
THE UNIVERSITY OF MINNESOTA.

THE
CALENDAR

FOR THE YEAR

1884-85.



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

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

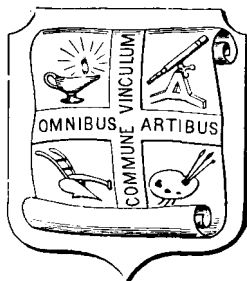


THE
UNIVERSITY OF MINNESOTA.

THE
CALENDAR

FOR THE YEAR

1884-85.



BY THE UNIVERSITY:

MINNEAPOLIS,

1885.

CALENDAR.

1885		} Year of 1885-86 begins. Entrance examinations, 9:00 A. M. Entrance examinations concluded. Examinat'ns for advanced rank & condit'ns. " " " " " " Registration; recitations and lectures begin. Term examinations. " " " "
Sept. 1	Tuesday	
Sept. 2	Wednesday	
Sept. 3	Thursday	
Sept. 4	Friday	
Sept. 8	Tuesday	
Nov. 24	Tuesday	
Nov. 25	Wednesday	Thanksgiving day. 1st term ends 13th week.
Nov. 26	Thursday	
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Dec. 1	Tuesday	Second term term begins.
Dec. 19	Saturday	Recess begins.

WINTER VACATION OF TWO WEEKS.

1886		} Work of second term resumed. Term examinations. " " " " Examinations for conditions. " " " " Second term ends - - - 25th week.
Jan. 5	Tuesday	
Mar. 2	Tuesday	
Mar. 3	Wednesday	
Mar. 4	Thursday	
Mar. 5	Friday	
Mar. 6	Saturday	
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Mar. 9	Tuesday	Third term begins.
May 18	Tuesday	Senior examinations.
May 19	Wednesday	" " " "
May 28	Friday	Term examinations.
May 29	Saturday	" " " "
May 31	Monday	Field day.
June 1	Tuesday	Senior class day.
June 2	Wednesday	Alumni day.
June 3	Thursday	Commencement - - - 38th week.
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June 8	Tuesday	Entrance Examinations.
June 9	Wednesday	" " " "

THE BOARD OF REGENTS.

The HON. GREENLEAF CLARK, M. A., ST. PAUL,	-	1886
The HON. CUSHMAN K. DAVIS, M. A., ST. PAUL,	- -	1886
The HON. KNUTE NELSON, ALEXANDRIA,	- -	1887
The HON. JOHN S. PILLSBURY, MINNEAPOLIS,	- -	1887
The HON. HENRY H. SIBLEY, ST. PAUL,	- -	1888
The HON. THOMAS S. BUCKHAM, M. A., FARIBAULT.	-	1888
The HON. JOHN B. GILFILLAN, MINNEAPOLIS,	-	1888
The HON. LUCIUS F. HUBBARD, ST. PAUL,	-	<i>Ex-Officio</i>
The Governor of the State.		
The HON. DAVID L. KIEHLE, M. A., ST. PAUL,	-	<i>Ex-Officio</i>
The State Superintendent of Public Instruction.		
CYRUS NORTHROP, LL. B., MINNEAPOLIS,	-	<i>Ex-Officio</i>
The President of the University.		

OFFICERS OF THE BOARD.

The HON. HENRY H. SIBLEY,	- - -	<i>President</i>
The HON. DAVID L. KIEHLE,	- -	<i>Recording Secretary</i>
PRESIDENT CYRUS NORTHROP,	-	<i>Corresponding Secretary</i>

THE EXECUTIVE COMMITTEE.

The HON. JOHN S. PILLSBURY, *Chairman.*
The HON. JOHN B. GILFILLAN.
The HON. DAVID L. KIEHLE.

FACULTY AND INSTRUCTORS.

CYRUS NORTHPROP, LL. B., President, *1008 University Ave., S. E.*

WILLIAM W. FOLWELL, LL. D., *1020 Fifth Street, S. E.*
 Professor of Political Science and Librarian.

JABEZ BROOKS, D. D., *1708 Laurel Avenue.*
 Professor of the Greek Language and Literature;
 and in charge of the department of Latin.

NEWTON H. WINCHELL, M. A., Prof. Geol. & Min., *State St., S. E.*
 State Geologist and Curator of the General Museum.

CHARLES N. HEWITT, M. D., *Red Wing.*
 Professor of Preventive Medicine.

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

CHRISTOPHER W. HALL, M. A., *904 University Avenue S. E.*
 Professor of Geology, Mineralogy and Biology.

JOHN C. HUTCHINSON, B. A., *3806 Nicollet Ave,*
 Assistant Professor of Greek and Mathematics.

JOHN S. CLARKE, B. A., *413 Monroe St., E. D.*
 Assistant Professor of Latin (absent in Europe).

MATILDA J. WILKIN, B. L., *1413 University Ave., S.*
 Instructor in English and German.

Faculty and Instructors.

7

- MARIA L. SANFORD, *1401 Sixth Street, S. E.*
Professor of Rhetoric and Elocution.
- WILLIAM A. PIKE, C. E., *2525 University Avenue S. E.*
Professor of Engineering, and in charge of Physics.
- JOHN F. DOWNEY, M. A., C. E., *801 Seventh Street, S. E.*
Professor of Mathematics and Astronomy.
- JAMES A. DODGE, Ph. D., *417 Eighth Avenue, S. E.*
Professor of Chemistry.
- CHARLES W. BENTON, B. A., *419 Eighth Avenue S. E.*
Professor of the French Language and Literature.
- EDWARD D. PORTER, M. A., *Experimental Farm.*
Professor of the Theory and Practice of Agriculture.
- WILBER F. DECKER, B. M. E., *519 Eleventh Avenue S. E.*
Instructor in Shop Work, Drawing and Physics.
- FRANKLIN STAPLES, M. D., *Winona.*
Professor of the Practice of Medicine.
- DANIEL W. HAND, M. D., *Saint Paul.*
Professor of Surgery.
- WILLIAM H. LEONARD, M. D., *Minneapolis.*
Professor of Obstetrics and Diseases of Women
and Children.
- PERRY H. MILLARD, M. D., *Stillwater.*
Professor of Anatomy and Physiology.
- THOMAS PEEBLES, B. A., *427 Fifth Street, S. E.*
Instructor in Mental and Moral Philosophy
and History.
- O. J. BREDA, *1322 Sixth St., S. E.*
Professor of the Scandinavian Languages and
Literatures.

- GEO. EDWIN MACLEAN, Ph. D., *1100 Fifth Street S. E.*
Professor of the English Language and Literature.
- CHARLES E. SMITH, M. D., *Saint Paul.*
Professor of Materia Medica and Therapeutics.
- GEORGE W. WOOD, M. D., *Faribault.*
Professor of Diseases of the Nervous System, and of
Medical Jurisprudence.
- CHARLES SIMPSON, M. D., *Minneapolis.*
Professor of Pathology.
- W. FRANK CARR, B. S., *714 University Avenue, S. E.*
Instructor in Civil Engineering.
- CHARLES F. SIDENER, B. S., *501 Fourth Street S. E.*
Instructor in Chemistry.
- HENRY F. NACHTRIEB, B. S., *519 Eleventh Avenue S. E.*
Instructor in Biology.

OTHER OFFICERS.

- LETTIE M. CRAFTS, B. L., *610 Fifth St. S. E.*
Assistant Librarian.
- FRANK A. JOHNSON, *622 Fourteenth Avenue S. E.*
Registrar.
- JOHN E. GALLOW, *Main Building.*
Janitor.
- EDWIN ANTHONY CUZNER, *214 State Street S. E.*
Superintendent of the Plant Houses.

STUDENTS.

Alphabetical Roll by Classes, 1884-'85.

I. GRADUATE STUDENTS, 17.

Patrick Joseph Butler, B. A., '84,	University of Minnesota.
Fred Leslie Couillard, B. S., '78,	“ “
Lettie May Crafts, B. L., '81,	“ “
Charles Lincoln Edwards, B. S.,	Lombard Univ., Galesburg, Ill.
Frank Healy, B. A., '82,	University of Minnesota.
Lizzie Augusta House, B. L., '80,	“ “
Laura Alberta Linton, B. S., '79,	“ “
Oscar William Oestlund, B. A.,	Augustana Col., Rock Island Ill.
Eli Milton Skiff Pickett, B. A., '82,	University of Minnesota.
Helen Louise Pierce, B. A., '83,	“ “
*Charlotte Adelaide Rollit, B. L., '77,	“ “
George Nelson Salisbury, B. S., '83,	“ “
Charles Frederic Sidener, B. S., '83,	“ “
Louis Orville Smith, B. C. E., 83,	“ “
Emma Frances Trussell, B. S., '83,	“ “
Emma Jane Ware, B. S., '83,	“ “
Matilda Jane Campbell [Wilkin] B. L., '77,	“ “

II. UNDERGRADUATE STUDENTS, 293.

SENIOR CLASS, 12.

Howard Strickland Abbott,	Rockford,	Modern.
Mary Lathrop Benton,	Minneapolis,	Classical.
Elbert Ellsworth Bushnell,	Minneapolis,	Mech. Engr'g.
Patrick Thomas Fitzgerald,	Donnelly,	Civil Engr'g.
James Gray,	Minneapolis,	Scientific.
Mary Eliza Irving,	Owatonna,	Modern.
Samuel Solfest Langland,	Cedarville,	Classical.
Cassius Marcius Locke,	Minneapolis,	Scientific.
Ida Victoria Mann,	Minneapolis,	Modern.
Charles William Moulton,	Cleveland, Ohio,	Classical.
Albert Irving Reed,	Hastings,	Civil Engr'g.
Mabel Lorrain Smith,	Le Sueur,	Modern.

JUNIOR CLASS, 21.

John William Adams,	Lake City,	Classical.
Jennie May Amy,	Minneapolis,	Modern
John William Bennett.	Montrose,	Scientific.
Leo Melville Crafts,	Minneapolis,	Modern.
Mary Whitmore Elwell,	Minneapolis,	Scientific.
Henry James Grannis,	High Forrest,	Classical.
Frank Amos Johnson,	Marshall,	Scientific.
Joseph Kennedy,	Oshawa,	Scientific.
Ada Mary Kiehle,	Minneapolis,	Modern.
James Charles Elliott King,	Otsego,	Classical.
Maude Julia Lyall,	Minneapolis,	Modern.
Josephine Florence Marrs,	Minneapolis,	Modern.
Mary Alden Powell,	Minneapolis,	Modern.
Elizabeth Quincy Sewall,	St. Paul,	Classical.
Lillian Lincoln Ware,	Brownsdale,	Scientific.
William Franklin Webster,	Clearwater,	Classical.
Charles Comstock Woodmansee,	Minneapolis,	Architecture.

