHOMORE YEAR.

FIRST TERM.

LATIN [4],—Horace, with history of Roman literature.
RHETORIC A [4],—Genung's text-book; study and criticism of authors; essays.
*OR
HISTORY [4],—Institutions of the Middle Ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions—especially such as have had influence on modern life. The work of this term is directly preparatory to that of the next.

*Students assigned to Rhetoric in the first term by the department will take the History in the second term; others will take History in the first term and Rhetoric in the second.

BOTANY [4],—Gray's Lessons and Manual, with lectures on the leading characteristics of the algae, fungi, mosses and ferns, and on the physiology of plants.
FRENCH [4],—Chardenal's French Course.
OR
GERMAN [4],—Whitney's German Grammar. Oral and written exercises. Grimm's Maerchen.

SECOND TERM.

GREEK [4],—Dramatic Poetry; Sophocles (Antigone); history, collateral readings and essays.
HISTORY [4],—Institutions of the Middle Ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions—especially such as have had influence on modern life. The work of this term is directly preparatory to that of the next.
OR
RHETORIC B. [4],—Genung's text-book; study and criticism of authors; essays. Those who took History in the first term will take Rhetoric here, and *vice versa*.
LATIN [4],—Platus, with the study of early Latin,—language and literature.
FRENCH [4],—Chardenal's French Course.
OR
GERMAN [4],—Anderson's Geschichten. Oral and written exercises.
RHETORICAL WORK [1],—Orations.

THIRD TERM.

GREEK [4],—Plato's Apology and Crito; history; sight reading; essays and collateral readings.
HISTORY [4],—Institutions of England in the Middle Ages. Topical research and lectures. The main study is directed toward the evolution of the English constitution. Students who take this term's work are expected to have done that of the term preceding.
PHYSICS [4],—Mechanics, sound and heat.
LATIN [4],—Tacitus; Pliny's letters with the history of Rome and Roman society under the Emperors.
RHETORICAL WORK [1],—Elocution.

For the **JUNIOR** and **SENIOR** years see pages 70–74.

SCIENTIFIC COURSE.

FRESHMAN YEAR.

FIRST TERM.

DRAWING [5],—Ten hours a week—Freehand.
MATHEMATICS [5],—Higher Algebra:—Same as for the classical course.
LATIN [5],—Livy, 1st book; review of syntax; composition of words; history of the period of the Kings, especially the growth of civil institutions.
OR
GERMAN [5],—Schiller—Marie Stuart or Wilhelm Tell; review of German Grammar.
OR
ENGLISH [5],—Old English (Anglo-Saxon) grammar and prose masterpieces.
OR
FRENCH [5],—Subject to be announced later.
MILITARY DRILL [3],—Same as for classical course.

SECOND TERM.

MATHEMATICS [5],—Logarithms and Plane and Spherical Trigonometry with numerous applications.

LATIN [4],—Livy—selections, with history and Latin composition based on the text.

OR

GERMAN [4],—Goethe—Hermann and Dorothea; oral and written exercises.

OR

ENGLISH [4],—Old and Middle English poetry.

OR

FRENCH [4],—Subject to be announced later.

CHEMISTRY [4],—General Chemistry, consisting of lectures, recitations and laboratory exercises.

OR

PHYSICS [4],—Mechanics of solids, liquids and gases. Dana's Mechanics and Ganot's Physics are used.

Whichever of these subjects is chosen, must be continued during the three terms of the Sophomore year.

RHETORICAL WORK [1],—Elocution.

MILITARY DRILL [3],—Same as for classical course.

THIRD TERM.

ENGLISH A. [5],—History of the English language with Chaucer for those in the English course.

OR

ENGLISH B. [5],—Old English (Anglo-Saxon) elements, and history of the English language for those not in the English course.

GERMAN [4],—Heine—Harzreise and Buch der Lieder; oral and written exercises.

OR

FRENCH [4],—Subject to be announced later.

OR

LATIN [4],—Subject to be announced later.

OR

SURVEYING [4], **AND DRAWING** [4],—For those who have taken the English through the first two terms of this year. Of ladies who do not take the surveying, eight hours of drawing will be required.

BOTANY [4],—Lectures and laboratory work; the morphology of the plant cell and the study of lower plants; principles of classification; systematic and anatomical work on selected groups. Bessey's Elements for reference.

OR

ZOOLOGY [4],—Lectures and laboratory work—a general study of; the phenomenon of living matter, the cell and the biology of a plant, with a general survey of vegetal biology. Animal Biology begun with a general consideration of the animal body, collecting, and systematic work.

Whichever of these subjects is chosen, must be continued through the three terms of the Sophomore year.

SURVEYING [2],—Four hours a week (OPTIONAL.)

MILITARY DRILL [3],—Same as for classical course.

RHETORICAL WORK [1],—Compositions.

SOPHOMORE YEAR.

FIRST TERM.

RHETORIC A [4],—Genung's text-book; study and criticism of authors; essays.

OR

HISTORY [4],—Institutions of the Middle Ages in Europe; lectures and assigned

reading. The study of events is made subordinate to the study of institutions, especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.

Students assigned to Rhetoric in the first term, by the Department, will take History in the second term; others will take History in the first and Rhetoric in the second.

CHEMISTRY [4],—General Chemistry, continued from the second term of Freshman year.

OR

PHYSICS [4],—Ganot's Physics; Sound and Heat.

BOTANY [4],—Morphology of fungi and higher cryptogams.

OR

ZOOLOGY [4],—Lectures and laboratory work; Animal Biology continued.

FRENCH [4],—Chardenal's French Course.

OR

GERMAN A [4],—German scientific prose selections.

OR

GERMAN B.—Whitney's German grammar; oral and written exercises; Grimm's Maerchen.

OR

LATIN [4],—Horace, with history of Roman literature.

SECOND TERM.

HISTORY [4],—Institutions of the Middle Ages in Europe; lectures and assigned reading. The study of events is made subordinate to the study of institutions, especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.

*OR

RHETORIC B [4],—Genung's text-book; study and criticism of authors; essays. Those who took History in the first term will take Rhetoric here, and *vice versa*.

CHEMISTRY [4],—Qualitative Analysis.

OR

PHYSICS [4],—Ganot's Physics; Electricity.

BOTANY [4],—Anatomy and systematic study of higher cryptogams and flowering plants.

OR

ZOOLOGY [4],—Lectures and laboratory work; Animal Biology (continued).

FRENCH [4],—Chardenal's French Course.

OR

GERMAN A. [4],—Becker's Friedrich des Grossen or Freytag's Der Staat.

OR

GERMAN B. [4],—Anderson's Geschichten; oral and written exercises.

OR

LATIN [4],—Plautus, with study of early Latin language and literature.

RHETORICAL WORK [1],—Elocution.

THIRD TERM.

HISTORY [4],—Institutions of England in the Middle Ages; topical research and lectures. The main study is directed towards the evolution of the English constitution. Students who take this term's work are expected to have done that of the term preceding.

CHEMISTRY [4],—Qualitative Analysis.

OR

PHYSICS [4],—Ganot's Physics; Light.

BOTANY [4].—Histology of flowering plants; study of selected groups and genera; thesis work.

OR

ZOOLOGY [4],—Lectures and laboratory work; Animal Biology, closing with development of the chick.

FRENCH [4].—Chardenal's French Course.

OR

GERMAN B. [4],—Freitag's Die Journalisten, or equivalent.

OR

LATIN [4],—Tacitus; Pliny's letters, with the history of Rome and Roman society under the Emperors.

OR

ENGLISH [4],—Milton; studies in Paradise Lost. (This is elective only for students who have taken German from the beginning of the Freshman year.)

RHETORICAL WORK [1],—Orations.

For the **JUNIOR** and **SENIOR** years see pages 70-74.

LITERARY COURSE.

FRESHMAN YEAR.

FIRST TERM.

GERMAN [5],—Maria Stuart, or Wilhelm Tell. Review of German Grammar.

OR

FRENCH [5],—For those who enter the University with French. Subject to be announced later.

MATHEMATICS [5].—Higher Algebra; same as for the classical course.

LATIN [5],—Livy 1st book; review of syntax, composition of words, history of the period of the kings especially the growth of civil institutions.

OR

ENGLISH [5],—Old English (Anglo Saxon) Grammar, and prose master-pieces.

MILITARY DRILL [3],—Same as for the classical course.

SECOND TERM.

GERMAN [4],—Goethe—Herman and Dorothea. Oral and written exercises.

OR

FRENCH [4],—For those who enter the University with French. Subject to be announced later.

MATHEMATICS [5],—Logarithms and Plane and Spherical Trigonometry with numerous applications.

LATIN [4],—Livy—selections, with history and Latin composition based on the text.

OR

ENGLISH [4],—Old and middle English poetry.

MILITARY DRILL [3],—Same as for the classical course.

RHETORICAL WORK [1],—Elocution.

DRAWING [3],—Freehand; six hours a week (OPTIONAL).

THIRD TERM.

ENGLISH [5],—History of the English language with Chaucer, for those in the English course, or Old English (Anglo-Saxon) elements and history of the English language, for those not in the English course.

GERMAN [4],—Heine—Harzreise and Buch der Lieder. Oral and written exercises.

OR

FRENCH [4],—For those who enter the University with French. Subject to be announced later.

CHEMISTRY [5],—Elementary general chemistry, consisting of lectures and recitations, with some laboratory exercises.

SURVEYING [2],—Four hours a week (OPTIONAL).

MILITARY DRILL [3],—Same as for the classical course.

RHETORICAL WORK [1],—Compositions.

SOPHOMORE YEAR.

FIRST TERM.

FRENCH [4],—Chardenal's French Course. Required of students in German B who have not had Latin.

OR

GERMAN B, [4],—Whitney's German Grammar. Oral and written exercises. Grimm's Maerchen.

BOTANY [4],—Gray's Lessons and Manual, with lectures on the leading characters of algae fungi, mosses and ferns, and on the general physiology of plants.

RHETORIC A [4],—Genung's text-book; study and criticism of authors; essays.

OR

HISTORY [4],—Institutions of the Middle Ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions—especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.

Students assigned to Rhetoric in the first term, by the Department, will take History in the second term; others will take History in the first term and Rhetoric in the second.

LATIN [4].—Horace, with history of Roman literature.

OR

GERMAN A [4],—Scientific prose selections.

SECOND TERM.

FRENCH [4],—Chardenal's French Course.

OR

GERMAN B. [4],—Anderson's Geschichten. Oral and written exercises.

HISTORY [4],—Institutions of the Middle Ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions—especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.

OR

RHETORIC B. [4],—Genung's text-book; study and criticism of authors; essays. Those who took History in the first term will take Rhetoric here, and *vice versa*.

GERMAN A. [4],—Becker's Friedrich des Grossen or Freytag's Der Staat.

ENGLISH [4],—Shakspere: Text of Richard III, with Abbott's Shaksperean Grammar. General introduction to the histories.

RHETORICAL WORK [1],—Elocution.

THIRD TERM.

FRENCH [4],—Chardenal's French Course.

OR

GERMAN B. [4],—Freitag's "Die Journalisten" or equivalent.

HISTORY [4],—Institutions of England in the Middle Ages. Topical research and lectures. The main study is directed toward the evolution of the English constitution. Students who take this term's work are expected to have done that of the term preceding.

PHYSICS [4],—Mechanics; Sound and Heat.

LATIN [4],—Tacitus; Pliny's Letters with the history of Rome and Roman society under the Emperors.

OR

ENGLISH [4],—An outline of old and Middle English Literature with printed syllabi and topical work.

RHETORICAL WORK [1],—Orations.

JUNIOR YEAR—ALL COURSES.

FIRST TERM.

REQUIRED,—for all courses:

ENGLISH LITERATURE [4],—History of Eighteenth Century Literature and syllabus of Elizabethan Literature, alternating the next year with History of the Elizabethan Literature, with syllabus of Eighteenth Century Literature.

RHETORICAL WORK [1],—One oration or two essays.

Additional for **CLASSICAL** students:

GREEK [4],—Homer's Iliad or Odyssey; the literature, antiquities, &c., of Homer; essays; collateral readings.

Additional for **SCIENTIFIC** students:

MINERALOGY [4],—Laboratory work eight hours a week; an outline of Crystallography, physical and descriptive minerology; blowpipe analysis.

Additional for **LITERARY** students:

GERMAN B. [4],—Goethe's Iphigenia or equivalent.

OR

FRENCH A. [4],—Chardenal's Third Course. Idiomatic French, &c.; Daudet's, La Belle Nivernaise; Fontaine's Historiettes Modernes.

In addition to the above required work, two of the following subjects must be selected:

LOGIC, WITH AN OUTLINE OF METAPHYSICS [4],—Either Logic or Psychology may be taken as the required work in Philosophy. Students who do not elect Logic will be required to take Psychology in the second term.

HISTORY [4],—England since the Renaissance; topical research, essays and lectures. The English constitution is traced to the end of the Napoleonic wars. Students who take this term's work are expected to have done that of the preceding term.

MATHEMATICS [4],—Analytical Geometry; the conic sections, both by rectilinear and polar co-ordinates; producing equations of loci whose law of development is known; constructing and discussing such equations; transformation of co-ordinates; properties of loci by means of their equations.

SCANDINAVIAN [4],—M. Smith: Norwegian Grammar. I. M. Platon: Norsk Eksempel—Samling. Blackboard and oral exercises.

GERMAN A. [4],—Schiller—Prose selections, life and works.

ANALYTICAL CHEMISTRY [4],—Laboratory work eight hours a week.

PHYSICS [4],—Laboratory work eight hours a week.

PHYSIOLOGY AND HISTOLOGY [4],—Lectures and laboratory work; open only to those who have had Zoölogy or Botany.

MYCOLOGY [4[,—A comparative and systematic study of fungi, using Saccardo and De Bary as reference works. This work can be taken only by those who have had the full course in Botany.

PHYSIOLOGICAL BOTANY [4],—The physics and chemistry of the plant cell, study of protoplasm, nuclear physiology and a brief examination of bacteria methods and technique. Physiology of nutrition.

GREEK B. [4],—(For literary and scientific students), Brooks' Introduction to Attic Greek (begun).

FRENCH A. [4],—De Maistre's, Choix d'Extraits de Daudet. Racine's Andromaque, Translations into French. Lectures on the Literature of the 17th century.

FRENCH B. [4],—With the Sophomores (begun).

The required studies of one course are elective to students of another course, if the students are prepared for the work.

SECOND TERM.

REQUIRED—for all courses:

PSYCHOLOGY [4],—The text-book will be supplemented by lectures and reference work. (This is not required of students who elected Logic the first term).

RHETORICAL WORK [1],—One oration or two essays.

Additional for **CLASSICAL** and **LITERARY** students:

PHYSICS [4],—Light, Magnetism and Electricity.

Additional for **SCIENTIFIC** students:

ELECTIVE [4],—Students must elect one Scientific subject.

In addition to the above required work, two of the following subjects must be selected. If Psychology is not taken, then three subjects from the following list must be selected:

MATHEMATICS [4],—Differential Calculus; differentiation of Algebraic and transcendental functions; development of functions; maxima and minima; treatment of tangents, sub-tangents, normals, sub-normals, asymptotes, direction and rate of curvature, evolutes and envelopes. The text-book is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed.

HISTORY [4],—Studies in the history of the United States. Seminary method. Investigation of selected subjects, and essays involving original work.

SCANDINAVIAN [4],—Jonas Lie: Lodsen og hans Hustru. Blackboard and oral exercises.

FRENCH A. [4],—Chardenal's third course Gautier's Scenes of Travel. Composition, &c.

FRENCH B. [4],—With the Sophomores.

ANALYTICAL CHEMISTRY [4],—Laboratory work eight hours a week.

PHYSICS [4],—Recitations and laboratory work eight hours a week.

PHYSIOLOGICAL BOTANY [4],—Physiology of nutrition; metabolism and growth.

MINERALOGY [4],—Lectures and laboratory work, eight hours a week; descriptive mineralogy continued; qualitative and quantitative blowpipe analysis; assaying of gold and silver.

PHYSIOLOGY AND HISTOLOGY [4],—Can be taken only by those who have had the first term's work.

ENGLISH [4],—Shakspere's Richard III. General introduction to the histories.

GREEK [4],—Brooks' Introduction to Attic Greek (completed); Xenophon's Anabasis (begun).

THIRD TERM.

REQUIRED, for all courses:

ASTRONOMY [4],—The text-book work is supplemented by lectures, especially up-

on the history of the science, and upon recent astronomical discoveries and theories.

RHETORICAL WORK [1],—One oration or two essays.

In addition to the above required work, three of the following subjects must be selected:

MATHEMATICS [4],—Integral Calculus; integration of the various forms, rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, equations of loci by means of the calculus.

SCANDINAVIAN [4],—Jonas Lie; Lodsen og hans Hustru; blackboard and oral exercises.

GERMAN A. [4],—Goethe's Faust, part I; Life and Works of Goethe.

FRENCH B. [4],—With the Sophomores.

CHEMISTRY [4],—Organic, largely experimental.

PHYSICS [4],—Laboratory work eight hours a week.

PHSIOLOGY AND HISTOLOGY [4],—Work of first and second terms continued.

PHYSIOLOGICAL BOTANY [4],—Physiology of growth, irritability and reproduction; thesis work; experimental work on selected lines mapped out for individual students.

MINERALOGY [4],—Eight hours a week; lectures and laboratory work; this is essentially a study of minerals and must be preceded by the first and second terms' work.

ENGLISH [4],—Milton; studies in Paradise Lost.

LATIN [4],—Outline of the history and elements of Roman Law, embracing lectures and text-book work, with translations at sight from Latin writers, illustrating the subject.

GREEK A. [4],—Selections from Dramatic and Lyric Poets; essays, lectures, collateral readings.

GREEK B. [4],—Anabasis (completed).

DRAWING [4],—Freehand; eight hours.

ARISTOTLE'S ETHICS [4],—With selections from the Politics, and a comparison of Greek and Christian Ethics in lectures.

SENIOR YEAR, ALL COURSES.

FIRST TERM.

RHETORICAL WORK [1],—Orations or Essays. Required.

In addition, sixteen exercises a week must be chosen from the following list:

GEOLOGY [4],—Dynamical and structural. The cosmic aspects of geology, erosion, sedimentation, oscillations of level and geological dynamics with discussions of facts and theories.

HISTORY OF PHILOSOPHY [4],—Epochs and great thinkers. Lectures with library work.

PRACTICAL ASTRONOMY [4],—The work embraces the theory and use of instruments, the use of the Ephemeries and Nautical Almanac, the various methods of determining time, latitude and longitude, methods of obtaining the parallax and position of celestial bodies, and of computing eclipses. The student is required to compute several eclipses before the time of their occurrence.

POLITICAL SCIENCE [4],—Lectures on the history of economics and established principles of private economics. Oral and written exercises.

POLITICAL SCIENCE SEMINAR [1],—Meets once a week throughout the year. Students pursuing this course successfully obtain a credit of one term's work in the Senior year.

HISTORY [4],—The Nineteenth Century. A topical study of the institutions and politics of Europe at the present time.

SCANDINAVIAN [4],—A. E. Eriksen: Norske og Danske Forfattere. Blackboard and oral exercises.

ANIMAL MORPHOLOGY [4],—The course is open only to those who have had Zoölogy, and who can read German. It is also important to be able to read French.

CHEMISTRY [4],—Organic and theoretical.

ENGLISH [4],—Literature in the United States in the Nineteenth Century. Critical studies in representative American authors and literary movements. The critical appartus to be applied in the English studies of the entire year will be given in lectures. The major portion of the work will be the application of this apparatus by the students in the "Seminar," to which many of the class-room exercises will be dedicated. It will be observed that it is designed that the English electives of the year offer a consecutive critical course in the field of the Nineteenth Century.

GREEK A. [4],—Archæology of Greek Art.

GREEK B. [4],—Homer's Iliad or Odyssey or Xenophon's Hellenica.

GEOLOGY [1],—A short course embracing an outline of the subject.

SECOND TERM.

RHETORICAL WORK [1],—Orations or Essays. Required.

In addition, sixteen exercises a week must be chosen from the following list:

POLITICAL SCIENCE [4],—Lectures on government. Critical reading of the constitutions of the United States and Minnesota. De Tocqueville's Democracy in America read privately by the class. Short course in International Law. Frequent oral and written exercises.

POLITICAL SCIENCE SEMINAR [1],—See announcement for first term.

ETHICS [4],—The Principles of Morality, with special study of Modern Theories, Seminary method.

GEOLOGY [4],—Lithology and Historical Geology: (*a*) the different forms under which rock masses occur; (*b*) the classification and composition of rocks; (*c*) the microscopic examination of typical thin sections; (*d*) the nature and significance of fossils; (*e*) a study of the Cambrian and Silurian faunas.

LATIN [4],—Seneca's Dialogues; and Letters.

ANIMAL MORPHOLOGY [4],—Work of the first term continued.

GERMAN A. [4],—Lessing's Nathan or Laocoon. Life and Works of Lessing.

ENGLISH [4],—Lectures on Oratory by the President. Critical studies with the preparation of original reviews, in the authors of the Victorian Age, alternating the next year with similar work in the authors at the opening of the Nineteenth Century. The student should have taken the English of the preceding term.

GREEK A. [4],—Modern Greek (begun.)

GREEK B. [4],—Xenophon's Hellenica, and Symposium, or Sophocle's Antigone.

SCANDINAVIAN [4],—Njaal's Saga,—Swedish. Blackboard and Oral exercises.

MATHEMATICS [4],—Co-ordinate Geometry of Three Dimensions.

MILITARY SCIENCE [4],—Lectures and Recitations.

FRENCH A. [4],—Extraits de Daudet—La France's Abeille—De Rougemont's La France.

THIRD TERM.

Sixteen exercises a week must be chosen from the following list:

POLITICAL SCIENCE,—American public economy—syllabus—with special treatment of taxation, money, protection, public education, &c., as time allows. Oral and written exercises.

APPLIED GEOLOGY [4].—Relation of geology to mining—Nature and origin of ore deposits and a survey of the geological and geographical distribution of the ores of the most important metals, building stones, precious stones, fuels, mineral springs, artesian wells and water supply, the formation and constitution of soils.

POLITICAL SCIENCE SEMINAR [1],—See announcement for first term.

FRENCH A. [4],—V. Hugo—Halévy—Fallet's LePrinces de l'Art.

GERMAN A. [4],—German Lyric Poetry; History of German Literature.

LATIN [4],—Selections from different authors.

SCANDINAVIAN [4],—Njaal's Saga,—Swedish. Blackboard and oral exercises.

ANIMAL MORPHOLOGY [4],—Second term's work continued.

HISTORY [4],—The Philosophy of History. Lectures and select readings.

GREEK A. [4],—Modern Greek (continued).

GREEK B. [4],—Plato's Apology and Crito or Demosthenes' Olynthiacs and Philippics.

POLITICAL PHILOSOPHY [2],—The Theory of the State. Historical and theoretical.

SOCIAL PHILOSOPHY [2],—An application of ethical principles to social questions.

ENGLISH LITERATURE [2 or 3],—"Seminar" on Robert Browning's Poetry (1), discussions on the Philosophy of modern Art and Criticism (2), alternating the next year with Philosophy of English and American Literature, from their rise to the present.

COMPARATIVE PHILOLOGY [2],—Lectures; historical outline, syllabus and treatment of leading topics.

PEDAGOGY [1],—Lectures.

SHAKSPERE [1],—Lectures by the President.

SANITARY SCIENCE [1],—Lectures.

GREEK SEMINARY [1],—In Epic or Dramatic Poetry.

NOTES, N. B.

GERMAN,—Two courses are offered in the German language and literature. The complete course, designated "A," extends over a period of three years or nine terms. To pursue this, one year of preparatory work in German is required for entrance to the University. Students who enter the University without preparation in German, must begin the subject the first term of the Sophomore year if at all. This constitutes a brief course of four terms and is marked "B." Whenever practicable the students in course "B." will recite with those in course "A."

SCANDINAVIAN,—To advanced Scandinavian students a parallel course is offered with lectures on the history of Danish, Norwegian and Swedish literature, with critical reading of masterpieces of Scandinavian literature, essays and oral exercises.

FRENCH,—Two courses are offered in the French language and literature. The complete course, designated "A." extends over a period of seven terms. To pursue this, one year of preparatory work in French is required on entering the University. Students who enter the University without preparation in French may begin the subject the first term of the Sophomore year or first term of Junior year. This constitutes a brief course and is marked "B." Whenever practicable the students in course "B." will recite with those in course "A."

ENGLISH,—Two courses are offered in the English language and literature. The complete course designated "A." extends over a period of six terms of required work and a possible five terms of elective work. To pursue this, if one has not the specific English preparation required in the Scientific and Literary preparatory courses his entrance Latin will be accepted as a happy equivalent. Course "B." embraces only two terms of required work, viz., III Term Freshman and I Term Junior. These terms are designed to lay the foundation in language and literature for the later electives in English.

DAILY ROUTINE.

As a general rule each student has sixteen exercises a week, besides rhetorical work, which comes but once in the week.

MILITARY DRILL is required of the Freshmen and students in other classes may take the drill, and a year thus taken will count as one study in one term of the Senior year. It is understood, however, only one credit can be thus gained during the whole course.

MONDAY IS TAKEN AS A HOLIDAY.—The morning session begins at 8:15 o'clock, and is divided into five periods of fifty minutes each. A general assembly of students and faculty is held each day at 11 o'clock, at which there are brief and simple religious exercises. Special students and students in the Freshman and Sophomore classes are required to attend.

EXAMINATIONS.

At the close of each term examinations are held in the studies of the term. In order to be "passed" the student must obtain seventy-five per cent. in all classes.

In determinining the standing of a student in any subject the result of his daily work on that subject is combined with the result of the final examination in the ratio of two to one.

Students who are unsuccessful in any subject of any term are reported by the professor as being "incomplete," "conditioned" or as having "failed." "Incomplete" work may be made up at the convenience of the professor concerned; "conditions" may be made up within two terms; "failures" must be taken over in class. The examinations for conditioned students are held at the beginning of the fall term, in the work of the fall term; at the beginning of the winter term, in the work of the winter term; and at the beginning of the spring term, in the work of the spring term. Conditions of any term that are not made up by the beginning of that term must be taken in class.

A student who at any time is deficient in more than three studies of five hours per week, or four studies of four hour hours per week, loses his class rank and is regarded as a member of the next lower class.

GRADUATION.

Students completing courses of study to the satisfaction of the faculty of the college, are entitled respectively to receive the appropriate baccalaureate degrees, to-wit: Bachelor of Arts, Bachelor of Science, Bachelor of Literature.

Any person may undergo, at suitable times, examination in any subject; and if such person pass in all the studies and exercises of a course, he is entitled to the appropriate degree.

SPECIAL STUDENTS.

Persons of mature years and judgment may be admitted to pursue studies to be selected from the regular course of study. The subjects are arranged in groups. Special students must confine their work to one or two

of the groups as tabulated below. **All applicants, as conditional to their admission as special students, shall pass an examination in so many of the subjects known as requisites for entrance to the regular course of study, as properly belong to, or are naturally introductory to the line or lines of study they have elected;** for instance, if they have elected mathematics, they shall be examined in entrance mathematics; if history, then entrance history; if science, then entrance science; if English studies or a modern language, then entrance English; if Latin, then entrance Latin; if Greek, then entrance Latin or English.

The grouping of the subjects is as follows:

I. MODERN PHILOLOGY.—English, French, German, Scandinavian.
II. CLASSICAL PHILOLOGY.—Greek, Latin.
III. COMPARATIVE PHILOLOGY.—
IV. BIOLOGICAL SCIENCE.—Botany, Zoology, Physiology, Paleontology.
V. PHYSICAL SCIENCE.—Lithological Geology, Chemistry, Physics, Mineralogy.
VI. MATHEMATICS.—Algebra, Geometry, Quaternions, Astronomy.
VII. HISTORY.—
VIII. POLITICAL SCIENCE.—Political Economy, National Economy, International Law.
IX. PHILOSOPHY.—Logic, Psychology, Natural Theology, History of Philosophy.

Candidates for admission to pursue special studies make a further application on a blank provided for that purppose. This application must be presented in person to a committee of the General Faculty, H. P. Judson, Chairman. This application, if approved, is then placed on file with the registrar. Special students desiring to change their lines of study must again present their application to the committee for approval. All special students must renew their application at the beginning of each year.

MILITARY SCIENCE AND TACTICS.

The chair is filled by an officer of the regular army detailed by the President of the United States at the request of the board of Regents of the University.

For the character of the exercises and number per week, see the course of study.

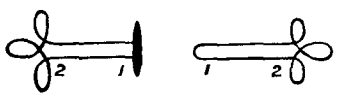
The organization consists of a battalion, composed of three companies of Infantry, and a battery of Artillery for the male students, also one company of female students. The course is compulsory during the Freshman year for all students who enter the collegiate course, (unless especially excused by the faculty); all are expected to provide themselves with uniforms. That for the male students will be manufactured by tailors in the city of Minneapolis and will cost complete about $20.00. It consists of a blouse, trousers, vest and cap, modeled after the West Point Cadet uni-

The three students of the Senior class having the highest grade of merit in this department will be reported to the Secretary of War, and by him reported in the Army and Navy register for that year. Preference being given to those so reported in selecting officers for vacancies in the United States Army.

Military drill may be taken voluntarily by others outside the Freshman class, and a year of drill thus taken will count as one study in the third term of the Senior year. It is understood, however, that only one credit can be thus gained.

LADIES' DRILL UNIFORM.

The material shall be of dark navy-blue flannel trimmed with light-gray broadcloth. The skirt shall be a plain full skirt, containing two and one-half widths, or three if necessary, of the navy-blue material, so gathered at the waist that the main fulness shall fall behind. In length the skirt shall be exactly five inches from the floor; and shall be finished with a hem four and one-half inches wide. Just above the hem shall be a band of the light-gray broadcloth two inches wide when finished, the lower edge being exactly four inches from the bottom of the skirt. The skirt shall be sewed to a silicia waist. The blouse shall be made without lining, just long enough to fall over the belt of the blouse, and with no more fulness around the bottom than is necessary. The belt of the blouse must be fastened to the skirt. The neck shall be finished with a short standing collar, also a sailor collar, the pattern of which will be sent with the goods. The sleeves shall be straight and full enough to allow free movement. They shall be gathered at the wrist into a band of the broadcloth two inches deep. The blouse shall be fastened in front with five frogs, made of gray braid as follows:



Each half frog contains one-half yard of the braid, sewed together as shown in the cut. The distance from 1 to 2 is three inches, and the remainder of the one-half yard makes the loops. Stiff waists, bustles and reeds are prohibited, and no changes, and no additions must be made to these directions by individuals. The material can be procured only at Hale, Thomas & Co.'s, Minneapolis, Minn. In ordering state the number of yards needed of the navy-blue material, and this, together with the necessary trimmings, will be sent upon request from the above-named firm.

SCHOOL OF MINING AND METALLURGY.

FACULTY.

CYRUS NORTHROP, LL. D.,
President.

CHRISTOPHER W. HALL, M. A.,
Professor of Geology and Mineralogy.

JOHN F. DOWNEY, M. A., C. E.,
Professor of Mathematics.

JAMES A. DODGE, PH. D.,
Professor of Chemistry.

Professor of Mining Engineering.

JOHN H. BARR, M. M. E.,
Professor of Mechanical Engineering.

FRED S. JONES, B. A.,
Professor of Physics.

WM. A. PIKE, S. B.,
Professor of Engineering.

ENTRANCE.

ENGLISH GRAMMAR.
ENGLISH COMPOSITION.
ESSAY.
ELEMENTARY ALGEBRA.
HIGHER ALGEBRA.
PLANE GEOMETRY.
SOLID GEOMETRY.
U. S. HISTORY.
HISTORY OF GREECE AND ROME.
PHYSIOLOGY.
NATURAL PHILOSOPHY.

For more extended statement of the work covered by these subjects see requirements for admission to the classical course, page 61.

DRAWING.—Two terms of Freehand or Mechanical Drawing.

CHEMISTRY.—The non-metalic elements. As presented in the elementary text-books, such as Cooley's, Remsen's, etc.

BOTANY.—Phanerogamic, Gray's Lessons and Manual.

LATIN.—As in the Classical Course.

OR { **ENGLISH.**—Latin elements of English and History of English Literature.
GERMAN.—Meissner's German Grammar [Parts I, II, III]. H. Grimm's Maerchen.

COURSE OF STUDY.

FRESHMAN YEAR.

I. TERM.	II. TERM.	III. TERM.
Mathematics. Drawing, Mechanical. English. German.	Mathematics. Chemistry. English. German.	Drawing, Mechanical. Chemistry. English. Surveying. German.

SOPHOMORE YEAR.

I. TERM.	II. TERM.	III. TERM.
Analytical Geometry. Physics Carpentry. French.	Differential Calculus. Physics. Chemistry. French.	Integral Calculus. Physics (optional). Surveying, and field work in Surveying. French.

JUNIOR YEAR.

I. TERM.	II. TERM.	III. TERM.
Mineralogy. Geology. Chemistry. Forge Work.	Mineralogy. Geology. Mechanics. Machine Shop Practice.	Mineralogy. Geology. Mechanics. Testing Materials.

SENIOR YEAR.

I. TERM.	II. TERM.	III. TERM.
Mining (lectures, etc.) Geology (special work). Machinery. Assaying.	Ore Dressing and Metallurgy. Assaying. Steam Engines & Motors. Hydraulics.	Mine Surveying and Designs. Metallurgy. Chemistry. Thesis.

The instruction in the studies of the first three years, and in a part of the studies of the fourth year of this course is already substantially given by the several departments in the College of Science, Literature and the Arts, and in the College of Mechanic Arts. In these branches the various laboratories and work-rooms of the University, with a good equipment already furnished, and with additions to apparatus and material constantly being made, will afford facilities for practical and thorough work. For the remaining studies of this course, provision is made by assigning for the accommodation of the School of Mining and Metallurgy, rooms in the new

Museum Building, or Pillsbury Hall. In the basement of this building will be furnished the usual appliances for the study of assaying and metallurgy, the practical treatment of ores and the separation of metals, including crushing machinery, amalgamating apparatus and furnaces. Visits to mines, stamp mills, smelters, and blast furnaces, will form a part of the course.

DEGREES.

Students who complete the full course of study will receive the degree of Bachelor of Mining Engineering.

THE COLLEGE OF MECHANIC ARTS.

FACULTY.

CYRUS NORTHROP, LL. D.
President.

WILLIAM A. PIKE, S. B.
Dean and Professor of Engineering.

CHRISTOPHER W. HALL, M. A.
Professor of Geology and Mineralogy.

JOHN F. DOWNEY, M. A., C. E.
Professor of Mathematics.

JAMES A. DODGE, PH. D.
Professor of Chemistry.

WILLIAM R. HOAG, C. E.
Professor of Civil Engineering.

JOHN H. BARR, M. S., M. M. E.
Professor of Mechanical Engineering.

FREDERICK S. JONES, A. B.
Professor of Physics.

HENRY T. ARDLEY,
Principal of the School of Wood Carving, Design and Freehand Drawing.

ALBERT J. SCHUMACHER.
Instructor in Civil Engineering and Physics.

HARRY E. SMITH, M. E.
Instructor in Mechanical Engineering and Wood-Working.

ALBERT I. JONES.
Instructor in Metal Working, &c.

EDWARD P. BURCH.
Assistant in Electricity.

AMELIA I. BURGESS.
Instructor in Freehand, Drawing and Design.

HARRY W. DIXON.
Engineer.

In this college there are four regular courses of study, viz: Civil Engineering, Mechanical Engineering, Electrical Engineering and Architecture, leading to the corresponding baccalaureate degrees. Applicants are also admitted to pursue, under direction of the faculty, one or two distinct lines of study selected from the regular course. In the School of Practical Me-

chanics, a department of this college, special courses are arranged in shop-work, drawing, and mathematics, and in the care and management of engines and boilers. There is also a school of design, freehand drawing and wood carving.

The aim of the instruction given in the regular undergraduate courses of this college is to lay a broad and solid foundation in mathematics, mechanics, electricity, and drawing, so that, with the practice in field, shop, office, and laboratory work given to the students in the respective courses, they shall be fitted for immediate usefulness upon graduation, and after a moderate amount of subsequent practice and experience be capable of taking charge of important works.

ADMISSION.

For more extended statement see requirements for admission to scientific course on page 63.

ENGLISH GRAMMAR AND COMPOSITION WITH AN ESSAY. — The essay will be on a subject to be announced at the examination, preparation for which will require the careful reading of Shakspere's Julius Cæsar. Goldsmith's Vicar of Wakefield, Scott's Lady of the Lake and Irving's Sketch Book. Equivalents of these four books will be accepted.

MATHEMATICS, — *Elementary Algebra, Higher Algebra, Plane Geometry*, and *Solid Geometry*.

HISTORY, — *History of the United States* and *History of Greece and Rome*.

PHYSIOLOGY,

NATURAL PHILOSOPHY,

DRAWING, — Two terms of Freehand or Mechanical Drawing.

Physical Geography may be offered in lieu of Drawing, but only in schools where drawing cannot be taught. This drawing must, however, be made up during the Freshman year.

CHEMISTRY, — The non-metallic elements.

BOTANY, — Phanerogamic, Gray's Lessons and Manual.

LATIN, — As in the Classical Course.

OR

ENGLISH, — Latin Elements of English and History of English Literature.
AND
GERMAN,—Meissner's German Grammar [Parts I, II, III], H. Grimm's Maerchen.

OR

ENGLISH,—Latin Elements of English and History of English Literature.
FRENCH,—Chardenal's Course, first two books of Telemaque.

CURRICULUM.

FRESHMAN YEAR (ALL COURSES).

FIRST TERM.

HIGHER ALGEBRA [5],—Same as for Scientific Course.

DRAWING [10],—Freehand. Outline drawing from objects, shading, lettering, sketching machinery, &c. Mechanical and geometrical problems, lettering, projections of geometrical solids. Plans and elevations, scale drawings of objects from sketches, tinting and shading.

If freehand drawing is offered for admission, mechanical drawing is required and vice versa.

GERMAN, [5],—Same as for Scientific Course.

OR

FRENCH [5],—Same as for Scientific Course.

If {French / German} is offered for admission students are required to take {French / German} during the Freshman year and to take {German / French} during the Sophomore year.

If Latin is offered students will take French through the Freshman year with the Sophomores and German through the Sophomore year.

MILITARY DRILL [3], Same as for Scientific Course.

SECOND TERM

TRIGONOMETRY [4],—Same as for Scientific Course.
GERMAN [4],—Same as for Scientific Course.
OR
FRENCH [4],—Same as for Scientific Course.
CHEMISTRY [4],—Same as for Scientific Course.
MILITARY DRILL [3],—Same as for Scientific Course.
RHETORICALS [1],—Same as for Scientific Course.

THIRD TERM.

ENGLISH [5],—Same as for Scientific Course.
GERMAN [4],—Same as for Scientific Course.
OR
FRENCH [4],—Same as for Scientific Course.
DRAWING [4],—Eight hours. Mechanical: Shade lining, isometric, cabinet, projection and perspective.
SURVEYING [2],—Wentworth's text-book. Discussion of methods and instruments used in farm, public land, and draining surveys. Actual field and office practice in surveys illustrating class-room work, including determination of the meridian.
RHETORICALS [1],—Same as for Scientific Course.
MILITARY DRILL [3],—Same as for Scientific Course.

CIVIL ENGINEERING COURSE.

SOPHOMORE YEAR.

FIRST TERM.

ANALYTICAL GEOMETRY [4],—With Juniors of the Scientific Course.
PHYSICS [4],—Ganot's text-book. Sound and heat.
FRENCH]4],
OR
GERMAN [4],
TOPOGRAPHY [10],—Lectures on different methods of Topographical Surveying, and methods of keeping field notes. Johnson's text-book on the adjustment of instruments and theory of Stadia measurement. Field work, with actual adjustment of all instruments used. Surveys made illustrating the different methods of conducting topographical surveys, including pacing, transit, and Stadia, and rectangular. Platting topographical notes.

SECOND TERM.

DIFFERENTIAL CALCULUS [4],—With Scientific Juniors.
PHYSICS [4],—Ganot's text-book, magnetism and electricity.
FRENCH [4],
OR
GERMAN [4],
DESCRIPTIVE GEOMETRY [10],—(Recitations and drawing,) Watson's text-book. General notation, problems relating to points, lines, and planes. Surfaces

of revolution and their tangent planes. Intersection and developement of surfaces. Methods of rotation. Original problems.
RHETORICALS [1],

THIRD TERM.

INTEGRAL CALCULUS [4].—With Scientific Juniors.
ASTRONOMY [4],—With Juniors.
FRENCH [4],
OR
GERMAN [4],
HIGHER SURVEYING [10],—Johnson's text-book. Theory of barometric leveling, and determination of heights, using Aneroid and Mercurial Barometers. Theory of Solar Compass and Solar Attachment surveying. Tracing lines with Solar Compass and making topographical surveys with the Plane Table. City Surveying. Discussion of Planimeters, Calculating Machines, etc. Platting notes and computing results.
RHETORICALS [1],

JUNIOR YEAR.

FIRST TERM.

CURVES AND EARTHWORK [5],—Trautwine's text-book supplemented with notes and problems, discussion of different methods of calculating R. R. curves, turn-outs and cross-overs. Theory of section-leveling, cross-sectioning and calculation of earthwork.
MECHANICS [5].—(Statics and dynamics). Church's text-book. Composition and resolution of forces and couples. Centre of gravity, statics of rigid bodies and flexible cords, rectilinear and curvilinear motion, impact, moment of inertia, dynamics of rigid bodies, work, energy and power.
MINERALOGY [4]
FIELD WORK [10],—Laying out the various curves analyzed in the class room. Staking out side-tracks, cross-overs, wyes, &c. Special problems.

SECOND TERM.

MECHANICS [5],—(Strength of Materials). Church's text-book. Friction, elementary stress and strain. Flexure, elastic curves, safe loads, shear in flexure. Continuous girders, non-prismatic beams of uniform strength. Long columns and trussed girders.
POLITICAL SCIENCE [4]
STEREOTOMY [10],—Lectures on requirements of masonry construction as to pattern and templates as used in stone cutting. Drawing of and making patterns for various arches, including the arched culvert, the arch in a round tower and the skew arch.
DRAWING AND CARPENTRY [10],—Lectures on the selection and care of instruments. Conventional signs and platting field notes. Shop practice in timber joints with applications to models of standard engineering structures.

THIRD TERM.

MECHANICS [5].—Church's text-book on Linear Arches. Graphical Statics. Arches of Masonry and Arch-ribs. Merriman's text on Theoretical Hydraulics. Flow of water through orifices, tubes and pipes and over weirs. Measurement of water power.
MATERIALS OF ENGINEERING [10],—Lectures and laboratory work. Study of

the physical properties of the materials used in engineering, and the effect of composition and treatment on their strength, durability, &c., with illustrations in the laboratory and practice in testing materials.

POLITICAL SCIENCE [4]

RAILROAD STRUCTURES AND HYDROGRAPHY [10],—Drawings and bills of material for standard R. R. structures. Text-book (Johnson's) work on Hydrographic surveying with lectures on methods of rating the current meter. Field practice in rating the Current meter and in the determination of flow of rivers. Reduction of field notes and platting.

SENIOR YEAR.

FIRST TERM.

GEODESY [5],—Text-books, Johnson's Surveying, and Comstock's method of least squares. Theory of Geodetic and precise spirit levelling. Projection of maps, lectures on base line measurement and methods of observation and field records. Theory of least squares. Adjustment of measured angles. Method of computation of geodetic positions with reduction of actual geodetic field notes.

RAILROAD WORK [10],—General reconnaissance of a piece of country, followed by a preliminary survey, including necessary topography for "paper location." Selection and location of line, section leveling and cross-sectioning, making maps and profiles and calculations of earthwork. Complete estimate of cost of construction, including culverts, bridges, cattle guards, etc.

FIELD AND OFFICE WORK [10], — Determination of local time by sextant. Measurement of secondary base line. Determination of astronomical latitude and longitude and establishing a precise meridian. Finding value of bubble tubes and micrometer-eye-pieces of astronomical transit and regular observations made for clock error. Reduction of observations.

HYDRAULICS [5], Text-book, Merriman. Flow of water in conduits, canals or rivers. Dynamical pressure of flowing water, and application in water wheels. Lectures and collateral reading on collection, purification, storage and distribution of water for cities, towns, and irrigation purposes. Lectures on separate and combined systems of sewerage, on house sanitation and sewage disposal.

SECOND TERM.

ROOF AND BRIDGE TRUSSES [10],—(Blue Print Notes.) Determination of stresses in roofs under dead snow and wind loads, principally by graphical methods. Strain sheets for highway and railroad bridges employing analytical methods principally.

MASONRY STRUCTURES [5],—Text-book. Baker. Materials of construction. Stones, bricks, cements, etc. Foundations, dams, retaining wal s, piers and abutments, culverts, arches.

DETAILS OF IRON CONSTRUCTION [10],—Sketches, measurements and details of actual structures.

THESIS [10],—During this term, as in the next, the time of one subject is devoted to thesis work. These theses consist of original designs or of complete investigations and reports on some existing structure or process.

THIRD TERM.

DESIGNS [10],—Complete designs for engineering structures, such as bridges, roofs, piers, arches, etc.,

THESIS [10],—Completion of work of previous term.

ELECTIVE [4],

SPECIFICATIONS [10],—Drawing, bills of material and specifications of designs, etc., above.

MECHANICAL ENGINEERING COURSE.

FRESHMAN YEAR.

Same for all courses. See page 82.

SOPHOMORE YEAR.

FIRST TERM.

ANALYTICAL GEOMETRY [4],—With Scientific Juniors.
PHYSICS [4],—Ganot's text-book. Sound and Heat.
FRENCH [4].
OR
GERMAN [4].
FOUNDRY WORK AND DRAWING [10],—Moulding and casting from patterns made by the previous classes. The principal object of this course is to prepare students for correct and economical designing. The drawing will be on detail working drawings from measurements.

SECOND TERM.

DIFFERENTIAL CALCULUS [4],—With Scientific Juniors.
PHYSICS [5],—Magnetism and Electricity.
FRENCH [4].
OR
GERMAN [4].
CARPENTRY [10],—Shop practice in use of tools preparatory to pattern making.
RHETORICALS [1].

THIRD TERM.

INTEGRAL CALCULUS [4],—With Scientific Juniors.
PHYSICS [4],—Light.
FRENCH [4].
OR
GERMAN [4].
PATTERN MAKING [10],—Methods and forms used in ordinary machinery moulding, including solid and split patterns, three part, core work and special expedients.
RHETORICALS [1].

JUNIOR YEAR.

FIRST TERM.

KINEMATICS [3h] **AND GRAPHICS** [4h],—Text-books; Stahl and Wood's Mechanism, with supplementary notes, and Halsey's Slide Valve Gears. Recitations, lectures and drawing on the transmission of motion by toothed gearing, belting, link-work, quick return and feed mechanisms, valve gears, &c., with graphical methods of solving problems of machine design.
MECHANICS [5],—Same as for Civil Engineering course.
ELEMENTARY ELECTRICAL MEASUREMENT [10],—Laboratory work; measurements of current strength, resistance and electro-motive force; determination of constants by voltametric and absolute methods.
FORGE WORK [10],—Exercises, including upsetting, drawing out, forming, bending, welding, &c., &c., including the manipulation and tempering of steel for springs, tools, &c.

SECOND TERM.

MECHANICS [3h] **AND GRAPHICS** [4h],—Continuation of work of previous term.
MECHANICS [5],—Same as for Civil Engineering.
DESCRIPTIVE GEOMETRY [10],
VISE AND MACHINE WORK [10],—Exercises in the use of hand and machine tools, with application to actual construction, as a guide to future designing.

THIRD TERM.

MECHANICS [5],—Same as for Civil Engineering.
DYNAMO MACHINERY [4],—Recitations; text-book, Thompson's.
MATERIALS OF ENGINEERING [10],—Lectures and laboratory, study of the physical properties of the materials used in engineering, and the effect of composition and treatment on their strength, durability, &c., with illustrations in the laboratory, and practice in testing materials.
MACHINE WORK [10],—Continuation of previous term's work, with more extended drill in shop practice.

SENIOR YEAR.

FIRST TERM.

THERMO-DYNAMICS [5], — Text-books: Holmes' Steam Engine and Wood's Thermo-dynamics. Lectures and recitations, nature of heat, methods of measurement, effect on fluids. Perfect heat engines, maximum efficiency. Indicators, fuel combustion, generation of steam, condensers, wastes and losses in heat engines, and methods of preventing them, graphics of heat engines.
MACHINERY [5].—Text book. Unwin's Machine Design. Principles of mechanics applied to the design of machinery. Strength and dimensions of parts considered in detail.
ELECTRIC MOTORS [5],—Recitations. Text-book.
DESIGNING [10],—Full detail drawings of machinery from original and existing designs.

SECOND TERM.

STEAM ENGINE AND MOTORS [5],—Text-book. Whitham's Steam Engine Design. Lectures. Principles of mechanics and thermo-dynamics applied to the design and construction of steam engines, turbines and other motors.
EXPERIMENTAL MECHANICS [10],—Calibration of instruments of precision used in mechanical tests, with preparation of tables, curves of corrections and determination of constants. Measurement of power given out by motors or absorbed by machinery. Efficiency of mechanism, boilers, &c., capacity and duty tests, and methods of scientific and commercial trials.
POLITICAL ECONOMY [4].
THESIS [10],—The time of one subject is devoted to Thesis work, which consists either of an original design fully worked out, or of careful and complete investigation and experiment on some subject in mechanical engineering.

THIRD TERM.

DESIGNS, ETC. [10],—Complete designs of machinery or structures, as engines, boilers, special machines, chimneys, floors, &c.
THESIS [10],—Completion of work of previous term.
SPECIFICATIONS [10],—Drawings and specifications for designs above.
POLITICAL ECONOMY [4].

ELECTRICAL ENGINEERING COURSE.

FRESHMAN YEAR.

Same for all courses. See page 82.

SOPHOMORE YEAR.

Same as for Mechanical Engineering course, See page 86.

JUNIOR YEAR.

FIRST TERM.

KINEMATICS AND GRAPHICS [5],—Same as for Mechanical Engineering.
MECHANICS [5] —Same as for Civil Engineering.
CHEMISTRY [10],—With Scientific Sophomores.
ELEMENTARY ELECTRICAL MEASUREMENTS [10],—Laboratory work; measurements of current strength, resistance and electro-motive force; determination of constants by voltametric and absolute methods.

SECOND TERM.

MECHANICS [5],—Same as for Civil Engineering.
MAGNETIC MEASUREMENTS [5],—Laboratory; determination of horizontal intensity and magnetism of iron; induction coefficient.
DESCRIPTIVE GEOMETRY [10],—(Recitations and drawing). Watson's text-book. General notation, problems relating to points, lines and planes. Surfaces of revolution and their tangent planes. Intersection and development of surfaces. Method of rotation. Original problems.
VISE AND MACHINE WORK [10],—Same as for Mechanical Engineering.

THIRD TERM.

MECHANICS [5],—Same as for Civil Engineering.
DYNAMO MACHINERY [4],—Recitations; text-book Thompson's.
TESTING MATERIALS [10],—Same as for Mechanical Engineering.
ACCUMULATORS, ELECTRIC LAMPS AND PHOTOMETRY,—Electro-motive force and efficiency of various accumulators. Determination of horizontal and space distribution. Variation in resistance. Relation between candle power and potential.

SENIOR YEAR.

FIRST TERM.

THERMO DYNAMICS [5],—Same as in Mechanical Engineering.
ELECTRIC MOTORS [5],—Recitations. Text-book, Kapp's transmission of electrical energy.
MACHINERY [4],—Same as in Mechanical Engineering.
DYNAMOS [10],—Laboratory work. Characteristic curves and efficiency of different types.

SECOND TERM.

STEAM ENGINE [5],—Same as in Mechanical Engineering.
EXPERIMENTAL MECHANICS [5].—Same as in Mechanical Engineering.

POLITICAL SCIENCE [4],—Lectures on government. Critical reading of the constitutions of the United States and Minnesota. De Tocqueville's Democracy in America read privately by the class. Short course in International Law. Frequent oral and written exercises.

MOTORS [10],—Laboratory work. Curves and efficiency of motors. Thesis work commenced.

THIRD TERM.

DESIGNS, ETC. [10],—Same as in Mechanical Engineering.

THESIS [10],—Completion of work of previous term. (4)?

POLITICAL SCIENCE, American public economy—syllabus—with special treatment of taxation, money, protection, public education, &c., as time allows. Oral and written exercises.

SPECIFICATIONS, ETC. [10],—Same as in Mechanical Engineering.

ARCHITECTURAL COURSE.

FRESHMAN YEAR.

Same for all Courses. See page 82.

SOPHOMORE YEAR.

FIRST TERM.

ANALYTICAL GEOMETRY [4],—With Scientific Juniors.
PHYSICS [4],—Ganot's text-book. Sound and heat.
FRENCH [4].
OR
GERMAN [4].
CARPENTRY [10].

SECOND TERM.

DIFFERENTIAL CALCULUS [4],—With Scientific Juniors.
PHYSICS [4],—Magnetism and Electricity.
FRENCH [4].
OR
GERMAN [4].
DESCRIPTIVE GEOMETRY [10],—Same as for Civil Engineering.

THIRD TERM.

INTEGRAL CALCULUS [14],—With Scientific Juniors.
PHYSICS [4],—Light.
FRENCH [4].
OR
GERMAN [4].
FREE-HAND DRAWING [10].