Albert Melancthon Baldwin,	Tower City, D. T.,	Modern.
Bertha Winnie Brown,	Richfield,	Scientific.
Curtis Langdon Greenwood,	Rochester,	Scientific.
Thomas Ezekiel Trussell,	Champlin,	Agricultural.

SOPHOMORE CLASS, 30.

Franklin Harley Bassett,	Glyndon,	Scientific.
George Edwin Burnell,	Minneapolis,	Modern.
*Jennie Louise Cheney,	Minneapolis,	Modern.
Gratia Alta Countryman,	Minneapolis,	Scientific.
Fremont Crane,	Mapleton,	Scientific.
Norton Murdock Cross,	Minneapolis,	Scientific.
Thomas Henry Crosswell,	Minneapolis.	Scientific.
Adelbert, Orsman Dinsmoor,	Austin,	Scientific.
Elwood Allen Emery,	Minneapolis,	Modern.
Joshua Ethan Gilman,	Wasioja,	Classical.
Alfred Bert Gould, A,	Wasioja,	Classical.
Christopher Graham,	Rochester,	Scientific.
George Harry Hammond,	Lake City,	Classical.
Jesse Doddridge Hinshaw,	Minneapolis,	Scientific.
Millard Everett Hinshaw,	Minneapolis,	Classical.
Paul Jennison,	Red Wing,	Scientific.
Lowell Andrew Lamoreaux,	Minneapolis,	Scientific.
Milton Sprague Lamoreaux,	Minneapolis.	Scientific.
Ralph Murdoch McKenzie,	Anoka,	Classical.
Edwin Arthur McKinney,	Litchfield,	Scientific.
William Patten Milliken,	Lake City,	Scientific.
Ingerval M Olsen,	St. Peter,	Scientific.
Olivia Canby Porter,	Minneapolis,	Modern.
Melville Emerson Reed,	Hastings,	Scientific.
Joseph Henry Rosselot,	Faribault.	Classical.
Warren Cogswell Rowell.	Winona,	Scientific.
Oscar Frederick Seeback.	Red Wing.	Scientific.
Mary Isadore Smith,	Minneapolis.	Modern.
Francis Newton Stacy,	Monticello,	Classical.
Elmer Ellsworth White,	Westfield, Ind..	Classical.

FRESHMAN CLASS, 47.

Alice Anna Adams,	Minneapolis,	Modern.
Josiah Moore Anderson,	Eden Prairie,	Scientific.
Nellie Ingalls Barker,	Monticello,	Scientific.
Percival Ramsey Benson,	Anoka,	Classical.
Bruno Bierbauer;	Mankato,	Scientific.
Caroline Maria Blanchard,	Zumbrota,	Modern.
Mary Elizabeth Blanchard,	Zumbrota,	Modern.
Eva Berenice Bradford.	Monticello,	Modern.
Herman Milton Brown,	Richfield,	Scientific.
Edmund Luther Butts,	Stillwater,	Scientific.
Bertha Glee Camp,	Minneapolis,	Modern.
Henry Elmer Cook,	Fairpoint,	Scientific.
Albert Ames Finch,	Hastings,	Scientific.
Ina Firkins,	Minneapolis,	Modern.
Severt Germeo,	Medo,	Modern.
Ulysses Sherman Grant,	Minneapolis,	Scientific.
Fannie Rogers Hagan,	Minneapolis,	Modern.
Minnie May Ham,	Minneapolis,	Modern.
Amy Naomi Hays,	Minneapolis,	Classical.
Clifford Lloyd Hilton,	Fergus Falls,	Classical.
Fred Ezra Hobbs,	Winona,	Modern.
Clarence John Johnson,	St. Peter,	Scientific.
Elwin Bird Johnson,	Marshall,	Scientific.
Rollin Erastus Johnson,	Medford,	Classical.
James Ernest Kennedy,	Minneapolis,	Scientific.
William Joseph Leary,	Owatonna,	Classical.
Lane McGregor,	Oxford, Ohio,	Classical.
Everson Ryder McKinney,	Litchfield,	Modern.
Arthur Teall Mann,	Minneapolis,	Scientific.
Thomas Alfred Miller,	Lake City,	Scientific.
Ellen Marie Nelson, A,	Owatonna,	Classical.
Susan Hawley Olmstead,	New Haven, Conn.,	Modern.
Sadie Belle Pillsbury,	Minneapolis,	Modern.
Winthrop Webster Sargeant,	Lake City,	Classical.
Anna Shillock,	Minneapolis,	Modern.
Maximilian Shillock,	Minneapolis,	Scientific.
Peter Gottfried Sjöblom,	Red Wing,	Classical.

Dow Samuel Smith,	Minneapolis,	Scientific.
Frank Rhodes Smith,	Minneapolis,	Scientific.
Alice May Stacy,	Monticello,	Modern.
Charles Thompson,	Minneapolis,	Modern.
Helmus Wells Thompson,	Wells,	Classical.
Fred Downs Todd,	Minneapolis,	Scientific.
Luther Twichell,	Minneapolis,	Scientific.
Mary Louise Weber, A,	Rice Lake,	Modern.
Charles Henry Webster,	Clearwater,	Scientific.
William Dodsworth Willard,	Mankato,	Classical.

SUB-FRESHMAN CLASS, 54.

Antoinette Judson Abernethy,	Minneapolis,	Modern.
Frank Sherman Abernethy,	Minneapolis.	Scientific.
Francis Henry Adams,	Lake City,	Scientific.
Charles Henry Alden, Jr.,	Fort Snelling,	Scientific.
Earle Jay Babcock,	Minneapolis,	Scientific.
Addison Turner Baker,	Minneapolis,	Scientific.
Rebecca Virginia Baker,	Minneapolis,	Modern.
Sibyl Belle Baker,	Minneapolis,	Modern.
Charles Edward Castle,	Elk River,	Scientific.
Henry Rankin Chase,	Minneapolis,	Scientific.
William Whittelsey Cheney,	Minneapolis,	Classical.
Arthur Bliss Church,	Minneapolis,	Modern.
Wealthy Albreta Cook,	Cannon Falls,	Modern.
Peter Anthony Cosgrove,	Green Isle,	Modern.
Lana Mariah Countryman,	Minneapolis,	Scientific.
Edward Lincoln Cressy,	Richfield,	Scientific.
William James Donahower,	St. Peter,	Modern.
Mattie Laura Elwell,	Minneapolis,	Modern.
Albert Ernest Fillmore,	Minneapolis,	Classical.
John Albert Folsom,	Minneapolis,	Scientific.
Florence Ellen Gideon,	Excelsior,	Modern.
John Paul Goode,	Marion,	Scientific.
Albert Graber,	Minneapolis,	Classical.
Ella Alma Grimes,	Minneapolis,	Modern.
Mary Agatha Grimes,	Minneapolis,	Modern.
Eugene Hanscom,	Richfield,	Scientific.
William Harrison,	Cannon Falls,	Classical.
Julia May Hendrix,	Elkhorn, Wis,	Scientific.

Charles William Jackson,	Minneapolis,	Scientific.
Frank DuMars Jones	Minneapolis,	Scientific.
Nellie Jordan,	Winnebago City,	Scientific.
Wesley Albert Kalmbach,	Ft. Howard, Wis.,	Scientific.
Herminea Koenig.	St. Peter,	Modern.
William Baker Ladue,	Salem, Oregon,	Classical.
Thomas Harmon Linton,	Minneapolis,	Scientific.
John Thomas Ludlum,	Minneapolis,	Scientific.
Walter Henry Lyon,	Jamestown, D. T.,	Classical.
Clara Heck McClary,	Minneapolis,	Scientific.
Jessie McMillen,	Minneapolis,	Modern.
Margaret Jane McOuat,	Oshawa,	Scientific.
Frances Marion D. McQuivey,	Minneapolis,	Classical.
Sumner Warren Matteson, Jr.,	Decorah, Ia.,	Scientific.
Alonzo Draper Meeds,	Stillwater,	Scientific.
Robert Leslie Moffett,	Minneapolis,	Scientific.
Oliver Johnson Niles,	Rochester,	Scientific.
Carl Christian Peterson.	Minneota,	Scientific.
Bertie Leverett Sacre,	Minneapolis,	Scientific.
Kate Norwood Smith,	Minneapolis,	Modern.
Lydia Kathrina Strohmeier.	Minneapolis,	Classical.
Clarissa Anna Thompson,	Minneapolis.	Modern.
John Lucius Torrens,	Oakland,	Scientific.
Sarah Louise Upton,	Minneapolis,	Modern.
Mary Gertrude VanValkenburg,	Minneapolis.	Modern.
Christopher Elisha Voge,	Crystal,	Scientific.

SPECIALS, 6r.

Minnie Florence Abrams,	Mapleton.
John Alander,	East Union.
Ida Lulu Ames,	Palermo, Ill.
Christian Anderson,	Spring Valley.
Margaret Ellen Anderson,	Eden Prairie.
George Cutler Andrews,	Minneapolis.
Lucy Floyd Baker,	Minneapolis.
John Thomas Baxter,	Minneapolis.
Gustav Olsen Brohough,	Red Wing.
Harrison Hardy Brace,	Rochester, N. Y.
Tamson Estella Brown,	Le Sueur.

Robert Sewall Brown,	Minneapolis.
Emil Brzezinsky,	Minneapolis.
Louise Anne Cady, A,	Blue Earth City.
Clarence Stanley Coe,	Riverside, Iowa.
Virginia Coe,	Minneapolis.
Otis Lincoln Colburn,	Minneapolis.
Kate Bird Cross,	Minneapolis.
John Albert Dahl,	Minneapolis.
Charles Reuben Darling,	Wasioja.
Donald Davidson,	Glencoe, Canada.
Frank Walcott Ellis,	Clinton, Iowa.
Oscar Firkins, B. A., '84,	Minneapolis.
Flora Joy Frost,	Jackson.
Lucien Earl Fryberger,	Red Wing.
Isabel Gale,	Minneapolis.
John Calvin Gilman,	Wasioja.
Jacob Olsen Haughland,	Watson.
Charles Gilbert Hinds,	Shakopee.
Walter Benjamin Holmes,	Faribault.
John Blackstock Hawley,	Red Wing.
Alva Wilber Jones,	Wauseon, Ohio.
Julie Juvee,	Rothsay.
Patrick Kennedy,	Oshawa.
Ella Jane Leaming,	Crow River.
Erick Haldorson Loe,	Red Wing.
Horatio Shumway Lee,	Buffalo, N. Y.
Katharine Ellen Miller,	Minneapolis.
John Morris,	Bristol.
Alice Mott,	Faribault.
Jens Anderson Ness,	Red Wing.
Arthur T. Page,	Beloit, Wis.
Nora Pearson, A	Marshall.
Susan May Pillsbury,	Minneapolis.
Albert F. Pray,	Minneapolis.
Byron Christian Riblet,	Ordway, D. T.
Sarah Alice Sophia Rollit,	Minneapolis.
Frances Clinton Shenehon,	New York, N. Y.
Johannes Jensen Skördalsvold,	Minneapolis.
Ada Emily Smith,	Algona, Iowa.