JUNIOR YEAR.

FIRST TERM.

MECHANICS [5],—Same as for Civil Engineering.
MINERALOGY [4].
PERSPECTIVE [10],—Free-hand Drawing.

SECOND TERM.

MECHANICS [5],—Same as for Civil Engineering.
STEREOTOMY [10],—Same as for Civil Engineering.
POLITICAL SCIENCE [4],
DETAILS OF WOODEN STRUCTURES [10],

THIRD TERM.

MECHANICS [5],—Same as for Mechanical Engineering.
MATERIALS OF ENGINEERING [10],—Same as for Civil Engineering.
POLITICAL SCIENCE [4],
HISTORY [6],—Orders of Architecture. Recitations and drawing.

SENIOR YEAR.

FIRST TERM.

HYDRAULICS [5],—Same as for Civil Engineering.
DETAILS OF IRON CONSTRUCTION [10],—Measurements of existing structures, as trusses, girders etc., and analysis of the same.
ELECTIVE [4],
DRAWING [10],—Historic. Ornament.

SECOND TERM.

ROOF AND BRIDGE TRUSSES,—Same as for Civil Engineering.
MASONRY STRUCTURES,—Same as for Civil Engineering.
DRAWING,—Designs, etc.,
THESIS,—See Civil Engineering.

THIRD TERM.

DESIGNS [10],
THESIS [10],
ELECTIVE [14],
SPECIFICATIONS, ETC. [5].

LECTURES ON THE LAW OF CONTRACTS.

The Students Engineer's Club have arranged for a course of lectures by Dean Pattee, of the Law Department on the Law of Contracts, and it is expected to make this course a regular one in succeeding years.

NOTES.

NOTE 1. The Elective of any term may be chosen from the work of either Junior or Senior year.

NOTE 2. The Rhetoricals in this college for the Freshman and Sophomore years are the same as for the Scientific Course. In the Junior and Senior years the Rhetoricals consist of Technical Papers, one each term, except in the third term Senior year when the graduating theses takes the place of other work. It is required that one of the papers of the Junior year shall be a translation of a German technical article and one of a French article.

NOTE 3. The ground covered by the work in the languages for the various terms may be found by examining the corresponding year and term of the scientific course.

GRADUATION.

Students completing the foregoing regular courses, to the satisfaction of the faculty, are entitled respectively to receive appropriate baccalaureate degrees, to-wit: Bachelor of Civil Engineering, Bachelor of Mechanical Engineering, Bachelor of Electrical Engineering, Bachelor of Architecture.

CERTIFICATE.

Special students receive certificates for successful completion of the branches pursued. Any person is entitled to undergo examination in any subject, at convenient times; and if such person pass in all the studies and exercises of any course, he is entitled to the appropriate degree.

THE BUILDING.

The building contains commodious and well lighted rooms, in the basement and one-story wing, for the work shops and mechanical laboratories; on the first floor for apparatus rooms, study and dark room; also civil and mechanical engineering recitation rooms and an office. The second floor is devoted to the general drawing room, engineering drawing and apparatus rooms, dark room and blue print room. The building is well ventilated, heated by steam, supplied with city water, and lighted by gas and electricity.

MECHANICAL LABORATORY.

A room, 24 x 46 feet, is fitted up for a mechanical laboratory. It is supplied with power, and contains a 50,000 pounds testing machine, manufactured by Tinius Olson, of Philadelphia, which can be adapted for compressive, tensile, transverse, torsion, and shearing tests. Other pieces of apparatus have been designed by the department to be used in connection with the testing machine in making tests of full sized beams, up to 25 feet in length. An instrument for use in connection with tensile tests, is capable of accurately measuring extension to one ten-thousandth of an inch. There is a cement tester, a dynamometer for measuring transmitted power, an oil testing machine, standard scales; also a pair of very accurate and highly finished test gauges, registering pressure up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure gauges; a pump for testing boilers, and a mercury column for testing steam gauges and indicators, and other apparatus for making mechanical tests; a dynamometer for determining the power of lathe tools, and a ten-horse power steam engine designed and built by students for experimental purposes. A Blake steam pump has recently been added to the equipment of this laboratory for use in hydraulic investigations. A friction brake, calorimeters, pyrometer, revolution counters, tanks, steam engine indicators, gauges, thermometers, and other instruments required for complete steam engine and boiler tests, are provided for the use of students in experimental work.

Numerous additions have been made to this equipment during the past year, and there will be added before the opening of another term, a water meter, water motor, air pump and mercury column for testing vacuum gauges, gas analysis apparatus, air thermometer, and a surface condenser for experimental work in steam engineering. The Crosby Steam Gauge and Valve Co., of Boston, have recently presented to the Department a very fine skeleton pressure gauge, and a "sectioned" marine pop-valve.

WORK SHOPS.

The basement of the building is occupied by the mechanical laboratory, machine and vise shop, and wood working shop; the wing by the engine and boiler room, forge shop and foundry.

These shops are completely equipped with tools from leading manufacturers, which represent the best American practice. Each shop will accommodate from ten to twenty students at a time. The capacity of the shops is increased to meet requirements by forming additional classes.

The instruction given is based on the "Russian System," in which the leading idea is to teach principles rather than to produce objects of commercial value. It is believed that the greatest progress can be made in a given time by this method, as the student proceeds, by a carefully-planned series of exercises, from the simplest to the most difficult operations, learning the processes but avoiding the repetition of the ordinary shop. So far as is consistent with this system the work is adapted to parts of some machine or structure in common use, and after finishing the exercises referred to above, the class will build some complete machine or structure, as a review and application of the preceeding work.

Shop work is required of students in mechanical and electrical engineering, in divisions A, B, and C, of the School of Practical Mechanics, and carpentry is required of students in architecture and civil engineering.

THE ENGINE ROOM.—The engine and boiler room, 20 x 24 feet, is provided with an automatic cut-off engine of modern type, capable of developing thirty-five horse power. A steel boiler of ample size, furnished with a feed pump and heater, supplies steam.

THE MACHINE SHOP.—The machine and vise shop, 25 x 50 feet, contains speed lathe, ten engine lathes of various sizes, a planer, shaper, universal milling machine, vertical drill press, emery tool grinder, grinding attachment to lathe, benches with ten vises, surface plates, a set of Bett's standard gauges, taps, dies, reamers, drills, chucks, and other hand tools and accessories for practice in machine, tool and vise work. A portion of this room has been partitioned off for a tool room. It contains the milling machine and a tool lathe, and is furnished with cases and racks for small tools and instruments which are issued to students by the "check system" in use in modern shops.

THE WOOD-WORKING SHOP.—The shop for pattern making and general wood work, 24 x 48 feet, contains twenty benches with vises and tools, ten

lathes and lathe tools, a circular saw, a jig saw, band saw, planer, boring machine, grindstone and other tools for use in the courses of carpentry and pattern making.

An improved universal sawing machine, for pattern making, etc., is to be added to this equipment at once.

THE FORGE SHOP.—The forge shop, 21 feet square, is provided with a portable hand forge, ten stationery forges with anvils and sets of tools, a blower, exhaust fans, hand drill press, drills, taps, dies, sledges, swages, a grindstone, and other tools generally used in blacksmithing.

Provision has recently been made for increasing the capacity of this shop, by adding to the present equipment.

THE FOUNDRY.—The foundry, 22 x 30 feet, contains an 18-inch cupola brass furnace, core oven, moulding tools, benches, ladles, crucibles, and all of the tools and material ordinarily needed in moulding and casting iron, brass, or white metal.

SHOP FEES.—Regular students pay a fee of three dollars for each term of shop work.

DRAWING ROOMS.

The general drawing room, 25 x 49 feet, is furnished with drawing tables for the use of classes in geometrical and freehand drawing. There are also cases and cabinets for holding drawings and drawing boards. A considerable collection of prints, drawings and models, including a full set of Schrœder's models for descriptive geometry for lessons and illustrations, has been made. Two engineering drawing rooms, each 24 x 44 feet, contain tables, cases, etc., for students in civil and mechanical engineering, architecture and other advanced work.

FREEHAND DRAWING AND WOOD CARVING ROOM.—Rooms in Pillsbury Hall are equipped with benches, cases, easels, and a constantly increasing collection of plaster casts, papier mache models, drawings and charts for use in the instruction in freehand drawing, wood carving, &c.

BLUE PRINT ROOM.—Adjoining the drawing rooms are "blue print" and dark rooms fitted with complete apparatus for duplicating drawings by the "blue print" process and for photography.

Another dark room exclusively for photographic work has been fitted up on the first floor.

LIBRARY AND READING ROOM.

By the consent of the Board of Regents and the University Librarian, all of the strictly technical engineering books of the general library have been collected and deposited in the Mechanic Arts building where they together with a number of books owned by instructors are accessible for reference at all times. The addition of about two hundred dollars worth of new books this year has very materially added to the value of the library.

Through the Department of Mechanical Engineering the American Society of Mechanical Engineers has presented the library with a complete set of the proceedings except the first three volumes.

By subscription, donation and loans the reading room is now supplied with nearly thirty periodicals, thus affording instructors and students opportunity to keep posted on engineering progress.

METHODS OF INSTRUCTION.

In all the regular courses in this college, instruction is given by means of text-books, lectures, reading in the library, practical problems, and a large amount of work in the drawing rooms, laboratories, shops and in the field. Students are required to visit engineering works in the neighborhood and to make reports upon them, imperfections in construction and design receiving attention as well as details of correct work. It is the aim to lay a solid foundation of principles, which, with the large amount of practical work we are able to give, will fit the graduate for immediate usefulness among engineers. In all the work the strictest accuracy is insisted upon.

APPARATUS.

This college possesses the following apparatus:

For Mechanical Engineering.—The tools and instruments referred to in connection with the work shops, engine room and mechanical laboratory; a number of models of machinery, including a set of belting models, and one of screw threads; a collection of drawings or plates of machine construction, &c., &c.

For Civil Engineering.—A complete equipment of the best field and office instruments, including transits, levels, plane tables, solar compasses, level and telemeter rods, tapes, chains, protractors, planimeters, calculating machines, &c. A complete equipment for geodetical work, consisting of clock, chronograph, transit, &c., &c., has just been ordered and will be ready for use the coming year. A current meter for hydrograghic work has also been added to the list of new apparatus. Also there are models, drawings and blue prints of arches, trusses and details of construction in iron, wood and stone.

For Electrical Engineering. — A complete set of Tangent Galvanometers for high and low currents, Potential and Torsion Galvanometers, Wheatstone Bridges, Resistance coils, Dynamometers for high and low alternating currents, Thompson's Ampere Balance and Voltmeter, Direct reading ammeters and voltmeters of various makes and ranges, a Quadrant Electrometer, Magnetometers, a Kruss Photometer, a 50 volt constant battery, a plant of 30 accumulators, one Edison shunt Dynamo, models of dynamos and motors for test work, a variety of electric lamps, one 10-horse power Westinghouse engine.

For General Use.—A number of pieces of apparatus described in connection with drawing rooms, mechanical laboratory, &c., and a set of standard weights and measures furnished by the U. S. Coast and Geodetic Survey. The complete set embraces: 1. A yard scale divided to inches and tenths, with a matrix for end measurement. 2. Weights from one grain to twenty-five pounds. 3. Liquid measures—a pint, a quart and a gallon. 4. Dry measures—a quart, a half peck, a peck and a half bushel. A table of corrections for errors due to temperature, &c., accompanies the set.

THE SCHOOL OF PRACTICAL MECHANICS.

This school has been established as a department of this college to meet the wants of mechanics and others.

The work of this school is classified as follows:

A. A two years' course in shop work, drawing, mathematics and applied mechanics for young men unable to take the full course in mechanical engineering and for those wishing to prepare themselves for positions of trust in shops and factories.

B. A one year's course in the care and management of engines and boilers, intended as a preparation for the examinations of the State Boiler Inspectors and to fit students for the care of steam plants.

C. A course in shop work and drawing, or drawing alone, for those unprepared for the A course.

ADMISSION.

Applicants for admission to any of the divisions must be at least fifteen years of age, and must pass examination as follows:

A DIVISION,—Algebra, Plane and Solid Geometry as for the regular Freshman class. English Grammar and Composition—a practical examination in the use of English. Members of division A who can pass any of the regular work of the course and also U. S. History, may be allowed to substitute studies from other courses for the subject passed, under direction of the faculty.

B DIVISION,—Arithmetic, including square root and compound numbers, English Grammar and Composition as for a A division.

A. DIVISION—FIRST YEAR.

I. TERM.	II. TERM.	III. TERM.
Carpentry [15h.] Drawing [10h]. Higher Algebra [5h].	Pattern Making [15h]. Drawing [10h]. Trigonometry [5h],	Foundry Work [15h]. Drawing (Machine Details) [10h]. Mechanics [5h].

SECOND YEAR.

I. TERM.	II. TERM.	III. TERM.
Forge work [15h]. Mechanism [5]. Engines and Boilers [5].	Vise & Machine work [15]. Mech. laboratory [10]. Drawing (machine details) [10h].	Machine work [15h]. Indicators and Engine Tests [5]. Drawing (designing) [10].

B DIVISION.

I. TERM.	II. TERM.	III. TERM.
Recitations and lectures on care of engines & boilers. Drawing [10h]. Engine Running [10h]. Forge Work [10h].	Principles of engines and boilers. Vise and machine work [15h] Engine Running [10h]	Indicators and Eng. tests. Drawing (engines and boilers [10h.] Engine Running [10h]. Machine Work [10h].

METHODS OF INSTRUCTION.

In the course of the School of Practical Mechanics the instruction in shop work is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the student in the use of tools, leaving out the idea of construction, except in so far as it may not interfere with instruction. The functions of this school being to teach the use of tools in general, rather than any particular tradè, much time can be saved by devoting the entire attention of both student and instructor to the manipulation of the tools, and avoiding the repetition of the same operation, which naturally occurs when construction is an object rather than an incident. The preparation of exercises, in any particular branch of work, consists in first carefully analyzing the various operations and reducing them to their simplest forms, and then classifying them in such a way as to have them succeed each other in the order of their difficulty.

The drawing in this school is conducted on the same plan as in the engineering course, the students first using the text-book prepared for the department, and afterwards varying their work to meet their individual requirements.

In pure mathematics the instruction includes higher algebra and trigonometry, while a thorough drill is given in applied mechanics, mechanism, and simple machine designing, thus giving a two years' course in mechanical engineering, avoiding as far as possible the use of higher mathematics.

The instruction in the course in the care and management of engines and boilers is given by the means of practice in the engine room, under the immediate direction of the engineer. Students in this course are required to keep record on suitable blanks of the work done by the engine, and of the fuel, water and oil consumed, and to figure on the cost and relative economy of various fuels and methods of running. By means of lectures and recitations the reasons for the regulations, as laid down for running, are explained, and the principles of the steam engine and of the construction of boilers is given in a manner not difficult for one of ordinary intelligence to understand; and finally, tests of engines and boilers are given. It is believed that this course will fill a need which has long existed, and will help to supply engineers who are competent and trustworthy.

CERTIFICATES.

Members of divisions A and B who satisfactorily complete their courses may receive certificates of having done so, signed by the President of the University and the Dean of this College.

FEES.

Members of the School of Practical Mechanics are required to pay the following fees to the Registrar, viz: Divisions A and B, $5.00 for each term of shop work. Division C: those taking shop work, $5.00 per term for each course; those taking drawing alone, $5.00 per year.

Members of this school come under the general regulations of the University as to attendance, etc.

Students of A and B divisions should, if possible, enter at the beginning of the year; of C division, at the beginning of terms, though for good reasons students will be admitted at any time.

For further information as to the college, apply in person or by letter to the dean, Prof. Wm. A. Pike.

SCHOOL OF DESIGN, FREEHAND DRAWING AND WOOD CARVING.

HENRY T. ARDLEY, *Principal.*

The object of this school is not only to provide instruction to regular University students, but to foster and encourage a taste for, and knowledge of industrial art among others desiring special instruction in ornamental design, freehand drawing or wood carving—either as an accomplishment or a profession.

A two year's course in Wood Carving and Design, a two year's course in Freehand Drawing, and a two years' course in Ornamental Design are here outlined and intended for those who desire to fit themselvers for practical, useful and original work.

WOOD CARVING AND DESIGN.

FIRST YEAR.

I. TERM.	II. TERM.	III. TERM.
Drawing simple conventional forms. Carving these forms in low relief. Care of carving tools.	Drawing from the cast. Elementary study of historic ornament. Modeling from casts. Wood finishing.	Surface Carving. Study of natural plant forms. Elementary conventional design. Carving from original designs

SECOND YEAR.

I. TERM.	II. TERM.	III. TERM.
Study of the fundamental principles of design. Elementary original composition. Carving in intaglio.	Advanced design. Study of light and shade in crayon. Carving in high relief. Modeling in clay.	Study of Historic ornament. Original composition. Advanced carving in high relief.

FREEHAND DRAWING.

FIRST YEAR.

I. TERM.	II. TERM.	III. TERM.
Outline drawing from geometric solids and other simple forms.	Cast drawing in outline. Elementary freehand perspective.	Elementary study of light and shade, from the cast in pencil and crayon.

SECOND YEAR.

I. TERM.	II. TERM.	III. TERM.
Drawing from casts of historic ornament and architectural details. Out of door sketching.	Elementary study of the antique in outline, and light and shade in charcoal and crayon.	Study of the full length figure, and animal forms from nature and the cast, in black and white and sepia.

ORNAMENTAL DESIGN.

FIRST YEAR.

I. TERM.	II. TERM.	III. TERM.
The anatomy of pattern. The planning of ornament. Analysis of plant forms.	Original designs in outline from given motives, in flat, "all over," conventional treatment.	Elementary study of historic ornament. Flat treatment of foliage from nature, in colors.

SECOND YEAR.

I. TERM.	II. TERM.	III. TERM.
Original colored designs for walls and ceilings. Sepia and water color work from nature.	Designing for prints, book covers, relief work, etc., Original designs in historic styles.	Designs for stained glass and woven fabrics. Studies from nature in color.

The above courses are as thorough and comprehensive as possible within the limit of the time specified, and are carefully outlined with a view to the harmonious cultivation and uniform training of the eye, the hand and the mind to work together for the best results; but in special cases a slight change or modification may be made to meet the individual requirements of specialists, whether they be scientific, artistic, architectural or mechanical, and instruction in landscape drawing will be given to advanced students out of doors when practicable.

Applicants for instruction in Ornamental Design are required to first possess a knowledge of drawing equivalent to one year's work in the two years' drawing course, outlined above; which can be taken here (if not previously acquired) before commencing work in the course in Design.

In the course of Ornamental Design, instruction is first given in the ele-

mentary principles of original composition, in their relation to natural growth, as applied to decorative art, with the intention of fostering originality of thought and individuality of expression. Students learn from the beginning to produce their own designs in both natural and conventional form, and when they are thoroughly conversant with the principle of natural growth, and when simple forms can be rendered with grace and feeling, the study of historic ornament in relation to different art periods will be introduced, embracing the Egyptian, Greek, Roman, Byzantine, Gothic, Renaissance, etc., with their practical application to the construction of original ornament.

Instruction is given in the theory and application of color to printed and woven fabrics and, when able to do advanced work, students are placed in direct communication with manufacturers with whom there is a constant demand for good original work and for which remunerative prices are paid. Students having acquired proficiency in the underlying principles of all good design may make a specialty of any one subject.

In the foregoing special studies each student will be advanced as rapidly as his or her individual talent and perseverance will permit, and will not be retarded by any lack of application or ability in others of the same class.

Illustrated lectures are given on the principle of Delineation, Original Ornamental Design, Wood Carving, etc.

Instruction is practically free, but applicants for admission to any division of this Department must be at least fifteen years of age, and pay the regular entrance fee of five dollars to the Registrar of the University.

For further information as to this school, apply in person or by letter to HENRY T. ARDLEY, Principal.

THE COLLEGE OF AGRICULTURE.

THE FACULTY.

CYRUS NORTHROP, LL. D.,
President.

WILLET M. HAYS, B. S. A.,
Professor of the Theory and Practice of Agriculture.

SAMUEL B. GREEN, B. S.,
Professor of Horticulture.

OTTO LUGGER, PH. D.,
Professor of Entomology and Botany.

DAVID N. HARPER, PH. B.,
Professor of Agricultural Chemistry.

OLOF SCHWARTZKOPFF, V. M. D.,
Professor of Veterinary Medicine and Surgery.

CLINTON D. SMITH, M. S.,
Professor of Dairying.

HENRY W. BREWSTER, B. A ,
Instructor in Mathematics.

Further instruction not given by the Faculty of the College of Agriculture is given by the Faculty of the College of Science, Literature and the Arts.

THE COLLEGE OF AGRICULTURE

is designed to give to young men, who may desire it, the advantages of a thorough, liberal and practical education, not only to prepare them for the successful prosecution of agriculture in all its branches, but to secure to the student the mental discipline and training necessary to qualify him for any other calling or profession, and fit him to discharge intelligently the duties of an American citizen. The period of study requisite for graduation will extend through four years.

REQUIREMENTS FOR ADMISSION.

Candidates for admission to the Freshman class are required to show attainment equal to that represented by the certificate of graduation from the School of Agriculture, and graduates of the School of Agriculture are admitted on certificate.

COURSE OF INSTRUCTION.

N. B. The instruction in this college will be given at the University, ex-

cept the fall term of the Freshman year, the spring term of the Junior year and the fall term of the Senior year, which will be given at the University Farm and Experiment Station at St. Anthony Park.

SCOPE OF INSTRUCTION.

The object of this college is to teach practical and scientific agriculture, combined with such other branches of learning as are necessary for mental discipline and training, and such as constitute a liberal education, and embrace the following studies and exercises:

FRESHMAN YEAR.

FIRST TERM.

AGRICULTURE [5],—Feeding, management and breeding of animals; practice in feeding experiments.
HORTICULTURE.
SOLID GEOMETRY [5],—Olney's text-book, including the exercises.
HIGHER ALGEBRA [5],—Simple equations, proportion, progression, variation, quadratic equations, simultaneous equations of the second degree, inequalities, binomial theorem, indeterminate co-efficients and higher equations.
The work of this term will be taken at the University Farm and Experiment Station at St. Anthony Park.

SECOND TERM.

CHEMISTRY [4],—Lectures, recitations and laboratory work; chemistry of the metals (begun).
MATHEMATICS [5],—Logarithms and Plane and Spherical Trigonometry with numerous applications.
ENGLISH [4],— OR **GERMAN** [4],— OR **LATIN** [4],— OR **FRENCH** [4],— } For syllabus of work covered by these subjects, see Freshman scientific course, page 65.
RHETORICALS [1],—Elocution.
MILITARY DRILL [3].

THIRD TERM.

BOTANY [4],—Lectures and laboratory work—the morphology of the plant cell and the study of lower plants, principles of classification, systematic and anatomical work on selected groups. Bessey's Elements for reference.
SURVEYING [2],—Four hours a week.
DRAWING [3],—Freehand, six hours a week.
ENGLISH [5],— OR **GERMAN** [4],— OR **FRENCH** [4],— } For syllabus of work covered by these subjects, see Freshman scientific course, page 66.
MILITARY DRILL [3].
RHETORICALS [1],—Compositions.

SOPHOMORE YEAR.

FIRST TERM.

BOTANY [4],—Morphology of the fungi and higher cryptogams.
CHEMISTRY [4],—Lectures, recitations, and laboratory work—study of metallic elements completed; brief study of organic compounds.
RHETORIC [4],—Genung's text-book; study and criticism of authors; essays.
MATHEMATICS [4],—Analytical geometry.
OR
FRENCH [4],—
OR
GERMAN [4],—
OR
LATIN [4],—
For syllabus of work covered by these subjects see Sophomore scientific course page 67.

SECOND TERM.

BOTANY [4],—Anatomy and systematic study of higher cryptogams and flowering plants.
CHEMISTRY [4],—Qualitative analysis.
HISTORY [5],—Institutions of the middle ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.
MATHEMATICS [4],—Differential calculus.
OR
ENGLISH [4],—
OR
FRENCH [4],—
OR
GERMAN [4],—
OR
LATIN [4],—
For syllabus of work covered by these subjects see Sophomore scientific course page 67.
RHETORICALS [1],—Elocution.

THIRD TERM.

ZOOLOGY [4],—With the Freshman class.
PHYSICS [4],—With the Literary Sophomores.
HISTORY [4],—Institutions of England in the Middle ages. Topical research and lectures. The main study is directed toward the evolution of the English Constitution.
MATHEMATICS [4],—Integral calculus.
OR
CHEMISTRY [4],—Qualitative analysis.
OR
ENGLISH [4],—
OR
FRENCH [4],—
OR
GERMAN [4],—
OR
LATIN [4],—
For syllabus of work covered by these subjects see Sophomore scientific course, page 67.
RHETORICALS [1],—Orations.

JUNIOR YEAR.

FIRST TERM.

PHYSIOLOGICAL BOTANY [4],—The physics and chemistry of the plant cell, study of protoplasm, nuclear physiology and a brief examination of bacteria methods and technique; physiology of nutrition.

ENGLISH LITERATURE [4],—History of Elizabethan Literature with syllabus of 18th century literature, alternating the next year with the history of the 18th century literature and syllabus of Elizabethan Literature.

RHETORICALS [1],—One oration or two essays.

In addition to the above required work, two of the following subjects must be selected:

ELECTIVES.—For syllabus of work covered by these subjects see Junior year, all courses, page 70.

MYCOLOGY [4].
CHEMISTRY [4].
PHYSIOLOGY [4].
MINERALOGY [4].
LOGIC [4].
HISTORY [4].
GERMAN [4].
FRENCH [4].
SCANDINAVIAN [4].

SECOND TERM.

PHYSIOLOGICAL BOTANY [4],—Physiology of nutrition, metabolism, growth.

PHYSICS [4],—Light, Magnetism, Electricity.

RHETORICALS [1],—One oration or two essays.

In addition to the above required work, two of the following subjects must be selected:

ELECTIVES.—For syllabus of the work covered by these subjects see Junior year, all courses, page 71.

CHEMISTRY [4].
PHYSIOLOGY AND HISTOLOGY [4].
MINERALOGY [4].
HISTORY [4].
PSYCHOLOGY [4].
ENGLISH [4].
GERMAN [4].
FRENCH [4].
SCANDINAVIAN [4].

THIRD TERM.

The work of this term will be taken at the University Farm and Experiment Station at St. Anthony Park.

AGRICULTURE [4],—Forage and grain crops, methods of cultivation, implements, methods of preserving fodder crops.

HORTICULTURE [4],—Propagation of plants, nursery work, fruit and vegetable gardening; FORESTRY,—Study of hardy trees, with methods of planting and cultivating.

VETERINARY [4],—Propagation and prevention of contagious diseases of domestic animals.

OR

ENTOMOLOGY [4],—General character of insects; characters and peculiarities of those families containing useful or injurious members, together with a special study of the more important individuals of these families.