Frank John Smith,	Spring Valley.
John Henry Spaulding, D. D. S.,	Minneapolis.
William Augustus Spaulding, D. D. S.,	Minneapolis.
Susan May Stearns,	Duluth.
Frank August Swanson,	Minneapolis.
Alice Taylor,	Minneapolis.
Frances Wilcox,	Minneapolis.
Orlando Blodgett Willcox, Jr.,	Sackets Hrbr, NY
Ima Caroline Winchell,	Minneapolis.
Edward Winterer,	Le Sueur.
Louis Peter Wolff,	Red Wing.

ARTISAN'S TRAINING SCHOOL.**A DIVISION—4.**

Otto Munson,	Valley Creek.
Ray Overmeyer,	Minneapolis.
Edward Kintzing Pritchett,	Minneapolis.
Edward Howland Sampson,	Excelsior.

B DIVISION—2.

Charles Ellery Felt,	Minneapolis.
Frank Erven Reidhead,	Minneapolis.

C DIVISION—12.

Louis F. Becker,	Minneapolis.
C. E. Belden,	Minneapolis.
David William Brackett,	Minneapolis.
George Budds,	Minneapolis.
Frank Xavier Hall,	Minneapolis.
Arthur Lack,	Minneapolis.
Arthur Edgar Loring,	Minneapolis.
Edward David Owen,	Minneapolis.
Alexander Robertson,	Minneapolis.
John Henry Rumpf,	Minneapolis.
William Judson Smith,	Minneapolis.
David Lloyd Vivian,	Osceola, Mich.

D DIVISION—50.

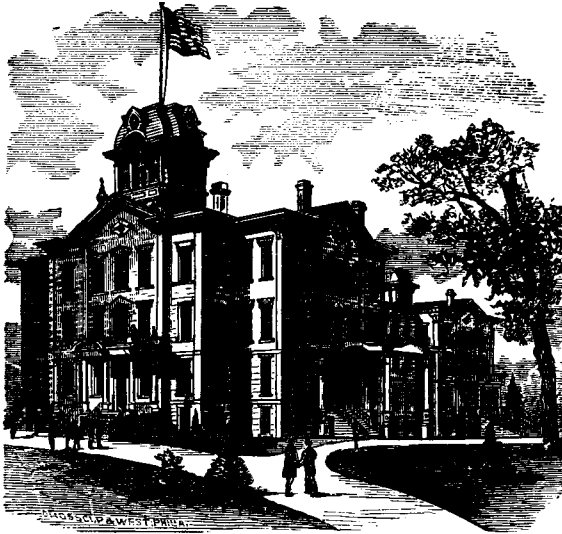
Charles F. Barton,	Waukesha, Wis.
John W. Bashaw,	Minneapolis.
Willis F. Bradehan,	Minneapolis.
Fred C. Brittain,	Minneapolis.

W. L. Brooks,	Minneapolis.
James W. Casey,	Waverly Mills.
Victor S. Clark,	Minneapolis.
Sue M. Clark,	Omaha, Nebr.
John Cronan,	Minneapolis.
William Devereaux,	Minneapolis.
Charles E. Dickson,	Minneapolis.
Ira M. Dillman,	Columbus, Ind.
Axel Eddy,	Minneapolis.
Christopher Evenson,	Minneapolis.
Eugene Ganvereau,	Minneapolis.
Walter D. Guild,	Minneapolis.
John M. Hall,	Minneapolis.
Frank H. Hall,	Minneapolis.
William E. Hills,	Minneapolis.
William R. Holbrook,	Minneapolis.
Charles F. Howe,	Minneapolis.
Charles Holm,	Minneapolis.
Wilson Henry,	Minneapolis.
Thomas C. Hughes,	Minneapolis.
Otis L. Humphrey,	Minneapolis.
Axel E. Jacobson,	Perhtigs, Wis.
Fred O. Killgore,	Minneapolis.
George W. Laing,	Minneapolis.
Peter M. Lauritzen,	Minneapolis.
William Little,	Minneapolis.
George Loehl,	St. Peter.
John H. Merriman,	Minneapolis.
Charles B. Moier,	Minneapolis.
Ore Michelet,	Minneapolis.
Thomas Nauffts,	Halifax, N. S.
Benjamin Nihlsson,	Minneapolis.
Hans Merland,	Minneapolis.
William F. Plachte,	Minneapolis.
Andrew T. Ruddy,	Des Moines, Ia.
Alexander M. Robertson,	Minneapolis.
John H. Rumpf,	Minneapolis.
Henry Schroeder,	Minneapolis.
Charles B. Smith,	Racine, Wis.

William Thomas,	Minneapolis.
John E. Trevillyan,	Minneapolis.
Leo E. Varner,	Jordan.
Frank Van Amburgh,	Minneapolis.
Fred W. Williams,	Minneapolis.
Alonzo D. Williamson,	Minneapolis.
Adelbert A. Wyman,	Millbridge, Me.

SUMMARY—1884-5.

College or Department	Class	Gentle- men	Ladies	Totals
Graduate Students.....		9	8	.... 17
Science, Literature, and the Arts.....	{ Senior	5	4	9
	{ Junior	11	9	20—29
Mechanic Arts	{ Senior	3	.....	3
	{ Special	4	.....	4
	Artisans { A	4	.....	4
		B	2	.....	2
Training { C	12	.....	12	
	D	50	.....	50—75
Agriculture	Junior	1	.....	.... 1
	Sophomore	26	4	30
Collegiate Department.....	Freshman	31	16	47
	Sub-Freshm	34	20	54
	Special	35	22	57—188
Totals		227	83	310



THE UNIVERSITY.

CAMPUS.

The University is situated in the city of Minneapolis, on the east side of the Mississippi river, about one mile below the Falls of St. Anthony, on an elevated bluff in full view of the same. The grounds are now about forty-five acres in extent, undulating in surface and well wooded with native trees, and by reason of the natural advantages of situation and contour, very attractive.

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

BUILDINGS.

The general plan of the buildings contemplates a central academic building, and grouped around it, additional structures for the separate departments or colleges.

The legislature of 1881 appropriated the sum of \$30,000 a year for six years for the erection and outfit of the following additional buildings: A farmhouse, a building for the college of mechanic arts, a military building, an astronomical observatory, a museum and a library.

THE MAIN OR ACADEMIC BUILDING.

This building is 186 feet in length and 90 feet in breadth, exclusive of porches, having three stories above the basement. The walls are of blue limestone and the roof of tin. The rooms, fifty-three in number, as well as all the corridors, are heated by an efficient steam apparatus, and are thoroughly ventilated. 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 1,200 can be accommodated.

THE AGRICULTURAL COLLEGE.

For a view of this building see College of Agriculture, *infra*.

This is the first of the special buildings for the separate colleges. It is of brick on a basement of blue stone, 146x54 feet. The central portion is two stories in height. The south wing, 56x37, is a plant house of doublesash and glass. The north wing contains the chemical laboratory. There are class rooms for chemistry and agriculture, and private laboratories for the professors. A large room in the second story is occupied by the museums of technology and agriculture. A model farm-house and barn have been erected on the experimental farm.

THE MILITARY BUILDING.

This 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 five thousand people.

THE COLLEGE OF MECHANIC ARTS.

This building will be erected the coming summer.

LABORATORIES.

THE CHEMICAL LABORATORY occupies six rooms in the Agricultural College. (1) The main students' laboratory, 22x45 feet. This contains eight tables, accommodating sixty-four workers, in two sections or reliefs. Each table has water, gas, sink, shelving for reagents, drawers and cupboards for apparatus—all of the most approved construction. (2) A room for certain special chemical operations, adjoining, 22x30 feet. (3) The apparatus room, provided with cases for storing apparatus, and tables for the balances. (4) The professor's private laboratory. (5) A room in the basement fitted up for assay and furnace work. (6) The lecture and recitation room on the second floor. The University is able to offer ample facilities for successful study and instruction in both general and analytical chemistry, and in the allied branches of study. Persons desiring chemical analyses should address the professor of chemistry.

THE PHYSICAL LABORATORY. The rooms in the main building devoted to the department of physics are so arranged and furnished that advanced students desiring to make a specialty of physics can have an opportunity to use the apparatus, and perform their own experiments.

MUSEUMS.

THE GENERAL MUSEUM comprises the collections of the geological and natural history survey of the State, augmented by purchases and donations. The specimens are contained, so far as they are ready for exhibition, in rooms 51 and 52 of the main university building. In the south room, No. 52, are the geological and mineralogical specimens, in cases suitably arranged about the room; the suite of typical Minnesota rocks and minerals being in the large case in the center of the room. Upwards of 4,700 entries and 12,000 specimens, including duplicates, indicate the volume of this department of the museum, embracing species not only from the State of Minnesota, but from all parts of the world. Among these is a complete series of the zinc and iron minerals and their associates, from Franklin, Ogdensburg, and Bergen Hill, N. J., and a collection of sixty-four meteoric stones and irons from different parts of the world.

In the wall cases of this room are displayed the collections of Rev. H. C. Hovey, D. D., generously deposited by him for inspection by the members of the University and the public. They include a large number of unique "cave specimens" gathered by their owner from the famous Mammoth, Luray, and Wyandot caves.

In the north room, No. 51, are upright cases filled with zoölogical specimens. These embrace specimens of some of the larger mammals and fur animals of the Northwest, birds, marine invertebrates, alcoholic preparations, and a set of Prof. Ward's cast of fossils, including the *Megatherium Cuvieri*, On.

The General Museum has lately acquired by purchase a large number of specimens representing specially the bird and mammalian fauna of the Northwest, and particularly of Minnesota. These are now on exhibition at New Orleans. They will be placed on exhibition in the Museum as soon as suitable accommodations can be provided.

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

The Museum is rapidly growing in value by the accumulations of the geological survey of the State, and is constantly used for the illustration of scientific instruction. The rooms are opened daily during the university year for the convenience and use of students and visitors.

Contributions and correspondence should be addressed to the curator, Prof. N. H. Winchell.

THE MUSEUM OF AGRICULTURE is designed to assist in illustrating the instruction in agriculture and horticulture. It comprises models of agricultural implements, seeds of grasses, grains and noxious weeds in jars; grasses and grains in the straw; drawings and lithographs of machines and animals; fruits preserved in alcohol; fertilizers and other articles of interest to the farmer. Contributions are respectfully requested, and should be addressed to Prof. Edward D. Porter.