DAIRYING [4],—With actual creamery or cheese factory practice.

SENIOR YEAR.

FIRST TERM.

The work of this term will be taken at the University Farm and Experiment Station at St. Anthony Park.

AGRICULTURE [4].—Soils and fertilizers; theory of manuring; barnyard manure; chemical fertilizers; farm management; rotation of crops; mixed farming; special lines of stock raising; money crops.

HORTICULTURE [4],—Nursery and greenhouse work; fruit and vegetable culture, FORESTRY.—Landscape gardening and ornamental planting; drawing of plans; inspection of grounds and parks in cities.

AGRICULTURAL CHEMISTRY [4],—A study of the elements of the volatile parts of plants, as carbon and oxygen; a study of the organic compounds of plants, as water, starch and sugar; a study of the elements of the ash of plants and their compounds, as potassium, calcium, iron, sulphates and phosphates.

OR

VETERINARY [4],—Propagation and prevention of contagious diseases of domestic animals.

OR

ENTOMOLOGY [4],—General character of insects; characters and peculiarities of those families containing useful or injurious members, together with a special study of the more important individuals of these families.

HISTORY OF AGRICULTURE [4],—And reclamation of wet lands.

OR

EXPERIMENTAL AGRICULTURE [4],—Systematic study of agricultural experiments with practical work.

DISSERTATIONS.

SECOND TERM.

RHETORICALS [1],—Required of all.

Sixteen exercises a week, chosen from the following list:

ELECTIVES.—For syllabus of work covered by these subjects, see Senior year, page 73.

ANIMAL MORPHOLOGY [4].
GEOLOGY [4].
POLITICAL SCIENCE [4].
HISTORY [4].
FRENCH [4].
ETHICS [4].
MATHEMATICS [4].
ENGLISH [4].
GERMAN [4].
LATIN [4].

THIRD TERM.

ELECTIVES.—For Syllabus of work covered by these subjects see Senior year, on page 73. Sixteen exercises a week, chosen from the following list:

ANIMAL MORPHOLOGY [4].
GEOLOGY [4].
POLITICAL SCIENCE [4].
HISTORY [4].
GERMAN [4].
FRENCH [4].
SCANDINAVIAN [4].
ENGLISH LITERATURE [2 or 3].
SOCIAL PHILOSOPHY [2].
COMPARATIVE PHILOLOGY [2].
PEDAGOGY [1].
SHAKSPERE [1].
SANITARY SCIENCE [1].
POLITICAL PHILOSOPHY [2].

FACILITIES FOR INSTRUCTION.

Students in the College of Agriculture receive the benefit of the library and apparatus of the University, as well as those belonging to the college. The whole may be enumerated as follows:

The general library of the University, containing more than 25,000 volumes, and receiving frequent additions. Many volumes are especially devoted, in a practical manner, to the subjects of agriculture, horticulture, tree culture, stock raising and veterinary science. Besides these, there are several hundred volumes on botany, zoology, anatomy, physiology, and other sciences related to agriculture.

The general museum of the University, and the museum of technology.

The museum of agriculture, containing at present a collection of models of machines and implements; a collection of the seeds of garden vegetables, grain and grass seeds in glass jars; a collection of grains and grasses in the straw; a collection of fruits in alcohol; cabinets of insects of Minnesota; a large collection of woods from the United States Department of Agriculture; a collection of plats and lithographs; miscellaneous objects and materials used in agriculture.

The Agricultural Experiment Station furnishes young men an opportunity of observing, and taking part in, lines of experimental work, there carried on, pertaining to general farming, the management of stock and the dairy, and the various branches of practical horticulture.

A Veterinary Hospital gives the students a chance to observe the practical treatment of sick domestic animals.

THE UNIVERSITY FARM.

The Experiment Farm consisting of 250 acres of most valuable land, is located between St. Paul and Minneapolis, adjoining the State Fair grounds, and within fifteen minutes' ride of either city, by the Manitoba Railroad to St. Anthony Park Station, or ten minutes from the University. It contains every variety of soil and exposure required for illustrative and experimental work, and is furnished with a full equipment of buildings, stock, implements and machinery.

The farm is stocked with fine specimens of the best breeds of domestic animals, designed to illustrate their characteristics and value for various purposes, and for experiments in feeding, breeding and management and their adaptation to the agriculture of our state.

BUILDINGS.

For description of buildings see page 49.

OBJECTS OF THE FARM.

The farm is designed to accomplish the following purposes:

(1.) To furnish to students practical illustration in the field, stable, orchard, garden, dairy and vineyard, of the instruction given in the classroom and laboratory.

(2.) To train young men in all the details of practical agriculture.

(3.) To aid students in defraying, by their labor, a portion of their expenses while acquiring their education.

(4.) To carry on the work of an Agricultural Experiment Station, and to assist, by scientific investigation and experiment, in determining the adaptation of new varieties of grain, grasses, fruits, and vegetables to the soil, climate, and wants of Minnesota, and to distribute the results of such investigation among the farmers of the State.

GRADUATION.

Students completing any year of the above course, shall be entitled to receive a certificate to that effect; those completing the entire four years' course shall receive the degree of "Bachelor of Agriculture."

THE SCHOOL OF AGRICULTURE.

Observation and experience has shown that all the facilities afforded by the regular colleges of the country, for agricultural education, have failed to attract any large number of farmers' sons.

The requirements for admission are such as to compel the boy to leave home for one or two years to secure such preparation, and this, together with the four years necessary to complete a full course, entails an expenditure of time and money which comparatively few can afford, and the education thus received, while valuable in itself, fails in many respects to furnish the training and knowledge needed by young men for the practical duties of the farm.

In order to meet the wants of this class the Board of Regents of the University have established a "School of Agriculture," with its full equipment of buildings and instructors on the Experiment Farm, where students will live, work and study during the two years devoted to this department.

The organization of this school is now complete for the thorough and practical instruction of youth in all the elements and principles of the industry.

ADVANTAGES OF LOCATION.

The site of the school building is a beautiful and commanding eminence on the State Experiment Farm, midway between St. Paul and Minneapolis, affording a magnificent view of both cities and the adjacent country. It is surrounded by a charming grove of young oaks and supplied with an abundance of pure water. Every part of the building is heated by steam. The drainage is perfect. In short, no more delightful or healthful spot could have been chosen, and none more easy of access.

AIM.

The object of the school is to take such boys as aspire to become successful and intelligent farmers, overseers of farms, veterinary surgeons, entomologists, agricultural chemists, botanists, lecturers, etc., who have already had some experience in farm work, together with a good common school education, and give them a sound practical training that will broaden and strengthen them as citizens of the state, while it educates them in the branches of natural science which will cultivate their taste for agriculture and develop skill in the practice of it.

It is hoped that it will meet the wants of those who desire a knowledge of such matters of business, science, and agricultural experience as belong to the calling.

It aims to give the diligent boys who are attached to it a good business, mechanical, and agricultural education with a practical knowledge of the elements of the sciences on which education is based, so that they can read and observe intelligently whatever may have a bearing upon the work in wh ch they are engaged. The natural sciences, such as Animal Physiology, Chem'stry, and Zoology, are studied in connection with their practical application to agriculture and associated industries. The importance of a clear understanding of the reason why each step is taken is impressed upon the student so that he may be strong, self-reliant, and able to distinguish between the false and true theory—thus saving time and expense that would otherwise be wasted in useless experiments.

As it is intended for those whose life and labor are on the farm, the terms have been made to include the time when they are most at leisure, from the middle of October to the middle of April. It is the constant endeavor so to reduce the expenses as to bring the advantages of the school within the reach of all the farmers of the state.

ADMISSION.

Admission is given to students who have completed a common school course in **English Grammar, Arithmetic, U. S. History** and **Geography,** as prescribed by the State department of public instruction.

Students will be received without examination in subjects for which they can furnish the certificates of high schools or of county superintendents.

COURSE OF STUDY.

FIRST YEAR.

FIRST TERM.	SECOND TERM.
BOTANY.	BOTANY.
ANIMAL PHYSIOLOGY.	AGRICULTURE.
PENMANSHIP.	FARM ACCOUNTS.
ARITHMETIC.	AR'THMETIC.
MANUAL TRAINING.	MANUAL TRAINING.
LANGUAGE (Composition).	

SECOND YEAR,

FIRST TERM.	SECOND TERM.
BREEDING.	BREEDING.
DAIRYING.	DAIRYING.
FRUIT CULTURE.	GRASSES AND GRAINS
VETERINARY—Patho'ogy and Thera-peutics.	VEGETABLE GARDENING.
PHYSICAL GEOGRAPHY.	ENTOMOLOGY.
ALGEBRA (Optional).	AGRICULTURAL CHEMISTRY.
	ALGEBRA (Optional).

THIRD YEAR.

FIRST TERM.	SECOND TERM.
SOILS AND FERTILIZERS.	FEEDING.
GREEN HOUSES AND HOTBEDS.	FORESTRY.
PHYSICS—Applied to Agriculture.	VETERINARY CLINICS.
AGRICULTURAL CHEMISTRY.	CIVICS AND FARM LAW.
PLANE GEOMETRY AND SURVEYING.	PHYSICS—Applied to Agriculture.
	GEOMETRY (Optional.)

SPECIAL STUDENTS not able to complete the entire course, may, with the approval of the faculty, elect a special course in studies particularly devoted to agriculture.

The coming year will open Oct. 20, 1891, and close April 8, 1892.

CONNECTION WITH THE AGRICULTURAL COLLEGE.

The school articulates with the College of Agriculture, in which the subjects are largely elective to meet the demands for special education.

EQUIPMENT.

The school possesses well equipped laboratories for instruction in Chemistry and Physics, plant houses for Botany and Horticulture, and a Library. Provisions are made for a museum. Students have access to special facilities of the Experiment Station. The agricultural and horticultural work on the University Farm is conducted partially with reference to instruction.

CIVICS.

During the last term of the course students receive a tri-weekly drill in this science and graduate with a good understanding of the origin, necessity, nature and various forms of government, and the machinery employed to carry on public works, establish justice and provide for the common defense; of the organization and management of local institutions, the town, the village, the city and the county; how states are created and their affairs administered, the three departments, legislative, judicial and executive, and the functions of each; the interdependence of the state and its citizens, as well as the powers, duties and obligations of each, by due attention to which the state may be strengthened and the condition of its citizens ameliorated.

The relations of the states to the general government; the constitution and the powers it confers, and the provisions for amendment are taught.

The more important principles of commercial law including contracts, agency partnership, corporations and commercial paper receive attention.

Instruction is also given in the U. S. method of surveying public lands.

PHYSICS.

The aim is to make the work in physics as largely experimental as may be; to this end the laboratory and its equipment are made constant use of.

Matter, force, energy, motion, work, heat, light, electricity and magnetism are considered.

Their principles find application in cultivation, pumps, wind-mills, artesian wells, springs, siphons, fountains and water-powers; in pulleys, levers, windlasses, and all machinery; in heating, ventilation, building, thermometers, and steam engines; in colors, mirrors, microscopes, spectacles, hotbeds; in lightning rods, magnetic compass, plating, lighting, and in many other lines too numerous to mention.

Conservation and correlation of energy are kept in view throughout.

PHYSICAL GEOGRAPHY.

In the pursuit of this branch the student becomes acquainted with the relation of our earth to the solar system and learns some of the more important of the general laws of nature and their operation upon the air, the water, and the land; upon plants, the lower animals, and upon man himself. He grasps the causes of the familiar natural phenomena which he observes around him, including movements and moisture of the air; springs, wells, streams and their work; structure and sculpture of the land; weather and climate, the production of soils; the various forms of life, its distribution and modification; the laws which govern it; the dependence of plants and animals upon their surroundings and upon each other, the influence they exert upon the development of the human race and the factors necessarily employed in bringing about desired changes.

The work done in this line is especially calculated to quicken and stir the mind up to close observation and earnest, independent investigation, which will constantly add new and valuable material to the stock already gained.

ARITHMETIC.

Students entering are required to understand arithmetic through fractions, both common and decimal. The course gives special attention to denominate numbers, per centage in its various forms such as commission, interest, discount, &c., evolution and mensuration. The aim is to secure both accuracy and facility in the most practical operations.

ALGEBRA.

No algebra is required. Students intending to enter the College of Agriculture after graduating from the School of Practical Agriculture, should complete elementary algebra through quadratics.

GEOMETRY.

The first three books of Wentworth's is required, students intending to

enter the College of Agriculture should finish geometry. Special attention is given to principles of symmetry, clearness of statement and accuracy of logical inference.

AGRICULTURE.

C. CLASS.—Lectures on selecting and laying out farms; on fences, buildings, drainage, cultivation, and the use of machinery. Drawings, models, and actual objects are used to demonstrate and to give practical application wherever possible. A text-book showing the relation of the various sciences to agriculture is also used, thus giving students work at their rooms.

B. CLASS.—Instruction regarding the breeds of animals and the principles of breeding is given; also actual practice in judging animals on the Experiment Farm and on various other farms in the vicinity of the cities, where blooded stock is kept. Besides visiting stock-yards and slaughter houses, which are within easy reach, instruction is given in slaughtering animals at the farm.

The B Class is given instruction in dairying also. Besides lectures on the secretion of milk, testing milk, manufacturing butter and cheese, the use of dairy machinery, handling dairy cattle, etc., each student is given enough actual practice in making butter to become fairly expert, and in making cheese, enough to become acquainted with the general plan used. Students desirous of becoming experts in dairy manufacturing can usually be provided with places to work in factories during the long summer vacation.

A CLASS.—During their last winter the students are given instruction in raising the various farm crops. Pastures, meadows, annual forage crops, roots and grains for feeding stock, as well as growing wheat and other money crops, are especially dwelt upon. Lectures on soils, tillage, and fertilizer are a part of this year's work. The theory of scientific feeding, and the practical feeding and management of each class of domestic animals in Minnesota is taken up in detail. The feeding and other experiments on the Experiment Farm, the silos and general live-stock appliances are all made to serve as object lessons.

The students of each class are required to write several practical essays on the subjects studied. A subject card-catalogue of agricultural books and recent agricultural journals in the library, to which students are referred, makes this a most useful part of their instruction. Some of these essays are furnished to newspapers for publication.

CHEMISTRY.

Instruction in chemistry is designed to give that knowledge of the elements of the science which is necessary for intelligent study in purely agricultural lines. A thorough course in the elements of general chemistry is therefore provided by lectures, recitations and laboratory practice.

Instruction is early given in the analysis of milk, wheat, flour, etc. The laboratory of the Experiment Station serves to give practical instruction in the composition and analysis of feeding stuffs, dairy products, soils, manures, etc.

SHOP WORK AND DRAWING.

Instruction is given by means of text-books, lectures, and work in the shop and drawing room in the care and use of tools, including setting and filing saws, filing bits, grinding plane-irons, chisels, and other tools; also in laying out work, framing rafters, braces, stairs, etc.

Methods of construction are illustrated with models and drawings.

Various articles for use about the farm are manufactured by the students.

Designs are made for dwellings, barns, out-buildings and machinery.

Estimates are made of the amounts of material and the cost of construction.

HORTICULTURE AND BOTANY.

Instruction is given in horticulture, in the cultivation of small fruits, the construction and management of greenhouses, hot-beds, and cold-frames, market gardening and farm gardens; marketing, propagation of plants by seeds, grafting, budding, cuttings, layers, and offsets, care and management of nurseries; forestry, floriculture, and landscape gardening.

Students are encouraged to work in the gardens, greenhouses, and nurseries, and every opportunity is used to make the work practical and illustrative of the principles taught in the lecture room.

Botany is taught in connection with Horticulture, and is illustrated by the products of the farm, the garden, the nursery, and the greenhouse.

It is intended to make the instruction in this department thorough and practical, and to have it bear with directness upon the every day problems of the farm and garden.

VETERINARY SCIENCE.

The instruction in veterinary science for agricultural students embraces a two-year course. In the first year instruction is given in anatomy and physiology. The lectures are illustrated by means of charts, skeletons, manakins and, wherever practical, by livery animals.

In the second year the principles of Pathology and Therapeutics are taught, for which purpose sick animals are kept and treated in the veterinary hospital, giving the student a chance to examine sick animals, diagnose common diseases, and care for sick animals under the instruction of a tutor.

ENTOMOLOGY.

The class in entomology will receive instruction of a practical nature only. The course will be divided as follows:

1. CLASSIFICATION OF INSECTS sufficient only to enable the student to learn to distinguish between useful and injurious insects or to apply remedies intelligently, as the remedies must be selected according to the kind of insects to be combatted.

2. INSECTICIDES AND THEIR APPLICATION. The most improved methods to use arsenical poisons, kerosene emulsions, pyrethrum and others, will be taught.

3. NATURAL REMEDIES, and nature's methods to prevent undue increase of any one injurious insect will receive due attention, so as to enable the student to apply their teachings.

4. THE RELATION of other animals to insects will also be taught, so that the student may know both his friends and his foes.

5. SPECIAL ATTENTION will be given to injurious and useful insects of Minnesota.

LANGUAGE.

OBJECT:—A knowledge and use of correct forms of English, both written and spoken.

OUTLINE:—The sentence; common errors; choice of words; punctuation; letter-writing. Written exercises form a constant feature of the work, and students are encouraged to improve their speech from day to day by gentle reminders whenever they make use of ungrammatical expressions in recitation or conversation.

PENMANSHIP AND ACCOUNTS.

In this department the student is taught to write a plain hand with rapidity and ease.

The work in accounts is practical, and is applied to only such transactions as the student actually meets with while engaged in the various duties on the farm. He is taught to know whether he is gaining or losing on certain kinds of crops, dairying, cattle, hogs, etc., and is thus enabled to choose wisely that which is the most profitable.

Special attention is given to the different kinds of negotiable paper with which one will come in contact; the various forms of endorsements and their effect; business forms, correspondence, and methods. Everything is made so plain and practical that no one who has a will to try, can fail to learn to keep accurately and neatly the accounts of any ordinary business.

THE FARM HOME.

Two beautiful and commodious buildings have been erected for the comfort of students. The culinary department is managed by an experienced housekeeper, and the entire house is under the supervision of the principal. The buildings are warmed by steam, and the sleeping rooms are each furnished with a bedstead, mattress, dressing bureau and table. Students will furnish their own bedding, pillows and towels.

The Experiment Farm, on which the school is situated, includes two hundred and fifty acres, of which fifteen acres are set apart for the use of the school. Trains on the Great Northern railway stop at St. Anthony Park, one mile distant. Baggage will be transported from the station free.

TEXT BOOKS AND TOOLS

Will be furnished at a small rental sufficient to cover the necessary wear. Students wishing to do so, may own their books by paying cost prices.

A deposit of five dollars will be required of each student as a guaranty for the return of all books, tools, and other articles borrowed or loaned.

EXPENSE.

The cost to the students is no more than the actual cost of maintaining the table and caring for the house. This does not exceed three dollars per week. A month's board is assessed in advance for the purchase of provisions at cash prices. At the end of the month the exact cost will be calculated and the proper deduction made from the next assessment.

LABOR.

This school is conducted upon the principle that character makes all labor honorable. As much, therefore, of the labor at the home and on the farm as can be distributed among the students will be given to them at fair rates of compensation.

GRADUATION.

Students will be entitled to the certificate of the University upon the following conditions:

First.—The completion of the prescribed course with an honorable standing in order, thoroughness and intelligence in subjects studied.

Second.—A practical experience in field work either at the State Farm or elsewhere as shall appear in reports received from responsible sources.

This certificate will admit students into any one of the special lines of study provided in the College of Agriculture.

For further information, and in making applications for admission, address W. W. Pendergast, Principal, St. Anthony Park, Ramsey County, Minnesota.

STUDENTS' SOCIETIES.

STUDENT'S RELIEF SOCIETY:—A society for mutual benefit in caring for the sick, furnishes opportunities for gaining valuable information of the rules of hygiene, insures prompt and efficient care to any who may be sick or injured, and cultivates a spirit of friendship and sympathy.

STUDENT'S DEBATING SOCIETY:—A society for the purpose of improvement in elocution and debate and for obtaining instruction in the form of lectures, gives excellent opportuities for entertainment and culture. The following lectures were given under the auspices of this society during the past year:

Nov. 7, '90, Prof. F. S. Jones, "Wonders of Water;" Nov. 14, Sup't O. C. Gregg, "Methods of Prairie Farming;" Nov. 21, Prof. F. H. Kirk, "From Cork to Dublin;" Nov. 28, Prof. W. W. Pendergast, "New England 50 Years Ago;" Dec. 5, Mr. Geo. LeVesconte, "The Steam Engine;" Dec. 12, State Sup't D. L. Kiehle, "Hints to the Heedful;" Jan. 9, Prof. W. W. Pendergast, "Education;" Jan. 13, Miss Eva McDonald, "The Wage System;" Jan. 21, Prof. Maria L. Sanford, "What We Should Read;" Jan. 30, Gen'l C. C. Andrews, "Sweden and Norway;" Feb. 6, Dr. J. R. Walker, "Hygiene;" Feb. 12, Dr. Everett Fish, "Evolution;" Feb. 20, Mr. James Paige, "Fire

Insurance;" Feb. 27, Mr. C. J. Buell, "The Single Tax;" March 6, Dr. Otto Lugger, "Travels in South America;" March 13, Hon. W. B. Deane, "The Story of a Wonderful Invention;" March 20, Hon. S. M. Owen, "The Single Tax;" March 27, Dr. Otto Lugger, 'Travels in South America;" April 3, Pres't Cyrus Northrop, "Historic Lessons;" April 7, Dr. Olof Schwartzkopff, "Rights of Lower Animals."

DEPARTMENT OF VETERINARY MEDICINE.

THE FACULTY.

CYRUS NORTHROP, LL. D.
President.

OLOF SCHWARTZKOPFF, V.M.D.,
Professor of Veterinary Medicine and Sanitary Science, in charge of the Department.

J. CLARK STEWART, A.B., M.D.,
Professor of Histology, Pathology, and Bacteriology.

RICHARD O. BEARD, M.D.,
Professor of Physiology.

C. J. BELL, A.M.,
Professor of Chemistry.

HENRY F. NACHTRIEB, B.S.,
Professor of Animal Biology.

CONWAY MCMILLAN, M.A.,
Assistant Professor of Botany.

F. ALLEN, D.V.S.,
Lecturer on Veterinary Anatomy.

S. D. BRIMHALL, V.M.D,
Lecturer on Veterinary Surgery and Materia Medica.

House Surgeon to the Veterinary Hospital.

Farrier and Instructor in Practical Horse-shoeing.

FIRST YEAR.

1. **ANATOMY OF DOMESTIC ANIMALS.** I Part, Osteology and Myology.
2. **HISTOLOGY AND PRACTICAL MICROSCOPY.**
3. **BOTANY.**
4. **ZOOLOGY.**
5. **PHYSIOLOGY.** I part, Digestion and Locomotion.
6. **CHEMISTRY.** I part, Inorganic Chemistry.
7. **MATERIA MEDICA.**
8. **THEORETICAL AND PRACTICAL HORSE SHOEING.**

SECOND YEAR.

1. **ANATOMY OF DOMESTIC ANIMALS.** II part, Splanchnology.
2. **GENERAL PATHOLOGY.**

3. PHYSIOLOGY. II part.
4. CHEMISTRY. II part.
5. MINOR SURGERY.
6. PHYSICAL AND CHEMICAL DIAGNOSIS.
7. PATHOLOGY AND THERAPUETICS OF DOMESTIC ANIMALS. I part.
8. CLINICS IN THE VETERINARY HOSPITAL.

THIRD YEAR.

1. ANATOMY OF DOMESTIC ANIMALS. III part,
2. PATHOLOGICAL ANATOMY, MICROSCOPICAL PATHOLOGY, AND BACTERIOLOGY.
3. OPERATIVE SURGERY.
4. PATHOLOGY AND THERAPUETICS OF DOMESTIC ANIMALS. II part.
5. OBSTETRICS.
6. SANITARY MEDICINE. Meat and Milk Inspection.
7. HISTORY OF VETERINARY MEDICINE.
8. VETERINARY JURISPRUDENCE.
9. CLINICS IN THE VETERINARY HOSPITAL.

ADMISSION.

Any person who has completed the two years' course in the School of Agriculture may be admitted to the department of veterinary science; all other candidates will be required to prove by examination that they have an equivalent degree of culture.

TERMS.

The department will open October 6th, on the same day as the medical department of the University, and will continue in session eight months. The work of the first year will be taken in a large degree with the medical department at the Medical College.

EQUIPMENT.

The veterinay hospital, located at the University farm at St. Anthony Park, contains stalls for injured and sick animals, an operating hall, post-mortem room, dispensary and lecture room. The lectures are illustrated by means of skeletons, models, charts and by dead and living subjects. Special opportunities are given to study the diseases of all domestic animals equally well.

A dissecting room and shoeing-shop on a large scale are planned.

FEES.

Twenty dollars per year, for all courses.

DEGREE.

The degree of Doctor of Veterinary Medicine will be conferred on students who complete the full course of study.

THE AGRICULTURAL EXPERIMENT STATION.

THE CORPS OF EXPERIMENTATION.

CLINTON D. SMITH, M. S.,
Director.

WILLET M. HAYS, B. S. A.,
Assistant in Agriculture.

SAMUEL B. GREEN, B. S.,
Horticulturist.

OTTO LUGGER, PH. B.,
Entomologist and Botanist.

DAVID N. HARPER, PH. B.,
Chemist.

C. C. BURGER, B. S.,
Assistant in Chemistry.

OLOF SCHWARTZKOPFF, V. M. D.,
Veterinarian.

E. H. S. DARTT.
Superintendentof Owatonna Forest Tree Station.

The Legislature of Minnesota, at its session in 1885, passed the following act:

"Section 1. It shall be the duty of the Board of Regents, of the University of Minnesota, as soon as practicable after the passage of this act, to establish at said University an Agricultural Experiment Station for the purpose of promoting agriculture in its various branches, by scientific investigations and experiments; which station shall be under the control and supervision of the said Board of Regents."

The Agricultural Experiment Station is the Experiment Farm of the College of Agriculture of the University of Minnesota. All the income from the sales of the lands granted to the several states by the Act of Congress of 1862, was specifically devoted to the purposes of *instruction*; and with this object in view, the Experimental Farm was purchased and equipped for the purpose of giving practical instruction in all the departments of agriculture, and this work has been successfully carried on for several years past.

For several years the friends of advanced agriculture have engaged in a concerted movement to secure the establishment in the several states of "Agricultural Experiment Stations," where the chief object should be to promote scientific and practical investigations upon all subjects affecting

the agricultural interests of the country. As the result of these efforts, the Congress of the United States passed an act, approved March 2nd, 1887, popularly known as the "Hatch Bill," making an annual appropriation for agricultural investigation.

It will be noted that the Act of Congress of 1862 was designed to promote Agricultural *Education*, while that of 1887 provides for Agricultural *Investigation*.