THE PLANT HOUSE is similar in purpose to the museum of agriculture. It is designed to furnish (1) means of illustrating the subject of botany, viz: specimens for analysis before the class, and living plants of botanic or economic interest that cannot be grown in the open air in Minnesota; (2) means for illustrating the subject

of horticulture, and the construction, heating and management of plant houses. This house has been doubled in capacity by a recent addition.

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 will embrace fuel, ores, furnace products, textile materials, both raw and manufactured: dye-woods and other materials used in dyeing; specimens illustrating the bleaching and printing of cotton, linen and woolen goods, earthenware, pottery, etc. A good beginning has already been made, and it is hoped that large additions will be obtained during the coming year. Contributions are respectfully solicited, for which due credit will be given. They should be addressed in care of Prof. James A. Dodge.

THE CLASSICAL MUSEUM, a beginning of which has been made, will comprise all *materia* that may illustrate classical geography, topography, chronology, mythology, geography, archaeology, 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, etc.; of 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. Contributions may be sent to Prof. Jabez Brooks, D. D.

THE LIBRARY.

The number of bound volumes has reached nearly 20,000, and additions are constantly being made. Besides the books purchased of booksellers, the following collections have been acquired:

1. The Robertson collection of 1,200 volumes, purchased of Col. D. A. Robertson, of St. Paul, formerly a professor in the University. This collection is rich in works on American history, Arctic travel and discovery, ethnography, and political economy.

2. The Campbell collection of 2,800 volumes, selected by Prof. G. Campbell in London, Berlin, Florence, and other cities in Europe. This embraces many French, German, and Italian works. The subjects most numerous are philology, philosophy and social science, general literature, history, and biography.

3. The Tappan collection, comprising 2,500 volumes from the library of the late Rev. H. P. Tappan, D. D., LL. D., ex-president of the University of Michigan. This collection contains choice and valuable editions of standard English authors, numerous works on philosophical subjects, and many reviews and works of reference.

4. The State Library collection, being the miscellaneous books of that library turned over to the University by an act of the legislature of 1877.

The miscellaneous purchases have been confined to encyclopedias, dictionaries, bibliographical material, and works of first necessity for the various departments of instruction. Among the public documents are to be found sets of the Smithsonian publications, the coast survey reports, the survey of the Pacific railroad, Schoolcraft's Indian tribes, United States geological surveys, patent office reports, etc.

The alphabetical lists of authors, printed from year to year, serve a good purpose as a catalogue of authors, and furnish the titles for the printed card catalogue. There is a catalogue of subjects called "Finding Lists" kept for sale at 25 cents per copy.

The library and reading room occupy rooms 18, 20, 22, 24 to 28 in the first story of the main building. The books are shelved according to a simple classification upon a so-called "elastic system" which allows additions indefinitely without disturbing the existing arrangement and numbering.

The library is open to everybody eight hours 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 works, and rare and costly books cannot be removed. These works, as well as all others, may be read and consulted in the

READING ROOM,

where a number of periodicals are to be found; among them the following:

QUARTERLIES.

Bibliotheca Sacra.	British Review.
Journal of Speculative Philosophy.	Mind.
Westminster Review.	(Eng.) Journal of Philology.
Quarterly Review.	American Journal of Mathematics.
Edinburgh Review.	

BI-MONTHLIES.

New Englander.	American Antiquarian.
Education.	Chemical Journal.
American Law Review.	

MONTHLIES.

American Agriculturist.	Monthly Reference Lists.
American Miller.	Magazine of Art.
Popular Science Monthly.	Portfolio.
Library Journal.	Catholic World.
Century.	Americ in Chemical Journal.
Atlantic.	Blackwood.
Harper's Monthly.	War Department Weather Report.
Van Nostrand's Engineering.	Literary News.
Contemporary Review.	Canadian Entomologist.
North American Review.	Botanical Gazette.
Deutsche Revue.	Sidrial Messenger.
Fortnightly Review.	Observatory.
Nineteenth Century.	Annals of Mathematics.
American Journal of Science and Art.	Gardener's Monthly.
American Naturalist.	Magazine of American History.
Journal of Franklin Institute.	U. S. Postal Guide.

WEEKLIES.

Littell's Living Age.	American Machinist.
Nation.	American Architect.
Scientific American and Supplement.	National Journal of Education.
Nature.	Christian Statesman.
Harper's Weekly.	Foekblad.
Athenæum.	Saturday Evening Spectator.
Chemical News.	Sanitary Engineer.
Saturday Review.	Science.
Staats Tidning.	Home Journal.
Le Canadien.	The Current.
Revue Politique et Littéraire.	Engineering.
National Labor Tribune.	Wochentliche Volkszeitung.

SEMI-WEEKLIES.

New York Tribune.	Inter-Ocean.
New York Evening Post.	Ueber Land und Meer.

DAILIES.

Minneapolis Tribune.	SEMI-MONTHLY.
Minneapolis Evening Journal.	Literary World.

DRAWING ROOM.

Room 45 in the main building, 47x30 feet, is furnished with drawing tables for the use of classes in geometrical and free-hand drawing. There are also cases and cabinets for holding drawings and drawing boards. A considerable collection of prints, drawings, and models for lessons and illustrations has been made.

WORK SHOPS.

The work shops of the college of mechanic arts are temporarily provided for in three rooms in the basement of the Agricultural College. (1) The vise shop, containing two benches with double sets of drawers, so that thirty-two students can be accommodated in two reliefs. This shop is now provided with ten vises and the necessary tools for giving thorough instruction and practice in filing and chipping. (2) The forge shop, which contains eight forges and anvils, and all tools required for the usual manipulation of the blacksmith. This shop also contains a six horse-power engine and boiler for furnishing power; a Sturtevant pressure blower for providing blast, and an exhaust fan for removing smoke and dust. (3) The wood-working shop, which contains eight complete sets of hand tools, a band saw, and two circular saws, run by the engine in the forge shop.

TESTING ROOM.

The Olsen testing machine of 50,000 pounds capacity has been placed in a room in the basement of the main building, where the various tests of the strength of materials are made.

APPARATUS.

No attempt has been made at display, but great pains have been taken to procure for the various departments the essential instruments and materials for illustration. The outfit of the chemical laboratory is not inferior to that of any college laboratory in the country. The physical apparatus serves all present essential purposes. A full set of United States standard weights and measures has recently been supplied through the Coast Survey office. They

are stored in Room 41, Main Building. Persons desiring to have weights and measures tested can apply to Professor Pike. For engineering instruments, see COLLEGE OF MECHANIC ARTS, *infra*.

The collection of PATENT OFFICE MODELS and Schröder models for descriptive geometry are stored in substantial cases in room 45, Main Building.

FRUIT FARM ON MINNETONKA.

In the winter of 1878-9 the State Horticultural Society organized a movement intended to compliment and encourage in his further endeavors, Mr. Peter M. Gideon, of Excelsior, Hennepin county, the well-known discoverer of the Wealthy apple. The result was an appropriation by the legislature of \$2,000 for the purchase of land, and of \$1,000 per annum for the salary of a superintendent, the control being placed in the hands of the board of regents. By good fortune a piece of land of the most favorable situation and exposure, lying on the peninsula dividing the upper and lower lakes of Minnetonka, was secured. Mr. Gideon was appointed superintendent, and is carrying on promising experiments.

GENERAL INFORMATION.

ACCESS.

The University of Minnesota is accessible by means of all conveyances centering in the cities of Minneapolis and St. Paul. The present main entrance to the grounds is at the corner of Third street (or University avenue) and Fourteenth avenue Southeast. The eastern terminus of the street railways is one block distant; fare 5 cents.

HOW TO ENTER THE UNIVERSITY.

1. Report promptly for examination at the time and place announced and attend the sessions punctually, observing such directions as may be given.
2. At the hour appointed you will receive a numbered examination ticket. By this number you will be known to the examining professors.
3. Applicants holding certificates of the STATE HIGH SCHOOL BOARD for any branches, will deposit them with the registrar, and be excused from the examination in such branches.
4. So soon as the answers can be read and marked, a statement of the merit obtained in theseveral studies will be furnished to each examinee.
5. An application for admission may thereupon be filed by successful candidates with the registrar. A blank will be furnished for that purpose.

BOARDING.

THE UNIVERSITY HAS NO DORMITORIES. This is a matter both of necessity and policy; of necessity because the State has not furnished money to build dormitories; of policy, because it is thought

better for the students to be distributed among the people of the university city, amenable to the common laws and sentiments of society. The public bounty stops at furnishing free instruction, leaving to private hands the providing of maintenance.

Three methods of boarding are practiced:

1. Boarding in families. Good board can be found at reasonable prices, ranging from \$1.50 upwards.
2. Club boarding. The price of board has not exceeded \$3.00 per week.
3. Self-boarding, by individuals, or more commonly, by small groups or colonies composed of members of the same family, or of neighboring families. Rooms are hired, and furniture, provisions and fuel brought from home. When well managed, this is an excellent and very economical mode of living. Two dollars per week to each member may be set down as the cost.

Persons desiring to secure boarding for young ladies are advised to correspond with Professor Maria L. Sanford, who will gladly assist in making arrangements if desired.

EMPLOYMENT.

THE UNIVERSITY CAN NOT PROMISE EMPLOYMENT to those who desire to earn their living. The few places it can offer being always in the hands of old students, new-comers cannot expect to get them. The following advice, derived from the observations of several years, is offered to young persons of limited means who want an education:

- (1) If possible learn a good trade or art before coming to the University. Your chance for work will be greatly increased, and you can get better wages.
- (2) Bring some money with you—fifty dollars at least—on which to live until you find work.
- (3) If you want work you must look for it; it will not come to you at first. Be active, resolute and enterprising.
- (4) If you have to "pay your way" through college, resolve to take time enough to do it well without ruining your health. It is not essential that you be graduated with any particular class.

EXPENSES.

The average necessary expenses of students boarding in families appear to be about \$300; those of students boarding in clubs and otherwise, about \$225.

INSTRUCTION IS FREE IN ALL DEPARTMENTS.

The only general university charge is the annual fee of \$5.00 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. Laboratory charges depend upon the amount of materials used and breakages of apparatus.

Students provide their own books and stationery. The literary society expenses are moderate.

DAILY ROUTINE.

Each week-day except Monday is occupied with recitations, lectures, and exercises. The work begins at 8:40, A. M., and continues throughout the day. A general assembly of students and faculty is held each day at 10:40 A. M., at which there are brief and simple religious exercises.

DISCIPLINE.

The University presumes that every member intends to do his duty and to behave himself decently. Good order, courtesy, punctuality and attentiveness are established customs of the University, which the student body take pride in maintaining.

Students of the various departments or colleges are amenable to their respective faculties; but in all cases of offenses against peace and order committed by students of whatever department or college, the general faculty has exclusive jurisdiction.