In compliance with the acts of State and National legislation, the Board of Regents organized and equipped the Experiment Station on the University Farm, using so much of the land, buildings, stock and machinery of said farm are needed for this purpose, and devoted the balance to instruction and illustration. For description of buildings and equipment, see statement under the head "The University Farm Buildings."

The work of the Experiment Station is directed mainly towards the solution of problems of present practical interest to those engaged in farming in the State; though time is also spent in assisting to build up the science of agriculture for the future. The numerous more prominent lines of Minnesota agriculture are all embraced thus including a wide field of research. Live stock husbandry, dairying, forage crops, grain crops, vegetable and fruit gardening, forestry, entomology and agricultural chemistry, are all given prominence. Considerable of the work of experimenting with crops, soils, etc., is done at selected points throughout the entire state. The results of all experiments are published quarterly or oftener, in bulletins which are mailed free to all who apply by card or letter to the Director for them. During the past year the following bulletins have been issued:

Bulletin No. 10.—Onions on Land Plowed and Unplowed, Variety Tests of Cabbage, Syringing with London Purple to kill Plum Curculio, Bagging Grapes Before Ripe, Depth to Plant Potatoes, Oak Caterpillers.

Bulletin No. 11.—Pruning the Roots of Corn, Deep vs. Shallow Cultivation of Corn, Improving Varieties of Corn, Variety Tests of Peas, Beans and Flax, Results of Seeding Rusted and Frosted Wheat.

Bulletin No. 12.—Meadows and Pastures in Minnesota, American Grown Cauliflower Seed, Preserving Vegetables in Carbonic Acid.

Bulletin No. 13.—A Treatise on Flax Culture.

Bulletin No. 14.—Breeding and Feeding Hogs, Cultivation of Sugar Beets.

Bulletin No. 15.—Variety Tests of Wheat and the Selection and Changing of Seed Wheat.

Besides the regular bulletin reports of experiments the members of the Experiment Station Corps do much at answering farmers' inquires by letter, addressing farmers' meetings, and writing for agricultural newspapers. Each of these men also lectures on his specialty to the agricultural students, thus giving them the benefit of the latest discoveries and the best practical facts in the science of farming.

THE GRADUATE DEPARTMENT.

This department affords an extension of the work of the College of Science, Literature and the Arts, and of the College of Mechanic Arts. It meets the threefold purpose of extending general culture, for which Masters' degrees are offered; of encouraging the mastery of a specialty, for which the degree of Doctor of Philosophy is given; of providing for those who desire a more thorough acquaintance with particular subjects than is offered in undergraduate work, but who are not candidates for degrees.

REGISTRATION.

Those who wish to take any of these courses must present their diplomas or other credentials to the Registrar, and register for whatever work they may wish to take. There are no fees required in this department.

THE MASTER'S DEGREE.

COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

I. The degree of Master in science, literature, or the arts, will be conferred on a Bachelor of this or any other reputable college or university, who not sooner than one year after graduation if in residence at this University, not sooner than two years after graduation if not in residence, shall pass an examination on certain prescribed lines of study, and present a satisfactory thesis.

II. A candidate for a degree is required to present his application on the proper blank, stating the particular degree desired, the several subjects selected in which to be examined, and the title of the thesis. Graduates of other colleges or universities will exhibit their diplomas on filing their applications. After the approval of the application by the faculty of the college, no changes or departures will be permitted.

III. Table of studies offered to candidates:

DIVISIONS.	GROUPS.	LINES.
A.	*a.* Classical Philology.	1. Greek. 2. Latin. 3. Sanscrit.
	b. Modern Philology,	1. English. 2. French. 3. German. 4. Scandinavian Languages.
	c. Comparative Philology.	

Divisions.	Groups.	Lines.
B.	*a.* Biological Science.	1. Botany. 2. Zoölogy. 3. Physiology. 4. Palæontology.
	b. Physical Science.	1. Lithological Geology. 2. Chemistry. 3. Physics. 4. Mineralogy.
	c. Mathematics.	1. Co-ordinate Geometry. 2. Calculus. 3. Quaternions. 4. Astronomy.
C.	*a.* History.	1. Mediæval Institutions of Europe. 2. Constitutional History of England. 3. Political History of the United States. 4. Modern European Politics. 5. The Philosophy of History.
	b. Economics and Political Science.	1. Private Economics. 2. Public Economy. 3. Science of Government. 4. International Law.
	c. Philosophy.	1. Ethics, 2. Psychology. 3. Philosophy of Religion. 4. History of Philosophy.

IV. The Amount of work done by the candidate shall be equivalent to that done by the Senior class, viz: Three terms on four subjects each term, with a thesis in addition.

Note: It will be observed that this is equivalent to 12 terms of work on one subject. Hence estimates of the time to be occupied will be stated in *twelfths* of a year.

V. Method of Selecting Work.

1. The candidates shall select from the Table in III four lines of study.

2. One of these he shall indicate as a major line, the other three as minors.

3. The candidate shall devote not less than six-twelfths of his year's work to the major, and not less than one-twelfth to each minor (See IV).

4. The thesis shall be on some subject connected with the major line.

5. The following special regulations are to be observed with reference to the different degrees:

a. For the degree of Master of Arts at least two of the four lines selected shall be from Division A, Group *a* (Classical Philology).

b. For the degree of Master of Science at least two of the four lines shall be from Division B.

c. For the degree of Master of Literature at least two of the four lines selected shall be from Division A, Group *b* (Modern Philology).

VI. The proficiency of candidates shall be determined by examinations only.

VII. All examinations shall be held at the University, at such time and in such manner as may be directed by the faculty.

The College of Mechanic Arts.

All the regulations governing candidates for the Masters' degrees shall

apply to the candidates for the second degrees in the College of Mechanic Arts. The following is a schedule of work required for the degrees:

A. FOR CIVIL ENGINEERING.

1. Some subject in civil engineering.
2. Any two distinct lines of study selected from the table in III. above.
3. A design in civil engineering.
4. A thesis on a subject in civil engineering.

B. FOR MECHANICAL ENGINEERING.

1. Some subject in mechanical engineering.
2. Any two distinct lines of study selected from the table in III. above.
3. A design in mechanical engineering.
4. A thesis on a subject in mechanical engineering.

C. FOR ARCHITECTURE.

1. Some subject in architecture.
2. Any two distinct lines of study selected from the table in III. above.
3. A design in architecture.
4. A thesis on a subject in architecture.

DEGREE OF DOCTOR OF PHILOSOPHY.

The Degree of Doctor of Philosophy will be conferred on bachelors of this or any other reputable college or university within not less than three years after graduation therefrom, under the following conditions:

I. The candidate shall elect some one of the *Groups* of study from the table in III., Master's degree (page 119), and within that group some special field, such as shall be approved by the faculty.

II. He shall pass a minute examination on the special field selected, and shall show such acquaintance with other studies of the group as the faculty may require.

III. He shall present a thesis on some subject connected with his special field of work; which thesis shall be the result of original investigation by the candidate, and shall be a contribution to knowledge.

IV. Each candidate for this degree shall devote the time of at least two years to preparation for his examination, such study being his principal occupation for that period; provided, however, that if such study shall not be his principal occupation, then the time of preparation shall be extended as the faculty may think proper.

V. The candidate shall be in actual residence at the University and shall pursue his studies therein at least one year, and that the year next preceding his final examination.

VI. At the beginning of said year next preceding his final examination, the candidate shall pass a preliminary examination on the work for his degree that he has done up to that time.

VII. A fair copy of the thesis shall be placed in the hands of a committee of the faculty on or before the first day of April next preceding the

final examination. No candidate shall be admitted to said final examination unless his thesis shall be approved by the committee. If the degree thereafter be conferred, at least one hundred printed copies of the thesis shall be deposited with the President of the University.

VIII. The final examination for this degree shall be held on or about the third Thursday in May, as the President of the University may decide.

IX. Each examination for the degree of doctor of philosophy shall be held in the presence of the general faculty, and shall be conducted as said faculty may direct. A quorum for such examination shall be five.

X. Besides the final examination, the candidate may be required to make a public defense of his thesis at such time and place as the general faculty my determine.

GRADUATE WORK NOT LEADING TO A DEGREE.

Bachelors of this or any other reputable college or university, not desiring to take a degree, are allowed, subject in general to the regulations governing the candidates for degrees, to pursue the studies of the graduate courses, and to be examined in them, and a certificate of attainment will be given if desired.

For the year 1891-92, the following subjects will be offered:

I. MATHEMATICS.

1. An advanced course in Co-ordinate Geometry.
2. An advanced course in Differential Calculus.
3. An advanced course in Integral Calculus.

The following subjects are offered to those who do not elect them in their under-graduate course:

1. Analytical Geometry.
2. Differential Calculus.
3. Integral Calculus.
4. Quaternions.

II. ASTRONOMY.—A course in Practical Astronomy.

III. CHEMISTRY.—Graduate students desiring to add to their knowledge of chemistry, will find here good facilities for laboratory practice; and they will be enabled to take up such practice at almost any point, either by themselves or with classes organized in the same work. The aim of the department will be to meet the wishes, on the one hand, of individual graduate or special students pursuing the more practical branches, as assaying, toxicology, etc., and on the other hand, of those who seek a greater familiarity with the general and theoretical portions of the science.

IV. GREEK A.—Greek Poetry, embracing the Epic, Lyric and Dramatic, with critical reading of authors; or Greek Philosophy, with critical reading of authors.

GREEK B.—Greek Oratory—Demosthenes and Æschines "On the Crown," or "Jebbs' Attic Orators from Antiphon to Isaeus," with selected readings.

V. GERMAN.—Alternative courses:

1. *a.* Niebelungenlied.
   b. History of German Literature during the Twelfth and Thirteenth Centuries.
2. *a.* Lessing's Laocoön and Dramaturgy.
   b. History of German Literature from 1749 to 1832.

VI. ROMANCE LANGUAGES.—

1. Philogical; especially with reference to the French element in English; the Norman dialect of Old French as it appears in the laws of William the Conqueror; the Anglo-Norman poet Wace's Roman de Rou, Chanson de Roland; the later French of Rousseau and Montaigne.
2. A systematic study of some special topic, as: the Philosophy of the Nineteenth Century; the literature of the Eighteenth Century.

VII. HISTORY.—As in the table in III, page 120.

VIII. GEOLOGY AND MINERALOGY.—The granitic rocks of Central Minnesota, with such preliminary mineralogical work as may be found necessary.

IX. ENGLISH.—"Seminaries" devoted to the Philosophy of English literature, or study of Gothic in its relation to the English language.

X. LATIN.—

1. Roman Law—Institutes of Justinian.
2. Roman Philosophy—Cicero.

XI. ECONOMICS AND POLITICAL SCIENCE.—The work of graduate students in this department is conducted on the seminary plan. The particular subjects of investigation are selected by individuals or groups, upon consultation with the professor.

THE DEPARTMENT OF LAW.

THE FACULTY.

CYRUS NORTHROP, LL. D.,
President.

HON. WM. S. PATTEE, M. A.,
Dean and Professor of the Law of Contracts.

PROF. W. W. FOLWELL,
Lecturer on International Law.

FRANK B. KELLOGG, ESQ.,
Lecturer on Equity Jurisprudence and Procedure.

CHARLES A. WILLARD, LL. B.,
Lecturer on the Law of Bailments.

JUDGE JAMES O. PIERCE,
Lecturer on Constitutional and Statutory Law and the Law of Domestic Relations.

RALPH WHELAN, LL. B.,
Lecturer on the Law of Torts.

HON. GEORGE B. YOUNG, LL. B.,
Lecturer on the Conflict of Laws.

HON. H. F. STEVENS,
Lecturer on the Law of Real Property.

HON. C. D. O'ORIEN,
Lecturer on Criminal Law and Procedure.

SELDEN BACON, LL. B.,
Lecturer on Civil Procedure, including Evidence.

C. B. ELLIOTT, PH. D.,
Lecturer on Corporations and Insurance.

CHARLES H. BOARDMAN, M. D.,
Professor of Medical Jurisprudence.

CHARLES W. BUNN, LL. B.,
Lecturer on Suretyship and Mortgages, Practice in United States Courts.

T. DWIGHT MERWIN,
Lecturer on Patent Law.

F. W. M. CUTCHEON,
Lecturer on Partnership.

JAMES PAIGE, LL. B.,
Quiz Master.

"There is little, if any, dispute now as to the relative merit of education by means of law schools, and that to be gotten by mere practical training or apprenticeship as an attorney's clerk. Without disparagment of mere practical advantage, the verdict of the best informed is in favor of the schools.

"The benefits which they offer are easily suggested, and are of the most superior

kind. They afford the student an acquaintance with general principles, difficult, if not impossible to be otherwise obtained: they serve to remove difficulties which are inherent in scientific and technical phraseology, and they as a necessary consequence furnish the student with the means for clear conception and accurate and precise expression. They familiarize him with leading cases, and the application of them to discussion. They give him the valuable habit of attention, teach him familiar maxims, and offer him the priceless opportunities which result from contact and generous emulation. They lead him readily to survey the law as a science, and imbue him with the principles of ethics as its true foundation. Disputing, reasoning, reading and discoursing, become his constant exercises: he improves remarkably as he becomes acquainted with them, and obtains progress otherwise beyond his reach."—*Report of the Committee on Legal Education to the American Bar Association, August 21st, 1879, at Saratoga, N. Y.*

ORIGIN.

Provision was made in the charter of the University for the establishment, at the proper time, of a College of Law; and in the early part of 1888 the Regents, believing the proper time had come, established the department by electing a Dean, and providing a full corps of lecturers. The College opened on September 11, 1888, and its membership during the school year reached the number of sixty seven. The lectures and instruction, during the first year of the School's existence were given in rooms provided in the main building; which proved altogether inadequate to accommodate the numbers in attendance.

NEW LAW BUILDING.

The popularity of the Department convinced the Regents that other and larger accommodations must be provided, and in the spring of 1889 plans were prepared for a new building especially for the Law School.

During the summer the building was erected, finished and furnished, so that the Department took possession of the same in October of that year.

The Law Building is a beautiful structure, and furnishes the school with first-class accommodations in all particulars.

It was constructed for the sole use of the Law School. It was designed, completed and furnished with sole reference to the needs of such an institution. It is constructed of red brick and brown sandstone, and located in a grove of native trees within 200 feet of the main University building.

Upon the first floor is a large lecture room, constructed upon the plan of an amphitheatre, copiously lighted, thoroughly ventilated, and furnished with comfortable chairs, arranged with special reference to taking notes with ease and convenience.

Upon the same floor there is a society room, devoted to the Literary Association of the Department, and also a recitation room for text-book work.

Upon the second floor there is a large and thoroughly ventilated library room, a court room, a lecture room, and the offices of the Dean.

The building is heated throughout by steam generated by a plant located

at some distance therefrom, supplied with gas, water, and all the modern conveniences necessary to make the building complete and sufficiently equipped for the work it was designed to accomplish.

ADMISSION.

Any person of good moral character will be allowed to matriculate in this department. If, however, the person applying for admission intends to be a candidate for a degree at the end of his course, he must not be less than eighteen years of age.

There is no list of studies prescribed which the candidate must pass in order to be admitted. Each candidate must satisfy the faculty that he has such a general education as will enable him to pursue the study of law with advantage, and justify his entering upon the practice of law when his legal studies are completed. Persons who are deficient in English Grammar, Composition, U. S. history, and other branches usually taught in common schools, will not be admitted. Special attention should be given to the English language, grammar, composition, and literature, history of the United States, of England, and of Rome. In addition, candidates will find a knowledge of Latin very useful, and students who are fitting themselves to pursue the study of law are earnestly recommended to study that language.

Examinations for admission to the College of Science, Literature and Arts will be held, beginning Tuesday, September 1. Candidates for admission to the Law Department should present themselves in the general office (room 21) in the main university building, at 8 o'clock on that day, and register their names. They should take an examination in as many of the subjects for admission to the Freshman class in the College of Science, Literature and Arts, as they feel themselves prepared for.

The results of these examinations will be reported to the faculty of the College of Law, and the names of the successful candidates will be announced.

Candidates who are graduates of high schools, academies or colleges, or similar institutions, will exhibit their diplomas, and file with the registrar, on making their application, a list of studies they have pursued, and the grade, standing, or degree of attainment, they have obtained in each, duly signed by the principal or other officer. These certificates of standing, if accepted by the faculty, will exempt the candidate from examination, in whole or in part, as may be decided by the faculty, in each particular case.

REGISTRATION.

After having satisfied the faculty of his educational attainments, the candidate will, on paying his matriculation fee and first term's tuition, to the registrar of the University, receive a registration card or ticket, which will admit him to the lecture room.

TUITION.

FOR MINNESOTA STUDENTS.

Matriculation fee	$10 00
Annual fee, payable quarterly in advance	30 00

FOR NON-RESIDENT STUDENTS.

Matriculation fee	$20 00
Annual fee, payable quarterly in advance	35 00
Diploma fee, for all alike	10 00

COURSE OF STUDY.

The course of study extends over a period of two years, and comprises the following subjects:

FIRST YEAR (JUNIOR).

CONTRACTS.
TORTS.
CRIMINAL LAW AND PROCEDURE.
REAL PROPERTY.
EQUITY JURISPRUDENCE AND PROCEDURE.
DOMESTIC RELATIONS.
SURETYSHIP AND MORTGAGE.
PARTNERSHIP.
COMMON LAW AND CODE PLEADING
EVIDENCE.

SECOND YEAR (SENIOR).

CONTRACTS.
CORPORATIONS,
FIRE AND LIFE INSURANCE.
WILLS AND ADMINISTRATION.
LAW OF TAXATION,
INTERNATIONAL LAW.
CONFLICT OF LAWS.
ADMIRALTY LAW.
MEDICAL JURISPRUDENCE.
JURISDICTION AND PRACTICE OF UNITED STATES COURTS.

The course on contracts extends through both the Junior and Senior years and embraces, among other topics, bills, notes and commercial law generally; contract liabilities of infants, incapables, and married women; agency; bailments; bankruptcy and insolvency. These specific topics will be considered during the two years, at such times and in connection with the treatment of such general subjects, as shall be most advantageous, and convenient for students and instructors.

THREE YEARS' COURSE.

For the benefit of students desiring to pursue their legal studies further, provision has been made for an additional year of work, that they may

have the full benefit of a three years' course. This will enable them, and others desiring it, to pursue further in detail the subjects of Equity, Real Property, Civil and Criminal procedure, and such other branches of law, as they may desire to make a specialty in practice.

In addition to these, special attention will be given to the following subjects:

Minnesota Law and Practice.
General Jurisprudence.
International Law.
Constitutional Law.
Constitutional History of United States.

Special facilities for preparing briefs and arguing cases upon all these topics will be afforded students in this course, and an opportunity given for wider and more thorough reading in the history and discussions of the law.

The Faculty urge all who can, to continue their course through the third year. The terms of study and the tuition are the same as in the preceding years, but any student not having taken the preceding work in this department, but who is able and desires to do the work of this third year, will be required to pay the matriculation fee of $10, in addition to the regular tuition.

METHOD OF INSTRUCTION.

The method of instruction is not confined to either lectures or recitations, but such a combination of both is adopted as is best calculated to interest the student and secure for him a thorough, accurate and comprehensive knowledge of the principles and rules of law. And in addition thereto such a use of the reports is made as will familiarize the student with the leading cases upon the various subjects in which he receives instruction.

LIBRARY.

The Bar Association of Minneapolis has an excellent Law Library, located within easy reach of the University, the free use of which has been secured for all members of the Law Department. The State Library also, at St. Paul, is easily accessible and will be open to their free use each day in the week except Sunday.

The department has a good working library in the new building, comprising those Reports must frequently cited in the text books used. It is open to the students both day and evening; and the facilities for investigating legal topics through text books, digests and reports, are already good, and new additions to the Department collection are being constantly made.

The Bar Association Library at Minneapolis furnishes all the facilities for consultation of authorities that the students require. It contains all the Reports, State and National, which the student would have occasion to examine; and also the English text-books and Reports, which are so necessary for the student in his study of the fundamental principles of the Law.

This library is open to those who wish to use it, both forenoon and afternoon. The lectures and recitations are given at 2 o'clock p. m. in order to give the students the entire forenoon for study.

BOOKS.

Students will be expected to furnish themselves with such text books as the faculty shall adopt for use in the recitation room. In all cases they will be such books as will be found necessary in the student's practice.

In addition to these, should any of the students desire to have at hand other standard works upon the subjects taught, a judicious selection could be made from the following list, and the faculty will be glad to aid them in making such a selection:

Contracts—Parsons, Anson, Metcalf, Pollock, Bishop.

Bailments—Schouler, Edwards, Story.

Sales—Benjamin, Blackburn.

Domestic Relations—Schouler or Reeves on Domestic Relations; Schouler on Husband and Wife; Bishop on Marriage and Divorce; Bishop on Married Women; Cord on Married women; Macdonnell on Master and Servant; Simpson on infants.

Corporations—Angell and Ames, Field, Morawetz, Taylor; Dillon on Municipal Corporations; Thompson on Liability of Stockholders.

Bills and Notes—Byles, Chalmers, Parsons; Daniels on Negotiable Instruments; Edwards on Bills and Notes; Bigelow's Leading Cases; Ames' Leading Cases.

Torts—Cooley, Bigelow, Addison; Wharton on Negligence.

Evidence—Greenleaf on Evidence; Best's Principles of Evidence; Stephen's Digest of Law of Evidence; Wharton or Starkie on Evidence; Rogers on Expert Testimony; Rosco's Criminal Evidence.

Real Property—Williams, Washburn, Tiedman, Boone, Willard.

Partnership—Lindley, Parsons, Bates, Pollock.

Wills and Administration of Estates—Redfield on Wills; Jarman on Wills (Randolph & Talcott's or Bigelow's edition); Hawkins on Construction of Wills; Schouler on Wills; Williams on Executors.

Common Carriers—Hutchinson on Carriers; Thompson on Passenger Carriers; Redfield or Pierce on Railways.

Equity—Pomeroy's or Storey's Equity Jurisprudence; Snell's, Bispham's or Adam's Equity.

Criminal Law—Harris, Bishop, Wharton, May, Washburn; Stephen's Digest of the Criminal Law; Stephen's History of the Criminal Law.

Pleading—Gould, Stephens, Chatty, Hurd; Bliss on Code Pleading; Story's Equity Pleading; Pomeroy on Remedial Rights.

Agency—Evans, Storey, Wharton.

Damages—Sutherland, Sedgwick.

Mortgages—Jones, Thomas.

Insurance—May on Insurance; Wood on Fire Insurance; Bliss on Fire Insurance; Arnold on Marine Insurance.

Shipping and Admiralty—Abbott, Conkling, Desty.

Easements—Goddard, Washburn.

Taxation—Cooley, Burroughs, Desty.

Medical Jurisprudence—Ewell, Wharton and Stille, Beck.

Constitutional History—Hallam's Constitutional History of England (1485-1760); May's Constitutional History of England (1760-1870); Yonge's Constitutional History of England (1760-1860); Stubb's Constitutional History of England; Bagehot's English Constitution; Gheist's English Constitutional History; Curtis's History of the Constitution of the United States; Bancroft's History of the United States; Von Holst's Constitutional History of the United States.

Constitutional and State Law—Pomeroy's Introduction to the Constitutional Law of the United States; Von Holst's Constitutional Law of the United States; Cooley's Principles of Constitutional Law; Cooley's Constitutional Limitations; Story's Commentaries on the Constitution of the United States; Sedgwick on Constitutional and Statutory Law; Jameson's Constitutional Conventions; Bishop's Written Law; Maxwell on the Interpretation of Statutes; Farrar's Manual of the Constitution of the United States; Stearn's Concordance to the Constitution of the United States.

Jurisprudence—Holland's Elements of Jurisprudence; Austin's Lectures on Jurisprudence; Lorimer's Principles of Jurisprudence; Amos on the Science of Law.

International Law—Wheaton's Elements of International Law; Hallis International Law; Davis' International Law; Story's Conflict of Laws.

Roman Law—Morey's Outlines on Roman Law; Hadley's Introduction to Roman Law; Mackenzie's Roman Law; Moyle's Justinian; Roby's Introduction to the Digest; Muirhead's Roman Law.

COURTS.

The department is located within easy reach of both the Federal and State courts. At St. Paul the United States courts are in session several months in the year, which, with the Supreme court of the State, together with the District and Municipal courts of both cities, will furnish all the opportunities for witnessing the actual practice of law, that the student will have either time or desire to improve.

MOOT COURT.

A Moot Court is organized at the beginning of each year and continued during the three terms. As fast as the student becomes acquainted with the primary rights of persons, cases are prepared for his consideration, wherein he may apply the principles of law with which he has become familiar.

There is also established a system of Moot Courts, corresponding to the Justice, the District, and the Supreme Courts of Minnesota, wherein the student may become familiar with the practice and the rules of the courts respectively.

It is the aim of the department to acquaint the student with the practice as well as the theory of the law, and to this end, the subjects of pleading, evidence, rules of practice adopted by our State Courts, methods of securing provisional remedies, appeals from one court to another, the writs of habeas corpus, certiorari, and others of frequent use, conveyancing, drawing contracts, and other like practices which comprise the daily work of the general practitioner, will, during the Senior year, receive especial and careful attention.

Some member of the faculty will preside over each of these courts, associating with him such members of the class as he shall from time to time select. Briefs will be prepared, and all other steps taken, so far as possible, which practice requires in the actual conduct of cases.

EVENING CLASSES.

Evening classes are formed for those who are unable to attend during the

day. Persons who enter the evening department go over the same subjects and are entitled to their diplomas if on final examinatlon they show themselves possessed of the requisite qualifications.

They are subject to the same rules and have all the advantages of Moot Courts and other general exercises that the students of the day class enjoy.

But owing to the scanty time the evening students, as a general rule, have for reading, the course of study will extend through three years instead of two. If, however, any student can command the time sufficient to do the requisite reading, and can in two years complete the course, passing a satisfactory final examination, he will be entitled to his diploma and degree at the end of that time.

THE LECTURERS.

All the lecturers in the department are lawyers actively engaged in the practice of their profession. They come to the class room direct from the bar, bringing with them fresh experiences and the spirit of actual contests. They all possess a high ideal of what a lawyer should be and do, and the student who enters here is expected to come with the fixed purpose of attaining a high degree of excellency in his legal acquirements, and to respond in earnestness and fidelity to the faithful efforts of his instructors in his behalf.

LITERARY SOCIETY.

The students of the Department, Juniors and Seniors, have joined in organizing a literary society for the purpose of general improvement and for cultivation in the practice of extemporaneous speaking. They hold weekly meetings and derive great benefit from their exercises.

UNIVERSITY DEPARTMENTS.

Students of this department will be admitted, under proper regulations, to exercises in the other departments or colleges of the University, without extra charge, and so far as does not interfere with their law studies, they are urged to avail themselves of this opportunity to attend lectures and recitations in the other departments. The following subjects are suggested as being particularly suitable: International law, Constitutional History and Political Science.