The following by-law of the Board of Regents is in force:

"Whenever any faculty of the University is satisfied that any student is not fulfilling or is not likely to fulfil the purpose of his attendance upon the University, or is for any cause unfit to remain a member of the same, the president shall so inform his parent or guardian; and if, after a reasonable time allowed, the said student shall not have been withdrawn, he may be dismissed by order of the general faculty."

STUDENTS' SOCIETIES.

The STUDENTS' CHRISTIAN ASSOCIATION. This society was formed by students for the purpose of mutual moral and spiritual improvement. Devotional meetings are held weekly, and students are cordially invited to attend its meetings and aid in its work. The constitution provides for including all and excluding none who sympathize with the object of the association and desire to share in its work and benefits. Permission to erect a building on the campus has been given, and the association has made considerable progress in raising the necessary funds. Any desired information in regard to the association may be obtained by addressing the president of the association at the University.

There are three LITERARY SOCIETIES recognized by the general faculty, which furnish excellent and much-prized opportunity for practice in extemporaneous speaking and parliamentary procedure.

The ATHLETIC ASSOCIATION is a University organization, having for its object the general physical culture of the student, 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.

ALUMNI ASSOCIATION.

This association was organized in 1875. All graduates of the existing colleges of the University are members. The members of the board of regents and of 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 3 o'clock P. M. The Alumni attending commonly dine together after the public exercises on commencement day.

OFFICERS FOR 1884-5.

MR. GEORGE S. GRIMES,	President
MISS ANNIE H. JEFFERSON,	Vice-President
MISS LETTIE M. CRAFTS,	Secretary
MR. JOHN WALDO PERKINS,	Treasurer
PROF. JOHN CORRIN HUTCHINSON,	Historian
ROBERT P. A. NIX,	Toast Master

GEOLOGICAL 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 now 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 observations and reports on the birds of Minnesota. The professors of the University are selected by the regents for carrying on the various branches of the survey, and the general museum is the place of exhibition of the collections.

The law creating the survey is comprehensive. It embraces not only a strictly 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, a final report thereof is made to the governor. The first volume of the final report was published in August, 1884. Others are to follow immediately. These reports are placed in all public libraries in the state, and in each High School working under the regulations of the 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.

INSTRUCTION.

GENERAL REGULATIONS.

1. The University is open, free of all charges for instruction, upon equal terms to all persons over fourteen years of age, whether residents of the state or not, who may pass the required examinations.

2. The university year, beginning early in September, embraces thirty-eight weeks exclusive of recesses, and is divided into three terms. The first term has thirteen, the second twelve, and the third, thirteen weeks.

3. As a general rule each student, in whatever department, has three recitations or lectures a day for five days in the week, besides rhetorical exercises.

4. Students of any department or college may select studies of another department, under the direction of the faculties and professors.

5. The merit of students, as regards scholarship, is determined in the earlier years by means of recitations and examinations; in the Junior and Senior years by means of examinations only. The examinations* are habitually conducted in writing.

*The examination questions being commonly written on the blackboard after the assembling of classes, cannot be furnished to applicants.

COURSES OF STUDY AND DEGREES.

ACADEMICAL DEGREES.

No honorary degrees are conferred by this University.

I. THE COLLEGIATE DEPARTMENT offers three courses of study, called classical, scientific, and modern. The classical course has for its leading studies the Greek and Latin languages. The scientific course is characterized by a succession of elementary natural sciences. The modern course is distinguished by the prominence given to the modern languages. Students choose their courses at time of entrance, and do not change them except as allowed by vote of the general faculty.

At the close of the Sophomore year each student has his option whether to enter at once, with a fair preparation, one of the professional colleges, or to proceed with higher academical studies in the college of science, literature, and the arts.

No degrees are offered in this collegiate department, but merely a "final certificate" upon a completion of a course.

II. THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS presents likewise three courses of study :

1. A COURSE IN ARTS ;
2. A COURSE IN SCIENCE ;
3. A COURSE IN LITERATURE.

These lead, respectively, to the degrees of BACHELOR OF ARTS, BACHELOR OF SCIENCE, BACHELOR OF LITERATURE.

III. THE COLLEGE OF MECHANICAL ARTS offers three advanced or university courses, based on the scientific course of the collegiate department, which lead to appropriate baccalaureate degrees :

1. A COURSE OF CIVIL ENGINEERING ;
2. A COURSE IN MECHANICAL ENGINEERING ;
3. A COURSE IN ARCHITECTURE.

IV. THE COLLEGE OF AGRICULTURE offers an advanced or university course, based on the scientific course of the collegiate department, leading to the degree of BACHELOR OF AGRICULTURE. For the other courses in agriculture, see COLLEGE OF AGRICULTURE, *infra*.

V. THE COLLEGE OF MEDICINE in which no instruction is given, but in which degrees of BACHELOR OF MEDICINE and DOCTOR OF MEDICINE are conferred upon examination and defense of thesis. See COLLEGE OF MEDICINE, *infra*.

The following statements should be carefully examined by students and applicants in connection with the courses of study as tabulated further on:

I. MATHEMATICS.

PROFESSOR DOWNEY.

Mathematics, on account of its wide application in practical affairs, as well as its great value in cultivating accuracy of statement, logical reasoning, and habits of close mental application, occupies a prominent place in all the courses of study.

Admission to the Sub-Freshman class requires a good knowledge of arithmetic and elementary algebra. Admission to the Freshman class requires, in addition to these, plane geometry, solid geometry, and the higher algebra of the Sub-Freshman year, as indicated below.

The branches are the same for all courses until the last term of the Sophomore year, and, beginning with the Sub-Freshman year, consist of plane geometry, solid geometry, higher algebra, plane and spherical trigonometry, and the elements of conic sections.

The aim is so to direct the work of this elementary course as to prepare the student to enter successfully upon the study of the higher mathematics, and upon the applications of mathematics in mechanics, astronomy, surveying, and engineering.

In geometry the student is required to furnish demonstrations for many theorems not demonstrated in the text book, and to solve practical problems dependent upon geometrical principles.

The Sub-Freshman work in higher algebra embraces factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, radicals, simple equations, proportion, progression, and variation. The Freshman work in higher algebra embraces quadratic equations, inequalities, differentiation of algebraic and logarithmic functions, development of functions (by the binomial formula, by indeterminate co-efficients, and by Taylor's formula), logarithms, and higher equations (including Sturm's Theorem and Horner's Method of Approximation).

The student is impressed with the importance of trigonometry by having his attention called to its numerous elegant applications,

and is made familiar with its methods and the use of its tables by being required to solve a large number of practical problems.

General or co-ordinate geometry is studied the first term with special reference to the conic sections, and the effort is to dwell upon such features as will make the work valuable to all, whether they pursue the study farther or not, and prepare them to understand the treatment of these curves in the subsequent course in astronomy.

Of the remaining mathematics, general geometry, differential calculus, and integral calculus are required in the courses of civil engineering, mechanical engineering, and architecture, and elective in the other courses, and quaternions is elective in all courses.

General geometry is studied during a second term with reference, not only to the conic sections, but to loci generated according to any law. Much attention is given to producing equations of loci whose law of development is known, and to constructing and discussing such equations. The conic sections are still further treated, both by rectilinear and polar co-ordinates. After acquiring facility in the transformation of co-ordinates, the student investigates the properties of plane loci by means of their equations.

In calculus the text book used is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed. One term is given to the differential calculus and its applications in the development of functions, testing of functions for maxima and minima, and treating of tangents, sub-tangents, normals, sub-normals, direction and rate curvature, evolutes and envelopes.

One term is given to the integral calculus and its applications in rectification of curves, quadrature of plane surfaces, quadrature of surfaces of revolution, cubature of volumes of revolution, and to deducing equations of curves. One term is given to quaternions, the text books being Hardy's and Kelland and Tait's.

II. ASTRONOMY.

PROFESSOR DOWNEY.

The course in astronomy extends through one term of the Sophomore year and two terms of the Senior year.

Descriptive astronomy is required in all courses three times a week in the first term of the Sophomore year, and is elective in all courses in the first term of the Senior year. It does not draw so largely from mathematics as does practical astronomy, but aims to give such information concerning the heavenly bodies and the laws by which they are governed as must be secured by every one who aspires to the position of a liberal education. The student learns the methods of determining the figure, size, density, and weight of the earth; the dimensions, distances, motions, physical character, and telesopic appearance of the bodies constituting the

solar system; the nature of comets and meteors; the causes of many of the phenomena of the heavens; and the methods by which our knowledge of the fixed stars and nebulae has been recently so much augmented. He thus obtains an enlarged conception of the universe and its Great Author. The text book work is supplemented by lectures, especially upon the history of the science and upon recent astronomical discoveries and theories.

Practical astronomy, one term, is required in the courses of civil engineering, mechanical engineering, and architecture, and elective in all other courses. The work embraces the theory and use of instruments, the use of the Ephemeris and Nautical Almanac, the various methods of determining time, latitude, 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.

III. CHEMISTRY.

PROFESSOR DODGE.

During the first term of the Sub-Freshman year the students in the scientific course are required to take elementary general chemistry. This work covers the non-metallic elements and their compounds, including a few compounds of carbon, and corresponds nearly with the first fourteen chapters of Eliot and Storer's Elementary Manual of Chemistry. The study is pursued in a practical manner and comprises laboratory exercises, lectures, and recitations.

In the Freshman year the scientific students continue general chemistry, attending mainly to the chemistry of the metals. The metals and their salts are exhibited and their preparation and properties demonstrated and described in the lecture and recitation room, while the students spend a part of the allotted number of hours of their term's work in the laboratory testing the action of the various reagents as applied to the metals and their compounds. In this way they make preparation for the pursuit of analytical chemistry in the Junior and Senior years.

In the first term of the Sophomore year organic chemistry is studied in a manner in general similar to the above, but with a suitable amount of attention to the theoretical matter involved in this branch of the subject. In the second term of the Sophomore year technological chemistry, or chemistry as applied in the arts and manufactures, is taken up, chiefly in lectures, with illustrations in the way of specimens and experiments. This term's chemical work is limited to three days per week.

The classical and modern students take in the third term of the Freshman year a course covering most of the ground of elementary chemistry as presented in the shorter text books.

Students in all courses can elect analytical chemistry during the whole or a part of the Junior and Senior years. In the second

term of the Junior year a course of lectures on the history and theory of chemistry is assigned for two days per week, while three days are given to analytical chemistry.

The chemical laboratory is fitted up in the best manner, with apparatus and fixtures of the most approved construction. It is designed to furnish instruction in general chemistry to all students in the scientific course of the collegiate department, and in qualitative and quantitative analysis and special research to all students of whatever department or college, who may desire and be entitled to such opportunities.

No charges are made for instruction, and only such charges for apparatus and chemicals as will cover actual cost to the institution. The charges for ordinary chemicals and apparatus will not exceed ten dollars per term. All glassware and other apparatus are charged to the student at cost. The glassware that is uninjured is received back at cost; other articles are received back under special regulations, generally at a discount of twenty per cent. The cost of apparatus will vary from two to five dollars per term, according to the care exercised by the student. To cover these expenses, students in analytical chemistry are required to deposit during the first week in each term, with the professor of chemistry, the sum of ten dollars, the balance of which, after deducting the charges mentioned, is delivered to the student at the end of the term.

Scientific students desiring to prepare for the study of medicine are advised to take the scientific course with Latin, electing French in the Sophomore year, German in the Junior, and analytical chemistry in a part of the Junior and Senior years.

Students desiring an extended course in chemistry are advised to take the scientific course with German, French in the Sophomore year, and analytical chemistry in the Junior and Senior years.

A special course may be arranged for students preparing for medicine, consisting of one term of qualitative analysis, followed by toxicology and the elements of physiological chemistry, and the preparation of vegetable and animal pharmaceutical products. A collection of specimen drugs for illustrating this branch of study, has been made.

A room in the laboratory is fitted up for the study of assaying, and this branch may be taken up with elective analytical chemistry.

IV. PHYSICS.

PROFESSOR PIKE.

A thorough knowledge of the elements of natural philosophy is expected of all students on entrance.

Scientific students of the Freshman class take molecular physics during the second and third terms. Classical and modern students go over a general course in physics in the first term of the Sophomore year.

The apparatus of this department having received a number of additions during the last year, is now used by the students themselves in solving various physical problems as well as by the instructor in illustrating principles.

In the first term junior, mechanics is required of all students in the scientific course, and is elective to others. In the second term of the Senior year engineering students are required and others are allowed to pursue an advanced course of study in the physical laboratory, making their own experiments and constructing or adapting their own apparatus in the workshop.

The department of physics for the coming year will be in charge of Mr. Frederick S. Jones, a graduate of Yale College.

V. BOTANY.

PROFESSOR HALL.

The students of the classical and modern courses are required to take botany in the third term of freshman year. The text book used is Gray's Lessons and Manual. Laboratory work with the microscope accompanies the lessons in an elementary course in structural botany. Attention is also given to systematic botany.

In the third term, sub-freshman year, the scientific students take substantially the same course as is indicated above for the classical and modern courses.

In the third term, freshman year, an advanced course in botany is given to the scientific students. Its object is to give a more thorough knowledge of structural and physiological botany, and more skill in plant analysis. Economic botany is also taken up, and laboratory work, two hours daily with the microscope, familiarizes the student with vegetable anatomy. The instruction is made as practical as possible.

In the college of agriculture provision is made for a special course in botany, with reference to the wants of students expecting to pursue farming.

VI. ZOOLOGY.

MR. NACHTRIEB.

1. GENERAL BIOLOGY.—The course in general biology extends through two terms in the Sophomore year of the scientific course, and is required. The course consists of lectures and laboratory work. The first few weeks are devoted to general plant morphology and physiology, and the rest of the time is devoted to general zoology. The student makes a careful study of the chief divisions of the invertebrates, (viz: the protozoans, coelenterates, echinoderms, worms, crustaceans and insects, and mollusks), and dissects several vertebrates. Structural affinities, the ways and means by which the various functions of life are carried on, and the life history (embryology) of typical forms are dwelt upon.

The course pursued and the methods used are, irrespective of the the great educational value of the study, such that the student who desires the elements of biology as the basis for a professional life, or who desires to pursue his study in this fascinating field of natural history for his own recreation and edification, will get a good starting point from which to advance.

A constantly increasing collection of specimens is used to illustrate the different subjects as they are taken up in the lectures.

2. ANIMAL PHYSIOLOGY AND HISTOLOGY.—In the Junior year animal physiology and histology are offered as an elective extending through two terms. The course consists of lectures, demonstrations, and laboratory work. The student studies the minute anatomy and microscopical structure of the various organs in connection with the lectures on the functions of the organs, and is required to make some fundamental experiments.

3. VERTEBRATE ANATOMY.—This course, as is also the one in physiology, is advanced work, and consists of taking lectures and making dissections.

VII. MINERALOGY AND GEOLOGY.

PROFESSOR HALL.

1. MINERALOGY.—The Junior class takes up mineralogy in the winter term. This is a required subject for the scientifics, and an elective one for the classicals and moderns. There is a lecture daily, and an equal amount of time is allotted each week to laboratory work.

The aim of the term's work is to give the student a knowledge of the principles of crystallography, and make him familiar with the physical characters and composition of the common minerals and rocks. As an aid in attaining these results, the laboratory work is important. This consists in a study of the most frequently occurring crystal forms from models and a good working collection of minerals, accompanying a course in qualitative blowpipe analysis.

2. GEOLOGY.—In the Senior year there is a course of general geology. The effort is made to adapt the course to the wants of students who have but the limited time of a single term to devote to the subject.

The aim here is to bring out the succession of leading events in the geological history of the earth, in a series of recitations and lectures in which statements of theories will be so introduced that they will show something of the historical development of the science.

In the following term a series of lectures on economic geology is offered. The course consists of discussions of the relations of geology to mining, and the origin and position of some of the most remarkable deposits of native elements and ores; to architecture,

as in building materials, ornamental stones, &c.; and in the formation and constitution of soils.

The student of the science of geology in the University is furnished throughout with such aid as can come from a good supply of maps, models, specimens, and a Marcy's sciopticon, with a suite of geological and mineralogical slides. By means of the constantly increasing collections gathered in the general museum of the University, specimens of all the great formations as they appear in different localities, can be compared, and their resemblances and differences brought before the student. A series of Professor Ward's casts of fossils is in constant use in the study of historical geology.

Excursions to localities in the vicinity where the various sedimentary and igneous rocks of the State are exposed, give the students instruction of a practical character, and an outline of the methods and practices of the field geologist.

A system of exchange has been instituted, and is being extended, by which the value of the museum to students and all others is being greatly increased. Correspondence and contributions, if of interest to science and of value to students, are solicited, and may be addressed to the professor in charge.

VIII. ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR MACLEAN.

The wide and increasing interest in English as an old as well as a new tongue demands a thorough course of study. The language affords an opportunity for scientific discipline no less valuable than the broad culture its literature has always offered.

The mother-tongue must be studied practically as well as theoretically. It might well be the aim of an education that that tongue in which we think, pursue most of our studies, and must do business should be *understood* and correctly used.

The course, therefore, in English is linked on the one hand to the training in the lower schools, and on the other hand to the philological and critical work in the graduate course of the University, and the life-long literary studies of the alumnus.

The training in "language" and the "science of language," in the preparatory schools, cannot receive too much attention, for candidates for admission are often deficient in the rudiments of an English education. For terms of admission see under "Collegiate Department." Let it be noted that after this year themes upon certain English or American classics will be required. It is not designed that the preparatory schools shall attempt extended instruction in English literature, but that they shall aid to create a taste for good literature at the most important period in the youth's life.

The undergraduate course in the University is arranged progressively and according to the historical development. The science of

the language—the strictly linguistic work—ends with Sophomore year. The literary and critical study is presented to the upper classes. The work of specialists in philology, or in philosophical criticism and studies, will be offered in the graduate course.

In the Sub-Freshman year the Latin and Romance elements and etymologies will be taken up, with specimens of the literature. In the Freshman year the Anglo-Saxon (Old and Middle English) elements will be pursued in the same manner. Thus, the foundation will be laid for the history of the language in the Sophomore year, and the study of the English of the old masters, *e. g.*; Chaucer, Shakspeare, and Milton. Students of the classical, and of the scientific and modern courses with Latin, may elect Anglo-Saxon at the beginning of the Junior year.

In the Junior and Senior years the work is designed for the students in all courses. In the third term, Junior year, all students are required to take the history of English literature. In the first term, Senior year, the history of American literature is an elective study, with lectures on oratory by the president. In the third term, Junior year, a course of lectures is given, to such as may elect, on the higher criticism of Shakspeare by the president, and on the philosophy of literature by the professor.

The success of the "seminaries" in connection with the history of English and American literature during the past year, warrants the professor in hoping to continue them. The efficiency of the department will be increased, during this year, by the addition to the library of texts and reprints of rare authors.

SUB-FRESHMAN CLASS.

- 1st Term—Latin elements, with the study of Latin Grammar, and exercises in writing and conversation.
- 2d Term—Latin elements, with selections from Latin Reader, with special reference to vocabulary and the structure of sentences; exercises in writing and conversation continued.
- 3d Term—English etymologies, of Latin and later Romance origin, illustrated by selections from Bacon, Dr. Johnson and scientific text-books.

FRESHMAN CLASS.

- 1st Term—Old English (Anglo-Saxon) Grammar, and prose master-pieces.
- 2d Term—Old and Middle English poetry.

SOPHOMORE CLASS.

- 1st Term—History of the English language, with Chaucer.
- 2d Term—The English of Shakspeare (Rolfe), with Abbott's Shakspearean Grammar; English versification.

3d Term—Milton's *Paradise Lost*, and minor poems, studied with reference to diction, derivation of words, figurative language, classical allusions, etc.; exercises in writing.

JUNIOR CLASS.

3d Term—History of English literature (lectures), with the reading of authors.

SENIOR CLASS.

1st Term—Lectures on oratory by the president, and on the history of American literature by the professor.

3d Term—Lectures on the higher criticism of Shakspeare by the president, and on the philosophy of literature by the professor.

IX. GERMAN LANGUAGE AND LITERATURE.

PROFESSOR MOORE.

German is required of all students in the modern course. Those of the scientific course are free to commence at the beginning of the Sub-Freshman year. Students of the classical and scientific courses may commence German in the Junior year, and continue the same throughout the Senior year.

Students intending to graduate in the college of mechanic arts, desiring to pursue German, must commence it in the Sub-Freshman year, as their time is fully occupied with professional studies in the Junior and Senior years.

First Year (Sub Freshman class).

1st Term—Macmillan's German course, with blackboard exercises in translating English into German.

2d Term—Boisen's German Prose book (54 pages), and Whitney's German Grammar (144 pages, coarse print only), with oral and blackboard exercises.

3d Term—Boisen's German Prose book (102 pages), and Whitney's German Grammar (coarse print only), with oral and blackboard exercises.

Second Year (Freshman class).

1st Term—Schiller's *Egmont* and *Siege of Antwerp*, with a review of the complete grammar.

2d Term—Wagner's German historical ballads, with German history and geography.

3d Term—Lessing's *Minna von Barnhelm*, and German composition.

Third Year (Junior class).

1st Term—Schiller's *Wilhelm Tell* and Goethe's *Faust*, first part.

2d Term—Lessing's *Laocoon* and *Nathan der Weise*.