DEGREES.

The degree of Bachelor of Laws will be conferred upon all students who pursue the full course in this department, and pass an approved examination. The degree will also be conferred upon those, who, having attended another law school for a period of one year, shall also attend for one year in this department, and pass a like examination.

ADMISSION TO THE BAR.

The Legislature of Minnesota, in the year 1891, recognized the Legal Department of the University of Minnesota in the following enactment,

whereby students graduating therefrom are entitled to admission to the bar without further examination:

AN ACT to establish a uniform standard of admission to the bar of this State, and to punish persons violating the provisions of this act.

Be it enacted by the Legislature of the State of Minnesota.

SECTION 1. As soon as possible after the passage and approval of this act the Justices of the Supreme Court of this State shall appoint from the members of the bar of Minnesota, learned in the law, one person from each congressional district now or hereafter created, to constitute a state board of examiners in law.

SEC. 2. The term of office of the said board shall be as follows:

Three shall be appointed for one year, two shall be appointed for two years, and two shall be appointed for three years, and their successors shall receive their appointment in a like manner for terms of three years each; but in case of a vacancy occurring by death or otherwise, there shall be appointed in a like manner, a person to serve through the unexpired term of the member to whose place he is appointed.

SEC. 3. The said board shall elect a president, secretary and treasurer; shall have its headquarters at the Capitol of this State; shall have a common seal; and the president and secretary shall have the power to administer oaths; the said board shall at least three times in each year hold public examinations for admission to the bar of this State, which examinations shall be both written and oral, in such place in this State, as the Supreme Court shall direct and at such times as the said board shall determine; the said board shall keep a record of all its proceedings and also a record of all applications for admission to the bar, and shall enroll in a book kept for that purpose, the name of each person admitted as an attorney at law.

SEC. 4. The said board shall, as soon as practicable thereafter, report the result of all examinations to the Supreme Court with such recommendations as to said board shall seem just, and the Supreme Court shall, after considering said report and said recommendations, enter an order in each case authorizing or directing said board to reject such applicant or to issue to him a certificate of admission to the bar.

SEC. 5. The said board shall receive from each person applying for examination the sum of five dollars ($5.00) as a fee therefor, and all fees received by said board shall be deposited with the treasurer of said board and supplied towards the expenses and compensation of the respective members of said board.

SEC. 6. There shall be paid out of the treasury of said board to each examiner appointed as aforesaid, a compensation not exceeding ten dollars ($10.00) per day, and his actual necessary expenses in going to, holding and returning from any such examination.

SEC. 7. No person shall hereafter be admitted to practice as an attorney and counselor at law, or commence, conduct or defend any action or proceeding in any of the courts of record of this State, in which he is not a party concerned either by using or subscribing his own or the name or names of any other person or persons, unless he has complied with and been admitted under and pursuant to such rules as the Supreme Court of this State shall prescribe: Provided, that the provisions of this act shall not apply to or effect persons admitted to the bar of this State under preexisting laws.

Provided, THAT GRADUATES FROM THE LAW DEPARTMENT OF THE UNIVERSITY OF MINNESOTA SHALL, UPON PRESENTATION OF THEIR DIPLOMA FROM SUCH UNIVERSITY TO THE SUPREME COURT, OR ANY DISTRICT COURT OF THIS STATE, AT ANY TIME WITHIN TWO (2) YEARS FROM THE DATE OF SUCH DIPLOMA, BE ENTITLED TO A CERTIFICATE OF ADMISSION TO THE BAR WITHOUT ANY EXAMINATION OR FEE WHATEVER; AND SUCH COURT SHALL THEREUPON ENTER AN ORDER AUTHORIZING AND DIRECTING THE CLERK OF SAID COURT TO ISSUE TO SUCH GRADUATE A CERTIFICATE OF ADMISSION TO THE BAR. UPON PROOF SATISFACTORY TO SAID COURT THAT SUCH GRADUATE IS A CITIZEN OF THE UNITED STATES, A CITIZEN AND RESIDENT OF THE STATE OF MINNE-

SOTA; THAT HE IS TWENTY-ONE (21) YEARS OF AGE, OF GOOD MORAL CHARACTER, AND UPON HIS SUBSCRIBING SUCH OATH AS IS NOW PROVIDED BY STATUTE FOR PERSONS UPON THEIR ADMISSION TO THE BAR.

SEC. 8. Any person who shall appear as an attorney or counselor at law in any action or proceeding in any court of record in this State to maintain or defend the same except in his own behalf when a party thereto, unless he has been admitted to the bar of this State, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not less than fifty nor more than one hundred dollars ($100), and it shall be the duty of the respective county attorneys in this State to prosecute violations of this act; but the District Courts of this State shall have sole original jurisdiction of this offense.

Provided, That any attorney or counselor residing in any of the other states or territories wherein he has been admitted to practice law, and who shall attend any term of the Supreme or District Courts of this State for the purpose of trying or participating in the trial or proceedings of any action, or proceeding therein pending, may be permitted to try or participate in the trial or proceedings in such action or proceeding without being subject to provisions of this act.

SEC. 9. Chapter ninety-three (93) of the general laws of one thousand eight hundred and eighty-nine (1889) and sections three, (3), four (4) and eight (8) of chapter eighty-eight (88) of the General Statutes of one thousand eight hundred and seventy-eight (1878), and chapter one hundred and four (104) of the General Laws of one thousand eight hundred and eighty-three (1883), are hereby repealed.

SEC. 10. This act shall take effect and be in force from and after its passage.

THE GENERAL LIBRARY.

The general library and reading room occupy rooms 18, 20, 22, 24, to 28 in the first story of the main building.

The library is open to everybody from 8:00 a.m. to 6:00 p.m. every day in the University year except Sundays and holidays. During the vacation the library is open on Wednesday and Saturday evenings at 7:30 o'clock for the issue and receipt of books borrowed. Members of the University are allowed to borrow books for home reading, to be kept seventeen days, but works marked in the catalogue with a * (called "starred books"), comprising books of reference, illustrated books, and rare and costly books, cannot be removed. These books as well as others, may be read and consulted in the reading room.

The bound volumes number more than 25,000.

About one hundred anh twenty-eight periodicals are received regularly by the library, including the leading quarterlies, bi-monthlies, monthlies, weeklies and semi-weeklies.

CALENDAR, 1891-92.

September 1, Tuesday, 9 a.m.—Examination for entrance, and enrollment, in law building.

September 8, Tuesday, 2 p.m.—First lectures of the course.

December 22, Tuesday—Holiday vacation begins.

January 5, 1892, Tuesday, 2 p.m.—Lectures resumed.

May 24, Tuesday—Senior examinations for degrees.

June 2—Commencement.

For further particulars write to the President, Cyrus Northrop, Minneapolis, or to the Dean, W. S. Pattee, and all information necessary for the student will be furnished promptly.

The Dean will be pleased to correspond with any who are thinking of pursuing a course of legal study, and he will gladly aid any student in selecting the proper books.

Letters addressed to him at Minneapolis, Minnesota, will receive prompt attention.

EXPENSES.

These depend largely upon the tastes and habits of the individual. Students find no difficulty in obtaining board among the people of the city.

Good board can be obtained for $4 per week. Students board in clubs at less expense.

STUDENTS.

During the present year there have registered in the Department of Law 175 students. A large number of them are graduates of higher institutions of learning.

THE DEPARTMENT OF MEDICINE.

CYRUS NORTHROP, LL. D., - - - - - - - - President.
PERRY H. MILLARD, M. D., - - - - - - - - - Dean.

This Department is composed of the following named Colleges, to-wit: The College of Medicine and Surgery, the College of Homœopathic Medicine and Surgery, and the College of Dentistry.

THE COLLEGE YEAR.

The fourth year of instruction will commence Tuesday morning, October 6th, 1891, and continue eight months. There will be no lectures Thanksgiving day, Washington's Birthday, or Good Friday. The holiday vacation begins December 19th and closes January 3d.

COURSE.

To meet the requirements of the constantly increasing expansion of Medical Science, this department has been organized with a view of affording the student of Medicine or Dentistry a thorough course of Medical and Dental instruction. It is with satisfaction that the announcement is made that the Legislature has wisely provided the necessary means for the establishment of the various colleges comprising this department, upon a basis that will enable the Regents to maintain a most competent corps of instructors. The Legislature at its last session also appropriated eighty thousand dollars for buildings. This fund will be utilized by the Regents in the construction of suitable buildings for the accommodation of this dedepartment. The buildings will be elaborate and substantial in structure, ready for occupancy at the opening of the session in October, 1892. The new buildings will be located upon the University campus. The names of the one hundred and ninety students appearing in the roster indicates those in actual attendance. Students failing to pass the entrance examination, their names do not appear in the roster and their fee is returned.

Laboratory work and clinical instruction is a leading feature of this department. A thorough course of instruction will be required in Histology, Pathology, Bacteriology, Qualitative Analysis, Urinalysis, and Toxicology. The work in the various laboratories will be under the direct supervision of the didactic professor and not left to assistants.

When practicable, students are requested to take four courses of lectures. The schedule is so arranged that a four year's course can be taken to advantage.

The curriculum in the Department of Medicine covers a period of three years, each year of which represents a course of lectures of eight months duration. Students from other colleges may be admitted, however, to the second year of lectures in the college which corresponds to their previous course of study by furnishing evidence, (1), of their possession of the specified preliminary education or its alternatives; (2), of the prosecution of their medical or dental studies for one year, and (3), of attendance upon one full course of lectures in some recognized college of medicine or dentistry. Admission may similarly be gained to the Senior year by furnishing evidence, (1), of the necessary preliminary qualifications; (2), of the continuance of their professional studies for two years, and (3), of attendance upon two full courses of instruction in some recognized medical or dental college; and finally, by sustaining satisfactory examinations or giving evidence of having already successfully passed examinations in the studies of the first and second years.

The students of all the colleges grouped under this department of the University will attend lectures in common upon Anatomy, Physiology, Chemistry and Histology, and must pass satisfactory examinations in all of these studies before they complete the course or enter for the general examinations in either college. They will attend lectures in common upon such other branches as the faculty under which their studies are pursued may determine.

No college that graduates students upon two courses of lectures is recognized by this department. Students of colleges not recognized desiring admission to the Junior or Senior courses, will be required to comply with the rules governing the entrance examinations, and if the applicant desires admission to the Senior year, he or she will be required to undergo an examination upon the studies of the first and second years.

The students of the College of Veterinary Medicine and Surgery attend lectures on Anatomy, Physiology, Chemistry and Histology in this department.

SPECIAL INSTRUCTION.

Students or practitioners of medicine can pursue a course of instruction in one or more branches by the payment of a fee of fifteen dollars. These students are classed as "special students" and are not issued the regular certificate of attendance at lectures.

OPENING LECTURES.

The opening lecture in the College of Medicine and Surgery will be delivered by Prof. Geo. A. Hendricks at 8:00 o'clock p. m., Tuesday, Oct. 6th.

The opening lecture in the College of Homœopathic Medicine and Surgery, will be delivered by Dr. W. E. Leonard at 8:00 o'clock p. m., Tuesday, Oct. 6th.

The opening lecture in the College of Dentistry will be delived by Prof. W. X. Sudduth, at 3:00 o'clock p. m., Wednesday, Oct. 7th.

It is most essential that all students be in attendance at the opening of the course of lectures.

The extension of the course to eight months, has proven eminently satisfactory to both the instructors and pupils.

LOCATION.

The University proper is located in East Minneapolis, corner of University and Fourteenth avenue S. E., but lectures will be delivered and the laboratory work conducted at the buildings formerly occupied by the Minnesota Hospital College, corner Sixth Street and Ninth avenue south, near which point students should secure lodgings. The clinical instruction will be given at the various dispensaries and hospitals in both Minneapolis and St. Paul, thus affording students the advantages of material for instruction from two large cities. The faculty is well represented upon the staff of all the large hospitals in these two cities, and special arrangements will be completed for giving clinical instruction.

EQUIPMENT.

The University is well equipped for laboratory work. The general museum comprises the collections of the Geological and Natural History Surveys of the State, and containing upwards of twelve thousand specimens, will be at the disposal of students for purposes of examination and study. Laboratory work will be a special feature of this department.

The library of the University contains upwards of twenty-five thousand volumes, and is open daily for the use of students of all departments.

Several thousand dollars are being spent in the purchase of additional apparatus, charts, manikins, etc.

ENROLLMENT.

Students will enroll with the Registrar at the Medical College building, commencing Tuesday, October 6th. Previous to this date they may enroll at the main University building. After enrollment the student will report to the committee conducting the entrance examination. Students unable to pass this examination will have their enrollment fees returned to them.

Those passing the preliminary entrance examination, will report to the Secretaries of the various colleges for classification. Seats are assigned in order of matriculation.

ENTRANCE EXAMINATIONS.

The entrance examinations will commence at 10 A. M. Tuesday, Oct. 6th, at the Medical College building.

This examination will be conducted by a committee consisting of the Dean, assisted by the Secretaries of the College of Homœopathic Medicine and Surgery, and the College of Dentistry.

QUALIFICATIONS.

Applicants for admission to the College of Medicine and Surgery, the College of Homœopathic Medicine and Surgery, or the College of Dentistry, will be required to prove their fitness to enter these colleges:

1. By writing legibly and correctly an English composition of not less than two hundred words.

2. By evincing reasonable familiarity with Latin Grammar or passing an examination in either French, German, or one of the Scandinavian languages.

3. By passing an examination upon either the elements of Algebra, Plane Geometry or Botany.

4. By passing an examination in Elementary Physics.

It is provided, however, that students, matriculates or graduates of reputable colleges of Science, Literature and Arts, or graduates of High Schools of the first grade, shall be exempt from the provisions of this examination. Applicants are given one year to make up a condition in the entrance examinations.

A special course in the Elements of Latin is offered the student during the Freshman year. This course is free to matriculates, and upon undergoing a satisfactory examination at the close of the course will be recognized in lieu of the Latin requirement. Robinson's elements of Medical and Pharmaceutial Latin is the text-book recommended for reference.

PROFESSIONAL EXAMINATIONS.

These examinations are held the last two weeks of the regular session. An examination is held the first week of the session for students conditioned in former examinations and for new students desiring advanced classifications.

The standing of students are determined by term "quizzes" and final written examinations. The standing of students are made known at the end of the session. Frequent class examinations, or "quizzes," will be conducted by each professor, and are considered an important feature of the course. Attendance upon at least four-fifths of the lectures under each chair is requisite in order to entitle the student to enter for final examination, or to a certificate of attendance.

GRADUATION.

Candidates for graduation and for the degrees conferred by the University upon graduates of the colleges in this department, must possess the following qualifications: (1), They must be upwards of twenty-one years of age; (2), they must be of good moral character; (3), they must have spent three full years in the study of medicine or dentistry; (4), they must have attended three full courses of lectures, the last of which, at least, must have been in this University, and the two former in this or some other recognized university or college of medicine or dentistry, and (5), they must have sustained satisfactory examinations in the various branches of study, in accordance with the rules of the general faculty.

DEGREES.

In the department of Medicine the following degrees will be granted by the University:

To graduates of the College of Medicine and Surgery, the degree of Doctor of Medicine (M. D.)

To graduates of the College of Homœopathic Medicine and Surgery, the degree of Doctor of Medicine (M.D.).

To graduates of the College of Dentistry, the degree of Doctor of Dental Surgery (D.D.S.).

Graduates of the College of Dentistry can obtain the degree of Doctor of Medicine by attending one full course of lectures in either of the allied colleges, and by passing the final examinations required therein. Similarly graduates of the College of Medicine and Surgery, or of the College of Homœopathy, can obtain the degree of Doctor of Dental Surgery by attending one full course of lectures in the College of Dentistry, and by passing the final examinations in that college.

FEES.

Students of the various colleges of the department will be uniformly charged as follows:

Matriculation fee, payable annually, for students who are actual residents of Minnesota, $10.00; for all others, $25.00.

Lecture courses, annually, for students of Minnesota, $25.00; for all others, $35.00.

Material for dissection, $10.00 per part; bodies are divided into four parts for dissection.

Histological and Pathological laboratory courses, not to exceed $5 for each course.

Freshman's course in Qualitative Analysis, $10.00.

Junior course in Toxicology and Urinalysis, $5.00.

Graduation fee, $10.00.

FEES FOR THREE YEARS.

FIRST YEAR:

Matriculation	$10.00
Annual dues	25.00
Dissecting	10.00
Qualitative Analysis	10.00
Histology	5.00
	$60.00

SECOND YEAR:

Matriculation	$10.00
Annual dues	$25.00
Dissecting	10.00
Urinalysis and Toxicology	5.00
Pathology and Bacteriology	5.00
	$55.00

THIRD YEAR:

Matriculation	$10.00
Annual dues	25.00
Diploma	10.00
	$45.00
Total for Course	$160.00

FEES FOR NON-RESIDENTS.

Matriculation	$25.00
Annual dues	35.00

CALENDAR, 1891.

October 6th, 10 a. m.—Entrance examinations.
2 p. m.—Examination for students conditioned in primary branches.
October 7th, 8:30 a. m.—Didactic lectures begin.
November 26th.—Thanksgiving holiday.
December 19th.—Holiday vacation begins.

1892.

January 5th.—Lectures resumed.
February 22nd.—Washington's birthday—Holiday.
April 15th.—Good Friday—Holiday.
May 18th.—Examinations for promotion and graduation begin.
May 28th.—Examinations close.
June 2nd.—Commencement exercises.

THE COLLEGE OF MEDICINE AND SURGERY.

THE FACULTY.

CYRUS NORTHROP, LL. D.,
President.

GEORGE A. HENDRICKS, M. S., M. D.,
Professor of Anatomy.

RICHARD O. BEARD, M. D.,
Professor of Physiology.

C. J. BELL, A. M.,
Professor of Chemistry.

H. M. BRACKEN, M. D., L. R. C. S. E.,
Professor of Materia Medica and Therapeutics.

ALBERT E. SENKLER, M. D.,
Professor of Theory and Practice of Medicine.

CHARLES H. HUNTER, A. M., M. D.,
Professor of Clinical Medicine.

EVERTON J. ABBOTT, A. B., M. D.,
Professor of Clinical Medicine.

PERRY H. MILLARD, M. D.,
Dean and Secretary of the College.
Professor of the Principles of Surgery, Surgical Pathology and Medical Jurisprudence.

CHARLES A. WHEATON, M. D.,
Professor of Practical and Clinical Surgery.

FREDERICK A. DUNSMOOR, M. D.,
Professor of Operative and Clinical Surgery.

ALEX. J. STONE, LL. D., M. D.,
Professor of Diseases of Women.

AMOS W. ABBOTT, M. D.,
Clinical Professor of Diseases of Women.

PARKS RITCHE, M. D.,
Professor of Obstetrics.

JOHN F. FULTON, PH. D., M. D.,
Professor of Ophthalmology, Otology and Hygiene.

FRANK ALLPORT, M. D.,
Clinical Professor of Ophthalmology and Otology.

C. EUGENE RIGGS, A. M., M. D.,
Professor of Nervous and Mental Diseases,

JAMES H. DUNN, M. D.,
Professor of Diseases of the Genito-Urinary Organs.

CHAS. L. WELLS, A. M., M. D.,
Professor of Diseases of Children.

JAMES E. MOORE, M. D.,
Professor of Orthopædic Surgery.

M. P. VANDERHORCK, M. D.,
Professor of Diseases of the Skin.

W. S. LATON, M. D.,
Professor of Diseases of the Throat and Nose.

J. CLARK STEWART, B. S., M. D.,
Professor of Histology, Pathology, and Bacteriology.

J. W. BELL, M. D.,
Professor of Physical Diagnosis and Diseases of the Chest.

E. C. SPENCER, A. B., M. D.
Professor of Surgical Anatomy.

A. B. CATES, A. M., M. D.,
Adjunct Professor of Obstetrics.

A. MCLAREN, A. B., M. D.
Adjunct Professor of Gynecology.

W. A. JONES, M. D.,
Adjunct Professor of Diseases of the Nervous System.

Demonstrator of Anatomy.

ANNOUNCEMENT.

Under the title of the College of Medicine and Surgery is presented the "old school" branch of this department of the University.

Its creation has been the signal for the discontinuance of the leading medical institutions of Minneapolis and St. Paul, whose faculties have thus sought to enlarge the opportunity for the establishment of a strictly high grade school. The event marks an era in the history of medical education in Minnesota.

The faculty of the new college, in presenting its fourth annual announcement to the profession and the public, desires to emphasize the high standard of its curriculum. It will conduct a three years' course of instruction which will largely follow the graded method. Matriculates must demonstrate their fitness for professional study by evincing their possession of a fair degree of preliminary education. Students must pass the fundamental or primary branches before entering for advanced or final examinations.

ADVANTAGES.

While maintaining these superior educational conditions, the college will afford its students correspondingly superior clinical advantages. It will place at the command of the student the clinical advantages of the larger Hospitals and Dispensaries of the two cities.

MINNEAPOLIS.

The wards of St. Marys and the City Hospital are free to the students of this college. These facilities with the frequent opportunities of witnessing

the operations and examinations of rare cases in the private hospitals under the management of professors of the college, provide a superabundance of indoor clinical material.

UNIVERSITY FREE DISPENSARY.

This dispensary is the outdoor department of the University Clinics. Numerous rooms and the amphitheatres of the college building are used for the examination and treatment of patients. This service is under most successful management and daily a number of the graduating class examine and prescribe for patients. Students are also permitted to make minor operations. The records of the last year show upwards of thirty thousand professional visits of patients.

ST. PAUL.

In addition to the regular clinical instruction at Minneapolis, every Saturday is set apart for clinical instruction at St. Paul. The Senior class are required to attend these weekly clinics, and the schedule is so arranged that the Juniors can likewise avail themselves of these clinics. Saturday afternoons are set apart for a thorough course in bedside instruction. The class, divided into sections, are under the charge of the instructors of the various branches or the members of the visiting staff.

ST. JOSEPH'S HOSPITAL.

The authorities of St. Joseph's Hospital have generously constructed an amphitheatre for the benefit of the students of the department, where the excellent course in clinical instruction will continue as in the past. This is the largest hospital in the Northwest, and affords most excellent surgical advantages. A large number of operations were made before the class in this amphitheatre during the last session of lectures. The number of occupied beds in this hospital averages over one hundred.

CITY HOSPITAL.

The new building of this large structure is completed, and the new wing is in process of construction. Upwards of 1,500 patients were treated in the wards of this hospital the last year. In this hospital are encountered a very large number of cases of emergency surgery, so necessary in affording proper clinical instruction. Through the kindness of the Superintendent, Dr. Ancker, and the Board of Control, we are assured that our students will be afforded the amplest clinical advantages in the future. The new house staff of this hospital were recently appointed from among the graduates and students of this department.

UNIVERSITY FREE DISPENSARY.

This most worthy charity is supported by the Ladies' Aid Society, Mrs. H. C. Burbank, President. The staff consists entirely of the members of the Faculty of this Department. About 12,000 visits were made by patients the last year. It affords a rich field for clinical work in connection with the College of Medicine and Surgery.

HOSPITAL APPOINTMENTS.

A large number of the graduates and advanced students of this college secure appointments in the various hospitals of the two cities.

Laboratory work will be a leading feature of the course in this college. It will include practical demonstrations in physiology, histology, bacteriology, pathology, chemistry and urinalysis. In these exercises students will personally participate and will thus be provided with an opportunity to perfect themselves in microscopy.

In addition to the regular didactic course, special lectures will be given upon topics of peculiar interest.

An ample supply of material will be provided for dissections and the demonstration of anatomy will be thoroughly conducted.

The faculty will spare no endeavor to put the college upon a plane with the foremost medical institutions of the country, and, in the realization of this purpose, it bespeaks the support of the medical profession of the northwest.

COURSE OF INSTRUCTION.

I. YEAR.	II. YEAR. *Continuation of first year Studies.*	III. YEAR. *Continuation of 2d year studies (without those of first.)*
Anatomy.	Pathology.	Therapeutics.
Chemistry.	Medical Jurisprudence.	Neurology.
Histology.	Theory and Practice.	Ophthamology.
Physiology.	Clinical Medicine.	Dermatalogy.
Materia Medica.	Obstetrics.	Laryngology.
Laboratory Work.	Diseases of Children.	Clinical Instruction in all branches.
	Physical Diagnosis.	Electro-therapy.
	Hygiene.	Otology.
	Surgery.	Genito-Urinary Diseases.
	Clinical Surgery.	Orthopædia.
	Gynecology.	
	Clinical Instruction.	

PROFESSIONAL EXAMINATIONS.

The following regulations govern the professional examinations:

Examinations will be conducted at the end of the first, second and third years' work. An examination will be held at the end of the first year upon the subjects of Anatomy, Chemistry, Physiology and Histology; the examination in Anatomy will be mainly confined to Osteology and Syndesmology; in Chemistry the student will be expected to complete his work in General Chemistry and Qualitative Analysis; the final examination in Histology will be held at the end of the first year. A final examination in Anatomy, Chemistry, Physiology and Materia Medica, will be conducted at the end of the second year. The examination at the end of the third year, for those entering the graduating class, will be divided into six sections:

1. An examination in the practice of Medicine, Clinical Medicine and Physical Diagnosis.
2. Surgery, Clinical Surgery and Operative Surgery.

3. Obstetrics Gynecology and Pædology.
4. Ophthalmology, Otology and Laryngology.
5. Orthopædia, Dermatology and Genito-Urinary Diseases.
6. Pathology, and Bacteriology, and Nervous and Mental Diseases.

ANATOMY.

The course in Anatomy is graded. First year students are expected to attend all lectures given in Anatomy. First year students are given a separate course of lectures on Osteology, Syndesmology and Myology. Examinations are held on these subjects at the close of the term.

The lectures on Descriptive, Topographical and Surgical Anatomy, are attended by first and second year students. Second year students recite upon these lectures and receive their final examination at the close of the term.

Dissecting is regarded as advanced work and is done only in the second year. The practical work in the laboratory is under the supervision of the professor of Anatomy, and personal direction of the Demonstrator. The laboratory work is supplemented by lectures and recitations.

TEXT BOOKS.—Grey, 11th Edition, Quain, 10th Edition. Holden's Practical Anatomy.

COLLATERAL READING.—Darling & Ramey. Owen's Skeleton and Teeth, Flower's Osteology of Mammals.

FIRST YEAR.—Lectures and recitations in Osteology, Syndesmology and Myology; one course; two hours per week; 64 lectures.

FIRST YEAR.—Attendance upon lectures in Descriptive, Topographical, and Surgical Anatomy; one course; two hours per week; 64 lectures.

SECOND YEAR.—Lectures and recitations in Descriptive, Topographical and Surgical Anatomy; one course; two hours per week; 64 lectures.

LABORATORY WORK.—Dissection of whole body; one course; afternoons or evenings (14 weeks).