3d Term—*Dutsche Lyrik* and history of German literature; lectures.

The objects aimed at in the above course of study are: (1) in the earlier stages, by means of oral and written exercises, to teach the student how to express himself with some degree of facility in German, on topics of every day life; (2) a systematic study of German grammar; (3) a critical reading of some of the masterpieces of German literature, with collateral instruction and research in geography, history, mythology, biography of the authors, etc.

X. FRENCH LANGUAGE AND LITERATURE.

PROFESSOR BENTON.

French is required of all students in the modern course, in the Sophomore year of the Collegiate Department, and is an option for the other courses. French is offered as an elective in the Senior year of all the colleges of the University. Classical and scientific students, who have not previously had French, can begin it in the Senior year. The course during the past year has been as follows:

SOPHOMORES.

- 1st Term—Bocher's *Otto's French Grammar and Reader*.
- 2d Term—Bocher's *Otto's* course, continued; exercises and conversations.
- 3d Term—Bocher's course completed; Fenelon's *Telemaque*; Scribe's *Doigts de Fee*; compositions, etc.

SENIORS.

- 1st Term—Racine's *Andromaque*; Corneille's *Cinna*; Moliere's *Tartuffe* and *Misanthrope*; Pylodet's *Litterature Francaise Classique*, or French literature during the Seventeenth century.
- 2d Term—Taine's *Philosophie de l'Art en grece*, and *L'Idéal dans l'Art*; *Tableaux de la Revolution Francaise*, compiled from French historians by Professors Crane and Brun. Lectures given in the French language, with notes and reports by the class, on French literature during the Eighteenth century.
- 3d Term—*Cinq Mars*, by A. De Vigny, a historic novel of the time of Richelieu; V. Hugo's *Hernani*; *Le Dernier des Abencerages*, by Chateaubrand; *Bonnefon Ecrivains modernes de la France*; lessons in Idiomatic French.

So far as the progress of the classes will allow the conversational method is used in the class. The words already learned are framed into questions and answers. The object aimed at is to give the students an acquaintance with the literature and history of the French people through the medium of their own language.

XI. SCANDINAVIAN LANGUAGES AND LITERATURES.

PROFESSOR BREDA.

In this new department no definite plan for the instruction has, as yet, been formed, but the course of instruction will be shaped so as to meet the wants of the students applying. There will be a course of instruction for those who have no previous knowledge of these languages, and another to meet the wants of students of Scandinavian descent wishing to obtain greater proficiency in speaking and writing these languages. A course of lectures will be given on the history of Danish, Norwegian, and Swedish literature.

XII. LATIN LANGUAGE AND LITERATURE.

PROFESSOR BROOKS *in charge*.

The requirements for admission to the Freshman class are:

1. Latin Grammar—Harkness' revised edition, or Allen & Greenough's, with Reader; Harkness' or Jones' recommended.

2. Composition—Harkness' Part II. or an equivalent.

3. Reading—Three books of Cæsar's Commentaries, with syntax; geography of Gaul; life of Cæsar, and history of his times; four orations of Cicero, with syntax, and history of the Catalinian conspiracy; four books of Virgil, with syntax; prosody; mythology; physical and political geography of Italy, with an outline of Roman history until the 2d Punic war.

The Freshman Latin is Livy, and Horace (begun), with Roman history, and thorough review of syntax.

The Sophomores read Horace (Odes, Satires, and *Ars Poetica*), and Tacitus. In connection with Horace the history of Roman literature is pursued, and with Tacitus the history of Rome under the emperors.

The Seniors have oratory and philosophy.

The Roman method of pronunciation is followed.

VOWELS.

Sound of the long vowels—*a* as in *father*; *e* as in *prey*; *i* as in *machine*; *o* as in *no*; *u* as in *pool*; *y* as the French *u*, or the *i* above.

Sound of the short vowels same as above but shortened.

The long and short vowels are identical in quality, differing only in quantity.

DIPHTHONGS.

Give the constituent vowels their proper sounds, and pronounce them in their order as rapidly as possible, as:

ai and *ae*, like the English adverb *aye* (yes); *ou* like *ow* in *owl*, or as in German *Haus*; *eu* nearly as in *feud*; *ei* nearly as *feint*, putting

the stress on the last vowel; *oi* nearly as *oy* in *joy*; *oe* as *o-eh*; *u* in *ua*, *ue*, *ui*, etc., as the English *w*.

CONSONANTS.

c is always hard, as *k*; *g* always hard, as in *give*; *j* as *y* in *year*; *v* approximate to the English *w*; *r* with a slight trill, as *per* in *perry*; *s* always sharp, as in *this*; *t* always simple, not as *sh*; *x* always as *ks*; *ng* as in *anger*; *nc* as in *rancor*; *nq* as in *banquet*; *qu* as in *queen*; *ch* like *k*; *th* as in *then*; *ph* as *f*; the other consonants as they are in English.

The full course in Latin is offered to scientific students, as such students can take French when Seniors if they desire to do so.

XIII. GREEK LANGUAGE AND LITERATURE.

PROFESSOR BROOKS.

Greek is begun in the Sub-Freshman year, without imposing any conditions upon the candidates. The studies in the course in Greek are as follows:

SUB-FRESHMAN CLASS.

1. **AUTHORS.**—Hadley's and Goodwin's Grammars, with appropriate Lesson Books; Xenophon's *Anabasis*, 3 books.

2. **COMPOSITION.**—The exercises are based upon the text.

3. **COLLATERALS.**—(To be recited), Smith's *History of Greece*, the Introduction, and Chapters 6 and 7, Book II.; (to be read), Smith's *History*, Book III., and Chapter 36, Book V.

The acquisition of a thorough and ready knowledge of Greek Grammar—the vocal elements, elision, syllabication, euphony, quantity, accentuation, proclitics, enclitics, inflection, the verbal elements, the principal parts of the irregular verbs, the formation and composition of words, and syntax—is the aim of the work in the Sub-Freshman year, and is insisted upon as essential to an admittance to the Freshman class. It is a more important acquisition, in this early stage of Greek study, than a mere, though fluent, reading of the amount of Greek specified, and if it is not made here, generally, it never will be. It lays a solid foundation for the intelligent, and also for the rapid reading of authors, and makes room for the study of the history, chronology, mythology, antiquities, etc., that stand connected with the authors read, by relieving the instructor from the necessity of continually drilling his class in routine parsing. Of grammatical parsing, it may be said, that it is an exercise which, however necessary when used in proper measure, and at the beginning of a course of instruction, contributes, when confined as it usually is to mere technicalities, nothing to a practical acquaintance with the language; and when continued, as author after author is read, becomes a positive hindrance to the acquisition of the larger and better knowledge of its literature.

Conversation exercises are prepared by the department, and used with very satisfactory results. Translation, at sight, of selected passages, is also practiced.

FRESHMAN CLASS.

1. **AUTHORS.**—Xenophon's *Memorabilia*; Xenophon's *Symposium* and *Hellenica*, or *Cyropædia*; Demosthenes' *Olynthiacs* and *Phillipics*, or *De Corona*.*

2. **COMPOSITION.**—Exercises based upon the authors read.

3. **COLLATERALS.**—(To be recited) with Xenophon, Smith's *History*; Sections 8-15, inclusive, Chapter 35, Book IV.; (to be read), Grote's *History*, Chapter 68; (to be recited) with Demosthenes, Smith's *History*, Chapter 42 and 46, and Sections 2, 3, 4, Chapter 48, Book VI.: (to be read), Smith's *History*, Books IV., V. and VI.; Grote's *History*, Chapters 86-90, inclusive, and 95; Hermann's *Political Antiquities of Greece*; Plutarch's *Lives* (Demosthenes).

SOPHOMORE CLASS.

I. **AUTHORS.**—One tragedy, Æschylus' *Prometheus* or *Agamemnon*, or Sophocles' *Antigone*, or Ædipus *Tyrannus*; Plato's *Apology*, *Crito* and *Phædo*, or *Gorgias*.

II. **ESSAYS.**—*Three* on the tragedy, to-wit: (if *Prometheus* be read.)

1. *An analysis* of the tragedy.

2. *Quotations* from other literatures suggested by and illustrative of passages found in the tragedy.

3. *Epithets* of Zeus, Prometheus, and the place of his punishment defined and classified.

And *three* on Plato, to-wit:

1. *An analysis* of the apology, embracing the court, the judges, the accusers, the indictment, the order of procedure, Socrates' method of defense, and the order of argumentation.

2. *A sketch* of Socrates, his times, character, etc.; discussion of the dæmonion, and the adequacy of his defense.

3. *A disquisition* on the sophists, and Socrates' relation to them.

III. **COLLATERALS.**—(To be recited) with the tragedy, Smith's *History*, Sections 1 to 7, inclusive, Chapter 35, Book IV.; (to be read), Donaldson's *Theatre*, Blackie's *Horæ Hellenicæ* (article on *Prometheus Bound*); (to be recited) with Plato, Smith's *History*, Sections 5 to 10, inclusive, Chapter 48, Book VI.; and Sections 10 to 15, inclusive, Chapter 35, Book IV.; (to be read), Grote's *History*, Chapters 69 and 68, Blackie's *Wise Men of Greece*, Blackie's *Four Phases of Morals* (article on Socrates).

*Lysias and Isocrates, with appropriate reading, will be interchanged with Demosthenes.

JUNIOR CLASS.

1. READING.—Homer's *Iliad* or *Odyssey*.
2. COLLATERALS.—(To be read), Grote's *History*, Chapters 15, 19-21, inclusive, Mure's *History of Grecian Literature*, Book II; Blackie's *Horæ Hellenicæ* (articles on Theology of Homer, and interpretation of Myths in Grecian Mythology).

MISCELLANY.

Attic Greek is studied connectedly to the end of the Sophomore year; the older dialects in the Junior year. The amount of collateral reading can be extended according to the time and tastes of the students; that given above is required to be read. Lectures are given on the authors read as occasion may demand. Greek is pronounced according to the accents, and with the so called continental (modified somewhat) sounds of the vowels and diphthongs. The following are the general principles and methods of work in the department: in translation, the radical meaning of words is to be learned, but the precise signification in the passage rendered is to be given; the thing to be done in translating an author is to give his exact meaning in the best idiomatic, grammatical English; facts, allusions, tropes, history, chronology, mythology, topography, customs, arts, laws, grammatical forms and elements, etymologies and composition of words are to be attended to. Translation of English into Greek is based upon the author read. So far as the author himself is concerned, among the things to be noted are: the chief acts of the authors life; the contemporary history and political condition of the country, and the author's relation to them; the character of the people; and the expression and logical scope of his thoughts, and the wisdom, etc., of his views.

XIV. MENTAL AND MORAL PHILOSOPHY.

MR. PEEBLES.