PHYSIOLOGY.

Students are required to study Physiology both in the first and second years. The course is partially graded. The students of both classes will hereafter attend the same series of lectures and recitations, but special teaching in advanced Physiology will be given to students of the second year. The classes will be separately examined at the close of the term. The subject will be taught by recitations and by lectures, illustrated by practical demonstrations.

TEXT BOOKS.—Foster and Yeo.

COLLATERAL READING.—Chapman, Landois and Stirling.

CHEMISTRY.

FIRST YEAR.—Lectures on Inorganic Chemistry, Laboratory—General Chemistry, and Qualitative Analysis.

SECOND YEAR.—Lectures on Medical Chemistry, Elements of Organic Chemistry, Toxicology and Analysis of the Urine, Laboratory Work.

TEXT BOOKS RECOMMENDED.—Remsen, Inorganic Chemistry; Tyson, Examination of the Urine; Reese's Toxicology; Taylor on Poisons.

HISTOLOGY AND BACTERIOLOGY.

Lectures and laboratory work. The student will be taught to mount normal tissues and specimens containing bacteria. The course in normal Histology and Bacteriology will cover a period of not less than twelve weeks. If possible, the student should provide himself with a microscope.

TEXT BOOKS.—Pruden's Practical Histology, Shaefer's Essential Histology.

COLLATERAL READING.—Cornil and Ranvier.

PATHOLOGY.

Pathology will be taught by lectures, recitations, and demonstrations in the dead-house.

Lectures will be illustrated as far as practicable by fresh and museum preparations.

A thorough course in Pathological Histology will be given in the laboratory where the student will mount and preserve a series of sections illustrating tumors and the more important lesions of the viscera.

TEXT-BOOK —Delafield & Prudden, "Hand-book of Pathological Anatomy and Histology," 1889.

MATERIA MEDICA AND THERAPEUTICS.

Lectures, practical demonstrations in the laboratory, and recitations. Third year students will attend a special course of lectures on Therapeutics.

TEXT-BOOKS.—Brunton, Wood and Bartholow.

OBSTETRICS.

Lectures, illustrated by operations on the manakin, and recitations. During the Senior year opportunity will be given members of the class to attend cases of Obstetrics.

TEXT-BOOK.—Lusk.

COLLATERAL READING.—Playfair, Galabin, Charpentier.

SURGERY.

Lectures and recitations, special courses in minor surgery, bandaging and operative surgery.

TEXT-BOOKS.—Senn's Principles of Surgery, Robert's Practical Surgery, Agnew and International Encyclopaedia—Collateral Reading.

PRACTICE OF MEDICINE.

Lectures, recitations and clinical instruction. Bedside instruction will be a special feature in the teaching of this branch.

TEXT-BOOK.—Hilton Fagge.

COLLATERAL READING.—Flint, Reynold's System, Loomis, Niemeyer and Roberts.

DISEASES OF WOMEN.

Lectures, clinical instruction and attendance upon operations. The opportunities of practical instruction in this branch will be very ample.

TEXT-BOOKS.—Thomas, Schroeder, Byford.

COLLATERAL READING.—Emmett, Hart and Barbour.

EYE AND EAR.

Lectures, clinical instruction and recitations.

TEXT-BOOKS.—Noyes, Nettleship (eye), Roosa (ear), and Williams.

COLLATERAL READING.—Juler, Stellwag, Soelberg Wells and Politzer.

NERVOUS AND MENTAL DISEASES.

Lectures and clinical instruction. Special opportunities will be afforded students in differential diagnosis.

TEXT-BOOKS. — Edinger's Anatomy of the Central Nervous System. Gower's Nervous Diseases, Bramwell, (cord) Liebig and Rohe's Medical Electricity, Spitzka's Insanity.

COLLATERAL READING.—Bevan-Lewis or Clouston's Mental Diseases, Bastian's Paralysis, Ferrier's Functions of the Brain and Cerebral Localization; Nervous Diseases, Ranney, Hammond and Strumbell.

GENITO-URINARY DISEASES.

Lectures and clinical instruction.

TEXT-BOOKS.—Thompson's Diseases of the Urinary Organs.

COLLATERAL READING.—Vanburen and Keys and Bumstead and Taylor.

DISEASES OF CHILDREN.

Lectures, didactic and clinical in their character, will be given by this chair.

TEXT-BOOKS.—J. Lewis Smith, Eustace Smith, Meigs and Pepper, and Goodhart.

DISEASES OF THE SKIN.

Lectures and clinical instruction.

TEXT BOOK.—Duhring.

COLLATERAL READING.—Hyde and Van Haslingen.

LARYNGOLOGY.

Lectures and the use of the Laryngoscope. Clinical instruction.

TEXT BOOK.—McKenzie.

COLLATERAL READING.—Bosworth.

PHYSICAL DIAGNOSIS.

Lectures, class exercises, bedside instruction.

TEXT BOOKS.—Hudson and Loomis.

COLLATERAL READING.—Bramwell (heart).

ORTHOPÆDIC SURGERY.

Lectures and clinics.

TEXT BOOK.—Rum's (Practical Orthopædia).

COLLATERAL READING.—McNamara and Gibney.

HYGIENE.

Lectures.

TEXT BOOK.—Parks.

COLLATERAL READING.—Richards on Preventive Medicine, Buck's Hygiene.

MEDICAL JURISPRUDENCE.

Lectures.

TEXT BOOKS.—Reese and Tidy.

COLLATERAL READING.—Taylor's Principles and Practice of Medical Jurisprudence, Wharton and Stille.

NOTICE.—All correspondence relating to the College of Medicine and Surgery should be addressed to Perry H. Millard, Sixth street and Ninth avenue south, Minneapolis, Minn.

SCHEDULE OF LECTURES, 1891-92.

FRESHMAN CLASS.

Hour	MON.	TUES.	WED.	THUR.	FRI.	SAT.
8:30		Anatomy.	Materia Medica.			Materia Medica.
9:30	Anatomy.	Physiology.			Anatomy.	Anatomy.
10:30	Physiology.				Physiology.	Chemistry.
11:30	Chemistry.			Chemistry.		
1-2		Histological Laboratory		Histological Laboratory	Histological Laboratory	
2-3	Chemical Laboratory	Histological Laboratory	Chemical Laboratory	Histological Laboratory	Histological Laboratory	
3-4	Chemical Laboratory		Chemical Laboratory			
4-5	Chemical Laboratory		Chemical Laboratory			

JUNIOR CLASS.

Hour	MON.	TUES.	WED.	THURS.	FRI.	SAT.
8:30	Surgery		Pathology		Med. Jurisp. Surg. oper. After Jan. 1	
9:30	Anatomy	Physiology	Chemistry	Surgery	Anatomy	
10:30	Physiology	Practice		Practice	Physiology	

JUNIOR CLASS—Continued.

11:30	Materia Medica	Chemistry After Jan. 1st	Obstetrics		Obstetrics	
1-2	Clinical Instruction	Clinical Instruction	Clinical Instruction	Clinical Instruction	Clinical Instruction	
2-3				Practice After Jan. 1st	Chem. Lab.	
3-4					Chem. Lab.	
4-5					Chem. Lab.	
5-6				Hygiene After Jan. 1st		

SENIOR CLASS.

Hour	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
8:30	Surgery.	Gynecology Clinic. Alternate weeks.		Mental and Nervous.	Medical Jurisprudence. Surgical Operations after Jan. 1.	
9:30	Pathological Lab.	Gynecology Clinic. Alternate weeks.		Surgery.		Clinic. St. Paul.
10:30	Pathological Lab.	Practice.		Practice.		Clinic. St. Paul.
11:30			Obstetrics.		Obstetrics.	Clinic. St. Paul.
1:30 to 2:30	Gynecology.	Clinic. Orthopædia	Clinic. Surgical.	Clinic. Medical.	Clinic. Ophth'lmology and Otology. Alt'nte w'ks	
2:30 to 3:30	Phys. Diag.		Surgical. Anatomy after Jan. 1.	Dermatology, Genito-Urinary last half.	Laryngology.	Clinic. St. Paul.
3:30 to 4:30	Phys. Diag.		Practice after Jan. 1.	Pædology.		Clinic. St. Paul.
4-5			Mat. Med.	Ophth'lmology and Otology.		

COLLEGE OF HOMOEOPATHIC MEDICINE AND SURGERY.

THE FACULTY.

CYRUS NORTHROP, LL. D.,
President.

WILLIAM E. LEONARD, A. B., M. D.,
Professor of Materia Medica and Therapeutics.

HENRY HUTCHINSON, M. D.,
Professor of Theory and Practice of Medicine.

GEORGE E. RICKER, A. B., M. D.,
Professor of Clinical Medicine and Dermatology.

ROBERT D. MATCHAN, M. D.,
Professor of the Principles and Practice of Surgery.

WARREN S. BRIGGS, B. S., M. D.,
Professor of Clinical and Orthopædic Surgery.

HENRY C. LEONARD, B. S., M. D.,
Professor of Obstetrics.

B. HARVEY OGDEN, A. M., M. D.,
Professor of Gynecology and Genito-Urinary Diseases.

ALBERT E. HIGBEE, M. D.,
Clinical Professor of Gynecology.

JOHN F. BEAUMONT, M. D.,
Professor of Ophthalmology.

HENRY W. BRAZIE, M. D., *Sec'y Faculty,*
Professor of Pædology.

EUGENE L. MANN, A. B., M. D.,
Professor of Diseases of the Heart and Respiratory Organs.

D. A. STRICKLER, M. D.,
Professor of Otology and Rhinology.

HENRY C. ALDRICH, D. D. S., M. D.,
Adjunct Professor of Materia Medica and Therapeutics.

A. P. WILLIAMSON, A. M., M. D.,
Professor of Mental and Nervous Diseases.
Lecturer on Skin and Venereal Diseases.

The following named members of this Faculty are also members of the Faculty of the College of Medicine and Surgery.

GEO. A. HENDRICKS, M. S., M. D.,
Professor of Anatomy.

RICHARD O. BEARD, M. D.,
Professor of Physiology.

C. J. BELL, A. M.,
Professor of Chemistry.

CHARLES H. BOARDMAN, M. D.,
Professor of Medical Jurisprudence.

JOHN F. FULTON, M. D.,
Professor of Hygiene.

J. CLARK STEWART, B. S., M. D.,
Professor of Histology, Pathology and Bacteriology.

Demonstrator of Anatomy.

ANNOUNCEMENT.

In the organization of this College the Board of Regents of the University of Minnesota has aimed to secure the united efforts of the homœopathic practitoners of the State in the establishment of a college broader in its scope and more complete in its teaching corps than that of any similar institution in the country.

The College of Homœopathic Medicine and Surgery confidently appeals, therefore, to the profession of the northwest to second its efforts to educate thoroughly those students who wish to practice homœopathy.

Every practitoner fully appreciates the great advantage to be derived by the practical study of disease. The young physician who has depended upon his reading and attendance upon didactic lectures, to the exclusion of bed-side or clinical study, will find himself hampered and embarrassed at almost every step in his professional career. Practical points in practice are only acquired by slow degrees, and often at the expense of the patients welfare or of professional reputation. Hence the importance of attending at least one course of lectures in a large city, where material for dissection and surgical demonstration is fresh and abundant, and where there are large hospitals and clinics constantly crowded with every variety of disease and surgical injury. The difference in the expense is but trifling, while the advantage in favor of a great metropolis is incalculable. Minneapolis and St. Paul are not only immense commercial centers, easily reached by a network of railroads extending to all points of the compass, but are great medical centers toward which the diseased, maimed, halt and blind wend their way in search of relief, thus filling the many hospitals with choice clinical material from all quarters of the great northwest. This College is prepared to offer unrivalled advantages to students in this respect.

The Twin Cities have been for twenty-five years—thanks to the men who have grown gray in the profession—a center of homœopathic patronage

and interest. It has taken but a few years to build up in Minneapolis a hospital devoted to this system of practice which equals any in the northwest, while a similar institution in St. Paul, situated in the natural center for accidents, within two blocks of most of the railroads that enter the city, and surrounded by car shops and manufacturing industries, secures a large share of surgical cases.

Students will be admitted to both of these hospitals, as well as the city hospitals, and will visit patients at the bedside under the direction of the various professors, who are attending physicians at these institutions.

These advantages, with those furnished by the dispensaries of two large cities, will give unsurpassed opportunities for special study, and will make practical clinical work a feature of the college.

Hospital appointments will be open to graduates through competitive examination.

DISPENSARY AND COLLEGE CLINICS.

The Dispensary, located near the college building, affords ample opportunity for the study of all forms of disease usually met with in office practice. Patients present themselves in large numbers (from 50 to 75) daily, and are assigned to particular departments according to the nature of their diseases. The classes are so divided and arranged as to afford every student ample opportunity to familiarize himself with the best methods of diagnosis and treatment of the various maladies, medical and surgical, with which the clinic abounds. Special attention is directed to the fact that these college clinics are conducted daily throughout the entire year, and students and practitioners are cordially invited to attend them at all times.

COURSE OF INSTRUCTION.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.
Anatomy. Physiology. Chemistry. Materia Medica. Histology. Laboratory Work.	Anatomy. Physiology. Chemistry and Toxicolgy. Materia Medica. Theory and Practice. Clinical Medicine. Surg. and Clinical Surg. Obstetrics. Gynecology. Ophthalmology. Mental and Nerv. Diseases. Pædology. Physical Diagnosis. Pathology. Medical Jurisprudence. Hygiene. Clinical Instruction. Genito-Urinary Diseases.	As the second year, without the first three studies and in addition. Otology and Rhinology. Dermatology and Venereal Diseases. Laryngology. Orthopædia. Genito-Urinary Diseases. Electro-therapy. Clinical Instruction.

Quizzes of the nature of a daily recitation will be given by each professor upon the subjects of the previous lecture.

Senior students will have opportunity to attend out-door patients, to

assist in special and general surgical operations, and to attend at least one obstetrical case during the last course of lectures.

ANATOMY.

The course in Anatomy is graded. First year students are expected to attend all the lectures given in Anatomy. First year students are given a separate course in Osteology, Syndesmology and Myology. Examinations are held on these subjects at the close of the term. The lectures on Descriptive, Topographical and Surgical Anatomy are attended by first and second year students. Second year students recite upon these lectures and receive their final examination at the close of the term. Dissecting is regarded as advanced work, and is done only in the second year. The practical work in the laboratory is under the supervision of the Professor of Anatomy and personal direction of the Demonstrator. The laboratory work is supplemented by lectures and recitations.

TEXT-BOOKS.—Grey, 11th Edition. Quain, 10th Edition. Holden's Practical Anatomy.

COLLATERAL READING.—Darling and Ranney, Owen's Skeleton and Teeth, Hane's Osteology of Mammals.

FIRST YEAR.—Lectures and recitations in Osteology, Syndesmology and Myology. One course; two hours per week; 64 hours. Also attendance upon lectures on Descriptive, Topographical and Surgical Anatomy; one course of two hours per week; 64 lectures.

SECOND YEAR.—Lectures and recitations in Descriptive, Topographical and Surgical Anatomy; one course of 64 lectures. Laboratory work—Dissection of whole body.

PHYSIOLOGY.

Students are required to study Physiology, both in the first and second years. The course is partially graded. The students of both classes will hereafter attend the same series of lectures and recitations, but special teaching in advanced Physiology will be given to students of the second year. The classes will be separately examined at the close of the term. The subject will be taught by recitations and by lectures illustrated by practical demonstrations.

TEXT BOOKS.—Foster and Yeo.

COLLATERAL READING.—Chapman and Landois and Sterling.

CHEMISTRY.

FIRST YEAR.—Lectures on Inorganic Chemistry. Laboratory—General Chemistry and Qualitative Analysis.

SECOND YEAR.—Lectures on Medical Chemistry. Elements of Organic Chemistry. Toxicology and Urinalysis, Laboratory work.

TEXT BOOKS.—Remsen's Inorganic Chemistry. Tyson's examination of the Urine. Reese's Toxicology. Taylor on Poisons.

HISTOLOGY AND BACTERIOLOGY.

Lectures and laboratory work. The student will be taught to mount

normal tissues and specimens containing bacteria. The course in Normal Histology and Bacteriology will cover a period of not less than twelve weeks. If possible, the student should provide himself with a microscope.

TEXT BOOKS.—Pruden's Practical Histology, Shaefer's Essential Histology.

COLLATERAL READING.—Cornil and Ranvier.

PATHOLOGY.

Pathology and Morbid Anatomy will be taught by lectures, recitations, and work in the dead-house. The technique of the autopsy will be carefully dwelt upon, so that each student can learn to make a correct post-mortem examination. Diseased processes will be illustrated by fresh alcoholic specimens, that theories of disease may be as much matters of demonstration as the nature of the subjects will admit.

TEXT BOOKS.—Delafield and Prudden, Cornil and Ranvier, Orth.

MATERIA MEDICA AND THERAPEUTICS.

First-year students will have two lectures a week upon Pharmacology, Toxicology, and Physiological Materia Medica, and pass a final examination upon these branches at the end of the year.

The instruction in Pharmacology last year was kindly furnished by Mr. G. A. Babendrier, and will be repeated until further notice.

The remaining years will be devoted to the study of the drugs of the Homœopathic Materia Medica, classified according to their scientific relations in the natural kingdoms, and their practical relations in applied medicine. One lecture a month will be devoted to the principles of Homœopathic Therapeutics as laid down in Hahnemann's writings, and in those of such teachers as Hering, Dunham, Farrington, etc.

The advantage of having two such teachers of this very important branch instead of one, is apparent. It implies thoroughness on the part of the professor, and time and opportunity on that of the pupil. Their views will not be conflicting, or confusing to the class, but will help to fit its members for practical, bedside work as physicians.

TEXT-BOOKS.—Farrington, Cowperthwaite, Hawke's Characteristics, Hahnemann's Organon.

REFERENCE BOOKS.—First year, Hughes' Pharmaco–Dynamics, Hering's Condensed and Guiding Symptoms, Dunham and Allen's Hand-Book.

THEORY AND PRACTICE OF MEDICINE.

Lectures on the Theory and Practice of Medicine will be delivered to students of the second and third year. The chief purpose of this chair will be to educate the student in systematic habits of investigating and treating disease.

TEXT-BOOKS.—Raue's Pathology and Diagnosis, Ruddock's Text-Book of Medicine and Surgery, Arndt's System of Medicine, Pepper's System of Medicine, Loomis' Practical Medicine, Bartholow's Practice, DaCosta's Diagnosis.

CLINICAL MEDICINE.

Abundant material for clinical instruction is furnished by the dispensary and hospital clinics. Outside dispensary work also furnishes each student of the graduating class with acute cases of disease which he can treat under the supervision of the professor of this department. In addition to physical examination and diagnosis the special aim will be to teach the practical application of homœopathic principles in therapeutics.

TEXT-BOOKS.—Lilienthal's Therapeutics, Lippe's Repertory, Farrington's Clinical Materia Medica.

OBSTETRICS.

The teaching of this chair will embrace lectures and recitations, giving especial attention to the homœopathic treatment of the disorders incident to pregnancy and the puperal state. Members of the Senior class have the privilege of attending at least one confinement case, under the special instruction of the professor of obstetrics.

TEXT-BOOK.—Leavitt.

DIDACTIC GYNECOLOGY AND GENITO-URINARY DISEASES.

A systematic course of lectures upon the physiology and pathology of the male and female generative organs, with the etiology, symptomatology and treatment of their diseases will be given. Clinical instruction and bedside attendance will be a special feature.

TEXT BOOKS.—On Gynecology Cowperthwaite, Ludlam.

COLLATERAL READING.—Thomas, Emmet, Schroeder, Mann. On Genito-Urinary Diseases: Franklin, Berjeau, Otis and Keyes.

PRINCIPLES AND PRACTICE OF SURGERY,

A comprehensive course of lectures on General Surgery will be given. Surgical Pathology will be treated in a concise and comprehensive manner. Surgical operations and methods will be thoroughly demonstrated on the living and on the cadaver.

TEXT BOOKS.—Helmuth, Bryant, Erichsen, Packard and Holmes.

CLINICAL SURGERY.

The diagnosis, prognosis, and homœopathic treatment of surgical diseases will be taught practically. Surgical operations will be performed before the class. There will be two clinics and one lecture each week on surgical emergencies, minor surgery and orthopœdia.

TEXT BOOKS.—Gilchrist's Surgical Therapeutics, Ranney's Surgical Diagnosis, Smith's Operative Surgery.

REFERENCE BOOKS.—Helmuth, Franklin, Gross and Sayre.

OPHTHALMOLOGY.

The instruction in this branch will combine didactic and clinical teaching. Lectures on the anatomy, physiology and pathology of the regions involved will be thoroughly practical.

TEXT BOOKS.—Buffum and Norton.

REFERENCE BOOK.—Wells.

MENTAL AND NERVOUS DISEASES.

It will be the aim of this chair to quailify the student to detect the earlist symptoms of insanity and diseases of the nervous system. In this course particular attention will be paid to the history, causes, modes of development, characteristic symptoms, pathological conditions and defining terms of the diseases of the brain and spinal cord. The sanitary, moral and medical treatment will be portrayed and elucidated. We intend this course to be eminently practical.

TEXT BOOKS.—On Insanity: Worcester, Jahr, Spitzka, Clouston, Blandford.

REFERENCE BOOK.—Bucknill and Tuke.

TEXT BOOKS.—On Nervous Diseases: Hart, Ross' Hand Book, Ranney, Starr.

REFERENCE BOOK.—Gowers on the Nervous System.

PÆDOLOGY.

A thorough course will be given upon the general diseases of children and their homœopathic treatment, including their etiology, pathology and hygiene.

TEXT BOOKS.—Hall's Jahr, Duncan, Ruddock, Testo, Guernsey, Smith, Edmonds.

PHYSICAL DIAGNOSIS AND LARYNGOLOGY.

The practical teaching of Physical Diagnosis and the study of the diseases of the nose and throat and their treatment, with the uses of special diagnostic and therapeutic instruments, will be the aim of this department.

TEXT BOOKS.—On Physical Diagnosis: Flint's Auscultation and Percussion, Hudson, Guttmann and Loomis. On Laryngology: Lennox Brown, Sajous, McKenzie, Bosworth.

OTOLOGY AND RHINOLOGY.

A series of practical lectures will be given on the anatomy, physiology and pathology of the ear, and treatment of its diseases; also of the nasal passages, and their relation to other affections.

TEXT BOOK.—Winslow and Houghton.

REFERENCE BOOK.—Roosa.

SKIN AND VENEREAL DISEASES.

This subject will be taught by didactic lectures illustrated by cases from the dispensaries, particular stress being laid upon the teaching of pure Homœopathy.

TEXT BOOKS.—Kippax, Lilienthal Jahr, Duhring, Fox, Etc.

HYGIENE.

Lectures.

TEXT BOOK.—Parks.

COLLATERAL READING.—Richard's Preventive Medicine, Buck's Hygiene.

MEDICAL JURISPRUDENCE.

Lectures.

TEXT BOOKS.—Reese and Tidy.

COLLATERAL READING.—Taylor's Principles and Practice of Medical Jurisprudence.

All communications pertaining to the College of Homœopathic Medicine and Surgery, should be addressed to the Secretary of the Homœopathic Faculty, H. W. Brazie, M. D., corner Ninth avenue south and Sixth street.

SCHEDULE OF LECTURES, 1891-92.

FRESHMAN CLASS.

Hour	MON.	TUES.	WED.	THUR.	FRI.	SAT.
8:30		Anatomy.				
9:30	Anatomy.	Physiology.			Anatomy.	Anatomy.
10:30	Physiology.	Materia Medica.		Materia Medica.	Physiology.	Chemistry.
11:30	Chemistry.			Chemistry.		
1-2		Histological Laborotory		Histological Laboratory	Histological Laboratory	
2-3	Chemical Laboratory	Histological Laboratory	Chemical Laboratory	Histological Laboratory	Histological Laboratory	
3-4	Chemical Laboratory		Chemical Laboratory			
4-5	Chemical Laboratory		Chemical Laboratory			

JUNIOR CLASS.

Hour	MON.	TUES.	WED.	THUR.	FRI.	SAT.
8:30		Practice.	Pathology.	Orthopædia		Materia Medica.
9:30	Anatomy.	Physiology.	Chemistry.	Practice.	Anatomy.	Clinic, St. Paul.
10:30	Physiology.	Obstetrics.	Pædology.	Genito-Urinary and Gynecology.	Physiology.	Clinic, St. Paul.
11:30	Obstetrics.	Materia Medica. Chemistry. after Jan. 1st.	Children's Clinic.	Materia Medica.	Medical Jurisprudence.	Clinic, St. Paul.
1:30	Ophthalmology.	Women's Clinic.	Eye Clinic.	Surgery.	Medical Clinic.	Surgical Clinic.

JUNIOR CLASS—Continued.

2:30	Surgery.				Chemical Laboratory	
3:30	Mental and Nervous.				Chemical Laboratory	
5-6					Hygiene After Jan. 1st.	

SENIOR CLASS.

Hour	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
8:30	Laryngology Physical Diagnosis.	Practice.	Pathology.	Orthopædia	Otology and Rhinology.	Materia Medica.
9:30	Pathological Labor'ty	Skin and Venereal.		Practice.		Clinic, St. Paul.
10:30	Pathological Labor'ty	Obstetrics.	Pædology.	Genito-Urinary and Gynecology.		Clinic, St. Paul.
11:30	Obstetrics.	Materia Medica.	Children's Clinic.	Materia Medica.	Medical Jurisprudence.	Clinic, St. Paul.
1:30	Ophthalmology.	Women's Clinic.	Eye Clinic.	Surgery.	Medical Clinic.	Surgical Clinic.
2:30	Surgery.		Surgical Anatomy after Jan. 1.			
2:30	Mental and Nervous.					

THE COLLEGE OF DENTISTRY.

FACULTY.

CYRUS NORTHROP, LL. D.,
President.

W. XAVIER SUDDUTH, A. M., M. D., D. D. S.,
Sec'y and Professor of Pathology and Oral Surgery.

THOMAS E. WEEKS, D.D. S.,
Professor of Operative Dentistry and Dental Therapeutics.

CHARLES M. BAILEY, D. M. D.,
Professor of Prosthetic Dentistry and Metallurgy.

EDWARD H. ANGLE, D.D. S.,
Professor of Histology, Comparative Anatomy and Orthodontia.

GEO. A. HENDRICKS, M. S., M. D.,
Professor of Anatomy.

RICHARD O. BEARD, M. D.,
Professor Physiology.

C. J. BELL, A. M.,
Professor of Chemistry.

H. M. BRACKEN, M. D., L. R. C. S. E., AND
WILLIAM E. LEONARD, A. B., M. D.,
Professors of Materia Medica and Therapeutics.

INSTRUCTORS.

F. E. TWICHELL, D. M. D.,
Demonstrator in charge of the Prosthetic Clinic and Instructor in Continuous Gum Work.

HUGO E. WANGELIN, D.D. S.,
Instructor in Technics.

CHAS A. VANDUZEE, D.D. S.,
Instructor in Operative Technics.

A. E. L. PECK, D.D. S.,
Instructor in Crown and Bridge Work.

J. D. JEWETT, D.D. S.,
Instructor in the Administration of Anæsthetics.

W. M. SPAULDING, D D. S.,
Instructor in Appliances for Treatment of Cleft Palate.

CLINICAL INSTRUCTORS.

Dr. F. H. Brimmer.
Dr. E. F. Clark.
Dr. W. P. Dickinson.
Dr. A. W. French.
Dr. M. G. Jenison.
Dr. W. N. Murry.
Dr. J. A. Parker.
Dr. H. M. Reid.
Dr. W. A. Spaulding.
Mr. Eugene Pettit.

ANNOUNCEMENT.

Recognizing the necessity for more thorough instruction than is generally given in the primary branches, anatomy, chemistry, and physiology, the founders of the College of Dentistry, of the University of Minnesota, concluded to unite with the other scientific colleges for the establishment of the Department of Medicine in which thoroughly competent men could, by giving their entire time, furnish a higher class of instruction than is possible for busy practicioners to give when only devoting a few hours each week to the subject. Ths plan has worked well in the past and with the erection of a new Laboratory building, ample appropriation for which has been made by the legislature, it is intended to further improve the methods of instruction by the introduction of additional apparatus and by making the teaching less didactic and more practical.

The several colleges are distinct in their management. The secretaries of each being the official head of the faculty and performing the office of Dean

Dental students are placed upon the same footing during the first two years of their course as medical students. They are required to pass the same entrance examination and pursue the same course of instruction in anatomy, chemistry, physiology, histology and materia medica during the freshman year, and in addition take dental anatomy, operative and prosthetic technics and embryology.

In the Junior year work in anatomy and physiology will be completed, and in lieu of the other studies taken by the medical student, the dental student receives instruction in operative and prosthetic dentistry, both practical and didactic, the time being about equally divided between the two subjects. He also receives full instruction in dental pathology, didactic and laboratory, and comparative anatomy. In the Senior year the student devotes his entire time to the study of the practice of dentistry in all its phases; operative and prosthetic dentistry is continued, and full clinical instruction is afforded in oral surgery, the administration of anæsthetics, orthodontia and the treatment of fractures of the maxilla and cleft palate.

In this institution the dental student substitutes the practice of dentistry for that of medicine, and obtains at the end of his course the degree of D. D. S. If it is so desired, he may by attending an additional year and passing in those studies pertaining to the regular medical course which have not been included in his dental curriculum, obtain the medical degree also. It is most earnestly advised for all students who can spare the time and means, to take the full course and obtain the two degrees. A much more rounded education is thereby obtained, and the possessor is better prepared for the practice of his profession.

The faculty of this College recognizes the right of each State to control the practice of dentistry within its border by regulary appointed boards of examiners. It also holds that a diploma should represent the standard of education in the institution granting it, the same as literary diplomas, and that it should not carry with it the license to practice, but that this power should be relegated to legally appointed bodies in the several States.

This College is a member of the National Association of Dental Faculties, and its diploma is recognized in all States where the diplomas of other reputable colleges are recognized.

It is our intention, to so thoroughly prepare our graduates that they shall be able to pass the examination of any State board. Our advantages for imparting instruction are exceptional. Our clinical advantages are unexcelled, having the combined popolution of St. Paul and Minneapolis to draw upon for clinical material.

In addition to the regular three years' course, which this institution has had from the first, a fourth or *preliminary year* has been added, to begin with the fall term. For the present it will be *optional* but in the very near future it is intended to make it compulsory, and put into it the technical work of the entire course. The studies to be pursued are English Composition, Botany, and Physics, Latin, Mechanics, and Mechanism. Full instructions will also be given in vise, forge, and machine work, which will be comprehensive and especially adapted to the needs of dental students.

The course in this institution has been graded from its organization, a detailed curriculum of the work in the several chairs for the ensuing year is here appended:

OPERATIVE DENTISTRY.

In this department the work is thoroughly graded. No student will be excused from any of the lectures, technics, or operations of the course, or advanded to a higher grade, until he has satisfied the Professor or Instructors of his proficiency.

We are enabled to thus grade operations by the abundance of clinical material. A charity fund, with which the infirmary is endowed, enabling us to perform a class of operations for deserving patients, which are not usually demanded or allowed by the average infirmary patient.

The infirmary is at all times under the direct supervision of, either the Professor of Operative Dentistry, or the Chief of Clinics; who give personal instruction and advice to each student. Recent graduates never filling positions other than those of assistants.

Another feature which students will appreciate, is the opportuiny to see the office equipment and methods of various operators, afforded by the clinics held in the offices of the special clinicians.

FRESHMAN YEAR.

A course of "operative techniques" will be conducted during this year, comprising a study of the form, size and location of pulp chambers, and canals, and the thickness of enamel; by cutting sections in different directions, and printing silhouettes. Cleavage of enamel, opening and cleansing canals. Preparing and filling the several classes of cavities with guttapercha, cement, tin, and amalgam, and canal filling; in natural teeth. This course will be so complete in all its details, that the student may obtain a clear insight into methods and technique of operations.

Freshmen students are expected to attend a certain proportion of the Junior lectures, but will not be required to stand quiz or examination on the subject.

Lectures will be given and recitations held upon the dental armament, its composition; the teeth, physical characteristics, and component parts; contact, occlusion and types.

Mechanical principles in their relation to the dental armament, to operations and instruments.

Classification and preparation of cavities, cleansing and preparation of canals.

Filling materials, requisites, classification, characteristics, preparation and use.

Steel and instruments.

JUNIOR YEAR.

In this year lectures will be given upon the influence of form and arrangement upon decay; and the extent to which operations may modify existing forms, extraction, exclusion of moisture, gaining space, pulp treatment; conservative and radical, deposits and their removal, crown and bridge work.

A course of "Crown technics" will be given in which the student will perform the operations upon teeth mounted in articulators, of preparing roots for dowel-pins and crowns. Mounting porcelain crowns with and without bands. Making and mounting, porcelain-faced and all gold crowns, and bridge-work.

At the beginning of this year the student will enter the infirmary, where he will perform, sequentially, upon patients, the various operations of removing deposits and cleansing teeth, extracting, and filling cavities with the various filling materials.

At the close of the year the requisite markings upon lectures, recitations, technical and practical operations and an examination will qualify for the Senior year.

SENIOR YEAR.

Lectures will be given upon all topics not already covered pertaining to this chair. And the student will perform, in, the infirmary, all of the higher grades of operations; especially those relating to and influenced by pathological conditions; also crown and bridge-work.

As in the previous years all operations will be marked by the instructors and demonstrators, which with the requisite markings upon recitations and final examination will constitute the final test for standing.

MECHANICAL DENTISTRY.

FRESHMAN YEAR.

In the freshman year the instruction will consist entirely of laboratory work. Beginning with the impression the student will be taught by practical demonstrations the process of making a set of teeth, and will be re-

quired to practice until he is able to take an accurate impression of any ordinary mouth, and to carry through to completion at least one case in vulcanite.

This course in technics will be sufficiently complete to give the student a thorough insight into laboratory practice and fit him, at the beginning of his junior year, to take charge of patients under the supervision of the demonstrator in charge.

JUNIOR YEAR.

The didactic instruction will relate to the materials used and methods of work pursued in the laboratory. The materials will be fully considered, their sources of supply, composition, &c. The methods of work and underlying principles will be fully explained. The teeth, their characteristics, composition and adaptation to the uses for which they are intended will be considered.

The various materials used for artificial base will be discussed and their value for the purposes intended compared.

A course in metallurgy, treating of the reduction of metals from the ores, manipulation, characteristics, &c., fullest consideration of those metals most used in dentistry will be given the latter part of the year.

Students will be assigned to work in the laboratory; and abundance of clinical material is always at hand so that the fullest opportunity for the practical application of the instruction received in the lecture room and in the clinic may be had. At the close of this year the student will be expected to be able to take full charge alone of any ordinary case for vulcanite and also to have had experience in the working of metal plates.

Practical instruction in the making of plate-solders, alloys, &c., &c., will be given.

SENIOR YEAR.

The work of this year will be a continuation of that of the previous year, applying the principles to more difficult cases.

Special instruction will be given in the use of Continuous Gum, Gold and the Metalic Plastics, and the mechanical treatment of cleft-palate.

DENTAL ANATOMY.

FRESHMAN YEAR.

The shapes and forms of the human teeth will be carefully studied in lectures and recitations from the text book on this subject.

A full line of illustrations, consisting of reflected cuts and actual teeth thrown on the screen by the aid of the stereopticon, will be used.

Students will also make sections of fully developed teeth, and study them under the microscope, and make drawings of the same. Osseous tissues will also be studied in a similar manner.

At the close of this year an examination will be held on the subjects considered.

COMPARATIVE DENTAL ANATOMY.

JUNIOR YEAR.

In the junior year the study of Dental Anatomy is continued, and is considered in comparison with the teeth of the vertebrate animals, beginning with the simplest forms, as shown in the horn-like teeth of the lamprey, and the peculiarities of form, structure, methods of attachment and succession in the teeth of fish in general will be fully considered.

Next will be taken up the increasing complexity of the dental apparatus as shown in a study of the teeth of reptiles, their structure, and peculiarities of their manner of replacement, as found in the crocodilia, poisonous and non-poisonous snakes, &c., &c.

The study is carried still further in the consideration of the more specialized and highly complex teeth of mammals, particularly noting the primitive patterns of the teeth of the marsupalia, the rudimentary teeth of the cetacea, edentata and sirenea, tracing specialization and complexity through the carnivora, chiroptera, insectivora, ungulata, rodentia and proboscidea, finally giving a most thorough and complete consideration of the teeth of primates.

The subject will be treated in a complete course of lectures fully illustrated by the stereoptican, together with a large collection of crania of the lower animals and man, and by lessons and recitations from the text book adopted on this subject.

ORTHODONTIA.

During the past few years much interest has been manifested in this subject by the profession, and many of the brightest minds have been earnestly at work developing the possibilities of this very important branch of dentistry. As a result much accurate knowledge has been gained, both as to the principles underlying the many causes of irregularities, as well as many ingenious and valuable appliances for their treatment. Thus has been made practical the treatment of nearly all forms of dental irregularities.

In this school it is aimed to make the instruction in this branch of unusual interest and thoroughness.

JUNIOR YEAR.

In the Junior year a course of technical instruction is given, together with several lectures. Students are taught to take impressions and make models of cases of irregularity, aud to carefully construct all of the more important appliances and adjust them to models.

At the close of this course an examination will be held, and those successfully passing the same will be advanced to Senior standing.

SENIOR YEAR.

In the Senior year a full course of lectures is given, fully illustrated by the stereopticon, in which all classes of irregularities are considered and

all probable causes fully discussed, together with a careful consideration of all methods of treatment. In addition to these lectures special time is devoted each week, during which students are required to treat practical cases from beginning to completion under the immediate supervision of the professor of this department.

These clinics are of great interest and benefit, as a large number of patients are treated annually, comprising a great variety of cases.

HISTOLOGY AND EMBRYOLOGY.

FRESHMAN YEAR.

The subject of histology will be taught didactically and practically. Two days a week for twenty weeks will be devoted to practical work in the Laboratory, during which time the student will prepare for himself a series of specimens illustrative of normal tissues and developing teeth.

He thus becomes familiar with Microscopic Technology, and is prepared to continue his studies in this direction in after years. The laboratory is well equipped, and every opportunity is offered for original research and investigation.

A special course of twelve lectures will be given on embryology, and fully illustrated by photo-micrographs, which will be thrown on the screen by aid of the stereopticon. This course is introductory to the subjects of anatomy, physiology and histology, and will consist of a full consideration of the following subjects: a general study in the development of the chick and other embryos, the theory of reproduction, ova, spermatozoa, segmentation and the development of the three layers of the blastoderm, cellular morphology, including a comparative study in the biological cell and the nature of protoplasm, a comparative study in blood corpuscles and the development of the blood, with a full consideration of the function of the third-blood corpuscle; the products of the epiblast, including the development of hair, nails, horns, hoofs, sudiporus, suderiferous glands, and the enamel organ of the teeth.

The products of the mesoblast, showing the development of the connective tissue group, including the subject of calcification of bone, dentine, and enamel—illustrative of the latter many slides will be used in the comparative study of hard tissues, and lastly the development of the teeth will be fully considered by aid of a full line of photo-micrographs from human, porcine and other embryo.

DENTAL PATHOLOGY.

JUNIOR YEAR.

The teaching in this department will begin with a consideration of the terminology belonging to the subject, followed by a full presentation of lesions of the vascular system; inflammation, local and general; the causes that lead to decay of the teeth and the nature of the process; the food and other habits of different nations in relation to the etiology of decay, also the pathological conditions directly connected in decay of the teeth, such as

Pathological dentition, Pyorrhœa alveolaris, pulpitis, pulp nodules, secondary dentine; periodontitis; alveolar abscess; caries of the jaw and necrosis dependent upon a diseased condition of the teeth. The lantern will frequently be used in illustrating these lectures, and a full course of instructions will be given in the pathological laboratory, in which the microscopical changes in diseased tissues will be demonstrated.

ORAL SURGERY AND HYGIENE.

SENIOR YEAR.

The subject of Oral Surgery will be taught clinically and didactically. The large amount of clinical material presenting at the infirmary, furnishes ample opportunity for practical demonstration. Students are required to take charge of cases and carry them through under the advice of the professor in charge. Anæsthetics are administered in the clinic and full instruction by thoroughly competent instructors as to methods of examination of patients, and the use of ether and gas is given. The members of the Senior class are permitted, under direction, to administer and extract under anæsthetics. The didactic lectures will include a full consideration of all the surgical lesions of the oral cavity and associate parts including oral tumors and the reflex neuroses connected with the fifth pair of nerves; necrosis and caries; fracture of the maxillae; cleft palate and hare lip.

In the study of hygiene, personal and office, the latest modern appliances will be used, a fully equipped bacteriological laboratory having been established for this department. The importance of this step cannot be overestimated when it is understood that decay of the teeth, suppuration of the pulp and other tissues, alveolar abscess, pyorrhœa alveolaris and perhaps other of the diseases of the teeth and associate parts with which dentists have to deal are the direct result of unhygienic conditions of the oral cavity. Full practical instruction in the processes of fermentation, suppuration and infection in general will be provided. The student will be made conversant with the modes of cultivating germs and the manner of their growth; methods of disinfection and antisepsis to be used in the oral cavity. The care of instruments and the danger of infection by their use when not kept in an aseptic condition will be fully dwelt upon.

PRELIMINARY COURSE.

(OPTIONAL.)

This preliminary course is especially established for a class of students who find themselves unprepared to pass the preliminary examination required for entrance into the regular college course. It should also commend itself to parents who are thinking of placing their children in a professional school and have not fully decided which special branch of the healing art they shall study. The studies laid down in the curriculum fit the student for entrance into the general medical department, and if it be found, after the work done in the preliminary year, that the student is better fitted for medicine than dentistry he will be advised accordingly. In order that a stu-

dent may study dentistry with advantage, it is absolutely necessary that he or she shall have mechanical ability of the first order in addition to good literary ability. Many persons possess the latter without the former. The course laid down in the *College of Mechanics Arts* will develop this fact, and the student, without any loss of time, will be brought to a realization of his own ability, which perhaps had never been tested before.

The *manual training* part of the course will be thorough, and will have a direct dental tendency. In this respect it is better suited to the needs of dental students than the manual training departments of high schools. It is, however, advised that the student take both, if the time and means are available.

The course is especially adapted to the needs of ladies who desire to enter the dental department and who have not, as a rule, had opportunity for instruction in manual training. One of the requirements for graduation is that the candidate shall be upwards of twenty-one years of age. If the student intends to pursue a continuous course of study, he must be at least eighteen years of age when presenting for matriculation, whereas if the preliminary course is taken he may be admitted at seventeen and begin his special training at once, instead of spending the time in an office or in desultory reading, as is often done.

The work in *the College of Mechanic Arts* will be considerably modified from the curriculum laid down for the regular students in that department, and will be much lighter in character, the intention being to cultivate that finger skill so necessary to the successful practice of dentistry. The student will be brought to a thorough acquaintance with the manufacture of instruments and tools he will use in later practice. Special attention will be given to the consideration of the working qualities of steel, including full instruction in tempering.

The course will comprise forge, vise and machine work, with sufficient experience in the foundry to acquaint the student with the physical properties of metals as shown in the crucible. The student will also study *mechanics* and *mechanism*, the text books for which can be obtained after arrival.

The forge work will consist of the management of fire and use of different heats. Iron rods will at first be used to accustom the use of the hammer. The round rod will be drawn out and made square and octagonal. Then the various operations of upsetting, bending and rounding will be taught. After the general idea of the working of hot metal has been established, steel will be substituted and the operations repeated, then the working of this steel into blank instruments. Along with this will be demonstrated the tempering heats and colors of steel. A set of blank instruments, such as scalers, pluggers, excavators, etc., will be made in the first term.

The next term will be vise and machine work. At the vise the use of the file will be shown and the student will be taught how to use a file so as to cut with precision and exactness. The blanks made in the forge will here

be filed, scraped and shaped. To do this will give the necessary training especially d sirable for the dentist.

The machine work will be the polishing and burnishing of the instruments together with giving them the required temper. This will run until the last half of the last term, after which the principles of foundry work will be taken up.

In this connection brass moulds for impression trays, etc., will be made and the general knowledge of the melting and making of different foundry products given. These will be trimmed and dressed so by the end of the term the student will have almost a complete set of instruments to begin work with.

FEES FOR PRELIMINARY COURSE.

Matriculation fee for residents of this state, $10.00; for non-residents, $25.00.

Tuition, including materials used for residents of this state, $40.00; for non-residents, $50.00. Books extra.

REQUIREMENTS FOR ADMISSION.

The requirements for admission to the Preliminary course are properly certified marks from some school or a written examination in arithmetic complete, English composition, which will consist of an essay of not less than two hundred words, on some subject assigned at the time of examination, and U. S. History to the close of the Revolutionary war.

CLINICAL INSTRUCTION.

Clinical instruction will embrace all practical subjects relating to dentistry.

The Infirmary and Laboratory will be under the direction of the Chief of Clinics, and students will be required to exhibit results of every variety of operation.

EXAMINATIONS.

Examinations will be held at the end of each year, in the studies of that year, for advancement to the next grade.

Students who fail to pass at the regular examination in the spring, will be allowed an examination at the opening of the next winter's session, except in the case of candidates for graduation.

INSTRUMENTS.

Students will be required to furnish their own tools and instruments for both Laboratory and Operating-Room, excepting extracting instruments, lathes, furnaces, and vulcanizers. A list of instruments required will be furnished on application.

For general information regarding the requirements for entrance and graduation, see pages 135 to 140 of this catalogue.

TEXT-BOOKS.

FIRST YEAR.—Grays Anatomy; Fosters Physiology: Remsen's Chemistry; Brunton's Materia Medica; Guernsey's Key Notes; Pruden's Histology. Black's Dental Anatomy and American System of Dentistry.

SECOND YEAR.—Tomes' Dental Anatomy.

COLLATERAL READING.—Gorgas' Dental Medicine; Haskell's Manual; Garretson's Oral Surgery; Guilford's Orthodontia.

SCHEDULE OF LECTURES, 1891-92.

FRESHMAN CLASS.

Hour.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
8:30	Homœopathic materia medica.	Anatomy.	Materia Medica.	After Jan. 1 Operative Technics.	Homœopathic materia med.	Materia Medica.
9:30	Anatomy.	Physiology.	After Jan. 1 Operative and Crown Technics.		Anatomy.	Anatomy.
10:30	Physiology.			Chemistry.	Physiology.	Chemistry.
11:30	Chemistry.				Materia Medica.	
1-2	Chemical. Laboratory	Histologic'l Laboratory		Histologic'l Laboratory	Prosthetic	
2-3						
3-4				Chemical Laboratory	Technics. Laboratory	
4-5						
5-6	Operative Dentistry.	Embryology.	Dental Society.		Operative Dentistry.	

JUNIOR CLASS.

Hour	MON.	TUES.	WED.	THURS.	FRI.	SAT.
8:30	Homœopathic. Materia Med.		Operative and Crown Technics.	Materia Medica.	Homœopathic materia med.	
9:30	Anatomy.	Physiology.		Operative Technics till Jan. 1.	Anatomy.	
10:30	Physiology.				Physiology.	
11:30						
1:30	Infirmary.	Prosthetic Laboratory	Prosthetic Laboratory	Infirmary.	Prosthetic Laboratory	
4-5		Prosthetic Dentistry.			Prosthetic Dentistry.	
5-6	Operative Dentistry.		Dental Society.	Pathology.	Operative Dentistry.	

SENIOR CLASS.

Hour	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
9 to 12	Dental Infirmary. Operating.	Dental. Infirmary. Operating.	Dental Infirmary. Operating.	Dental Infirmary. Operating.	Dental Infirmary Crown and Bridgework	Dental Clinics.
1:30	Prosthetic Laboratory Continuous Gum Work.	Prosthetic Laboratory Advanced Metal Work.	Anæsthetic and Oral Surgery. Clinic.	Orthod'ntia Clinic.	Prosthetic Laboratory Obturators and Appliances for Treating Fractures.	
4-5		Prosthetic Dentistry.	Operative Dentistry.	Orthod'ntia	Prosthetic Dentistry.	
5-6	Operative Dentistry. (Optional.)	Oral Surgery.	Dental Society.	Pathology.	Operative Dentistry. (Optional.)	

PRELIMINARY COURSE.

(OPTIONAL.)

I. TERM.	II. TERM.	III. TERM.
Physics. Latin. Mechanism.	Physics. Botany. Latin.	Latin. Botany. Mechanics.
Forge Work.	Vise and Machine Work.	Vise and Foundry Work.

All communications pretaining to the College of Dentistry should be addressed to W. X. Sudduth, Secretary, Sixth Street and Ninth Avenue South, Minneapolis, Minn.

APPENDIX A.

GRADUATES.

The following table shows the number and kinds of degrees which have been conferred at the University.

	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Total.
B. A	2	1	3	3	9	5	8	4	10	11	8	9	3	6	7	6	7	11	113
B. S	....	1	2	5	3	8	10	9	10	9	7	9	3	6	12	12	10	22	138
B. L	....	....	1	....	4	2	6	4	7	12	7	3	6	6	5	14	9	11	97
B. C. E	....	....	3	5	....	....	2	....	....	....	2	3	2	....	1	1	1	9	29
B. M. E	....	....	....	....	....	1	....	....	....	....	1	....	1	....	1	2	....	3	9
B. Arch	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	.....	2
B. Agric	....	....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	.....	3
L. L. B	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	40	43
B. M	....	....	....	....	....	....	....	....	....	....	....	2	2	3	2	....	....	.....	9
M. D	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	20	17	37
D. D. S	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	6	7
M. A	....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	....	1	.....	4
M. S	....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	1	....	.....	3
M. L	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
Ph. D	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	.....	1
C. E	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	.....	1
Totals	2	2	9	11	17	16	26	18	28	34	25	26	19	22	30	38	52	120	495

The whole number of degrees conferred, 495. Six persons have received a degree both in science and engineering; one has received a degree both in arts and literature; seven bachelors have received the master's degree, one has received a degree both in agriculture and science; one has received a degree both in science and medicine; one has received a degree both in law and literature; one has received a degree both as bachelor of civil engineering and civil engineer. No honorary degrees have been conferred.

THE WHOLE NUMBER OF DEGREES CONFERRED ON WOMEN 108; viz.: Bachelors of Arts, 17; of Science, 24; of Literature, 64; of Medicine, 1; Master of Literature, 1; and Doctor of Dental Surgery, 1; one person having received a degree both in arts and literature, and one person having received both a bachelor's and a master's degree in literature, and one person having received a degree both in sciences and medicine: The number of women therefore who have received a degree is 105.

A complete list of alumni will be published during the coming summer. Copies will be sent, postage paid, to any address upon application.

APPENDIX B.

THE COLLEGE OF PHARMACY.

The legislature having made an appropriation for the College of Pharmacy, that College will be opened whenever the appropriation becomes available and the Medical College Building, in which the College of Pharmacy is to be accomodated, is ready for occupation. This will probably be at the opening of the year 1892-93.

APPENDIX C.

PROGRAM FOR EXAMINATIONS, SEPTEMBER, 1891.

The numbers placed after the subjects, when given, indicate the room in which the examination will be held. When no number is given, the examination will be held in the chapel, on the third floor of the main building.

Day.	Hour.	Subjects for admission to the Freshman Class.	For students conditioned in the work of first term Freshmen and Sophomore years.*
TUESDAY, SEPT. 1.	8:00-10:30	English Grammar and Essay.	
	10:45- 1:15	Composition.....	
	2:30- 5:00	Elementary Algebra...	
WEDNES'DY	8:00-10:30	Higher Algebra.....	{Freshman Trigonometry. .....38 {Sophomore Physics..... §
SEPT.	10:45- 1:15	U. S. History.....	Freshman Latin.....48
2.	2:30- 5:00	Plane Geometry.....	Sophomore Rhetoric..... 27
THURSDAY,	8:00-10:30	Solid Geometry.....	Sophomore French..... .43
SEPT.	10:45- 1:15	Hist. of Greece & Rome	{Freshman Greek.....36 {Freshman English. 37
3.	2:30- 5:00	Natural Philosophy...	Sophomore English.....37
FRIDAY,	8:00-10:30	Physiology.....	Sophomore Mathematics.....38
SEPT.	10:45- 1:15	{Greek.....36 {German 35	Sophomore Latin..... ..49
4.	2:30- 5:00	Latin Grammer.....	{Sophomore Greek..... .....36 {Sophomore German 35
SATURDAY,	8:00-10:30	Cæsar.....49	Freshman Botany..... ‡
SEPT.	10:45- 1:15	Cicero.....49	Sophomore Chemistry..... §
5.	2:30- 5:00	{Virgil..... .....49 {English 37	{Sophomore Botany..... ‡ {Sophomore Zoölogy..... ‡
MONDAY,	8:00-10:30	Botany,..... ‡	
SEPT.	10:45- 1:15	Chemistry ..... §	
7	2:30- 5:00	{French.....43 {Shakspere..... .....37 {Physical Geography ‡	

Candidates for admission to the Freshman Class will get a statement of the result of their examinations Tuesday morning, Sept. 8th. These results will be made known through the University post office.

Students conditioned in the work of the *first term* not mentioned in the above schedule, will arrange with the professors concerned to take their examinations some time during the week.

*Examinations for the removal of conditions of the second term will be held at the end of the first term, and for the removal of conditions of the third term at the end of the second term. No other examinations for the removal of conditions will be offered during the year.

‡In Pillsbury Hall.

§In Chemical and Physical Laboratory building.