The course in Philosophy includes:

I. Logic, which is elective for all the Juniors in the third term. The course includes:—(a) formal logic, comprising the laws of discursive thought according to both the Aristotelian and modern forms; (b) applied logic, treating of the methods of application in scientific investigation by induction and deduction. Prominence will be given to oral instruction and practical exercises.

II. Psychology, which is elective for the Juniors in the second term. The course is given in lectures, and some of the topics discussed are: body and mind; sense-perception; association; self-consciousness; the mental faculties, and the relation of language to thought. One-third of the time is devoted to recitations, discussions, and reviews.

III. The history of philosophy, which is open to the Seniors in the first term. The course is given in lectures, and embraces a his-

torical exposition of ancient and modern philosophy. The principles of the leading philosophers are expounded, and the historical relations of the succeeding systems are unfolded. The lectures are accompanied with recitations, discussions, and reviews.

IV. Moral philosophy, which is required in the second term of the Senior year. The course is given in lectures, and embraces, (1) a discussion of the history of ethics, ancient and modern; (2) an exposition of the principles of theoretical ethics with their application to actual conditions. One-third of the time is given to recitations, discussions, and reviews.

V. Natural theology, which is elective in the third term of the Senior year. The course occupies two hours a week, and is given in lectures. It embraces a discussion of the speculative basis of theism, and a review of the evidence of God's existence, derivable from the constitution of nature and man.

XV. HISTORY.

MR. PEEBLES.

Applicants for admission are examined in the history of the United States, and in the outlines of general history. The examination will be founded on Swinton's condensed history of the United States, and Swinton's outlines of general history, or Freeman's general sketch, or equivalents.

The course in History includes:

I. SUB-FRESHMAN CLASS.—Ancient history, the first term, required, three times a week. Entrance examination in ancient history will be founded on Schmidt's, Rawlinson's, or Thalheimer's manuals.

II. FRESHMAN CLASS.—Mediæval history, the second term, required, twice a week.

III. SOPHOMORE CLASS.—Modern history, third term, required, twice a week.

In the historical course text-book instruction is combined with topical discussion and outside research.

XVI. POLITICAL SCIENCE, ETC.

PROFESSOR FOLWELL.

Political economy and national economy are taught to the Seniors during ten weeks in the third term by dictated and conversational lectures. These subjects are required of all students of the college of science, literature, and the arts, and are elective to those of other colleges. The library is well supplied with standard authors on political and social science.

In political economy the aim of the instructor is to present clearly and fairly the history of the science, and to thoroughly inculcate established principles. On disputed topics the conflicting views are brought out with all possible impartiality.

National economy is briefly treated at the close of the course, the more prominent topics being, taxation, national banking, protection, public education, immigration, transportation.

Civil government is an elective for all Seniors through the second term. The principal chapters of De Tocqueville's *Democracy in America* are gone over by way of introduction. The constitutions of the United States and of Minnesota are critically read and commented upon, and the leading titles of legislation discussed. City, county, and township organization and administration are briefly treated.

In international law a course of ten lectures is given to the Seniors electing the subject in the second term.

The history of civilization attached to this department is an elective to all Juniors three times a week in the first term. The text-book is Guizot, but the students collect matter from numerous books of reference.

The subject of comparative philology, lately attached to this department, is an elective study for Juniors of all departments, twice a week in the first term. The course of lectures embraces a general treatment of the following topics: history of philology, classification of languages, origin and development of language, mechanism of speech and hearing, written language.

The work of graduate students is conducted on the "seminary" plan of the foreign universities, the particular subjects being selected by individuals, or groups, under advice of the professor.

XVII. RHETORIC AND ELOCUTION.

PROFESSOR SANFORD.

COLLEGIATE DEPARTMENT.

The following table shows the distribution of the work:

CLASSES.	I. TERM.	II. TERM.	III. TERM.
SUB-FRESHMAN.	Compositions.	Elocution.	.....
FRESHMAN.	.....	Elocution.	Compositions.
SOPHOMORE.	Elocution.	Elocution.	Orations.

The work in elocution comprises class drill and declamation with individual training. In the Freshman and Sophomore classes, students are encouraged to present original pieces for declamation. The aim is to give to students a style manly, direct, and clear; to avoid exaggeration and sham; and to enable them to read or speak with simplicity and grace.

In composition, weekly exercises are required upon subjects assigned. It is intended by constant practice to give the students ease and readiness in writing, and by the the subjects selected to accustom them to think, and express their thoughts forcibly and correctly upon such topics as educated people need to handle. In the third term of the Sophomore year three orations are required, of which one, at least, must be presented before the class.

All students of the Sophomore class take rhetoric five times a week during the second term. In this study the aim is not so much to teach the rules and formulæ of a text-book, as to acquaint the pupil with the beauty and strength of our English tongue when correctly used; by the study of the best authors and constant practice under criticism, to make familiar the essentials of vigorous and effective writing and speaking.

UNIVERSITY CLASSES.

At the beginning of the Junior or Senior year the students of the college of science, literature, and the arts are allowed to choose between essay writing and orations. Those who elect essay writing are each required to write, submit for criticism, and to read before their class two essays per term. Those who elect orations are each required to give one oration per term. Each oration is carefully criticised, then re-written, and, when approved, rehearsed in private, and then presented in public to the students and faculty.

Juniors and Seniors in the college of mechanic arts are required to write papers on technical and professional subjects, which, after examination by the professors of that college, are submitted to the professor of rhetoric and elocution for criticism as rhetorical exercises. The amount of writing required does not exceed that required of students of the same grade in the college of science, literature, and the arts.

XVIII. INDUSTRIAL DRAWING.

PROFESSOR PIKE.

Drawing and descriptive geometry are required of the scientific students of the Collegiate Department, are optional for the modern students during the entire course, and for the classical students during the first two years.

The course is as follows:

SUB-FRESHMAN CLASS.—During the second term the students learn the use of the instruments, and draw a series of plates of geometrical problems, elementary projections, and applications of projections.

A special text-book, in pamphlet form, has been prepared by the department for the use of students. It contains data for the required problems, directions for lettering, directions about the use of instruments, and an outline of the whole course of elementary drawing.

FRESHMAN CLASS.—The use of the text-book is continued during the first term. Additional examples of projection are first taken up, after which instruction is given by means of models and machines, each student making sketches and taking actual measurements from which the final drawings are made. Tinting and shading are then taken up, and, after a number of practice plates are made, are applied to one or more projection drawings.

SOPHOMORE CLASS.—Descriptive geometry is taken up during the second term, especial attention being given to isometric and cabinet projections, linear perspective and the construction of shadows. In this, as in projection drawing, the work is done as far as possible from sketches and measurements taken by the students themselves.

A text-book for the use of the Sophomore class, similar in plan to the one in use by the students in the Sub-Freshman and Freshman classes, is being prepared by the department, advanced sheets of which, in the form of "blue prints," have been used this year.

INSTRUMENTS AND MATERIALS.

It is very desirable that a good quality of instruments should be secured by beginners, and it is advised that separate pieces be bought rather than sets in boxes, as better instruments can be obtained in that way. The instruments should be of German silver, and care should be taken that the compasses have needle points.

The following outfit is recommended to begin with:

A drawing board, thirty-one inches by twenty-three inches, a T-square, a pair of triangles, a hard pencil, a right line pen, a pair of compasses with pen, pencil and needle points, a pair of plain dividers, a scale divided for drawing to scale of one inch, one-half inch, one-quarter inch, and one-eighth inch to the foot, a piece of India ink, a rubber, an irregular curve, six thumb-tacks, and six sheets of Whatman's imperial drawing paper.

THE COLLEGIATE DEPARTMENT.

This department, as the common avenue to the several university departments and courses of study, is under the immediate control and supervision of the general faculty of the University.

The object of this department is to furnish such discipline and information as will fit the student to pursue the higher academical studies of the COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS, or to enter upon the professional courses now offered in the COLLEGE OF AGRICULTURE, MECHANIC ARTS, AND MEDICINE, and hereafter to be offered in colleges not yet opened.

The REGULAR ENTRANCE EXAMINATIONS begin on the first day of each university year. Examinations for entrance are commonly held by appointment in the month of June at the University. Candidates not presenting themselves at these times, apply to the general faculty for permission to be privately examined, stating satisfactory reasons for not attending at the stated examinations.

Certificates of the STATE HIGH SCHOOL BOARD are accepted, and the holders are excused from examination in the studies named therein. *No other certificates are now recognized.*

REQUISITES FOR ADMISSION.

APPLICANTS for admission to the Sub-Freshman class are examined in the following studies:

I. Geography—*One examination*, including *Descriptive Geography* as contained in Harper's, Eclectic, Winton's Common School Geography, or any equivalent works, and *Physical Geography*, as contained in Warren's, Guyot's, Houston's, or equivalent.

II. History—*One examination*, including *United States History*, as contained in the text-books of Quackenbos, Eclectic, Ridpath, or their equivalent, and *General History*, as contained in Swinton, Anderson, or equivalent.

III. Natural Philosophy—As contained in Gage's, Avery's, Norton's, or equivalent.

IV. Physiology—As given in Martin's, Dalton's, Houston's, or any equivalent work.

V. Arithmetic—*Complete*; from such treatises as Robinson, Wentworth, Olney, etc.

VI. Elementary Algebra—Robinson, Wentworth, Olney, or equivalent.

Applicants intending to study Latin will be further examined in—

(VII.) **Latin Grammar**—As contained in Harkness (revised edition), or Allen & Greenough.

(VIII.) **Cæsar**—Three books of the Commentaries.

(IX.) **Cicero**—First two orations against Catiline.

All others will be examined in Latin, as above, or in lieu thereof—

(VII.) **English Grammar**—Complete, including sentential analysis, as contained in the best school grammars. "Whitney's Essentials of English Grammar" is recommended as a text-book.

(VIII.) **English Word Analysis**—As contained in Swinton's New Etymology, or equivalent.

(IX.) **English Composition**—As contained in Hart's large work, or equivalent.

After the year 1885-'86 ENGLISH LITERATURE will be added to the above requirements in English. A theme will be written by the examinee upon some work or character in English or American classics, assigned by the examiner from a list of subjects announced in the Calendar from year to year. The subjects for admission in 1886 are, The Vicar of Wakefield, Ivanhoe, and Evangeline.

Applicants for admission to the Freshman class will be further examined in the work of the Sub-Freshman year in the course chosen.

SPECIAL STUDENTS.

The following resolutions, adopted by the general faculty December 20, 1884, will be in force from the beginning of the year 1885-'86. Students who have already been admitted as specials will be required to join classes in the regular courses or conform to the following rules in regard to their work, at the discretion of the faculty:

"1st. Applicants of mature years and judgment, and qualified as hereinafter stated, who desire to pursue one or two *lines* of study or investigation, may be allowed to take such studies as specially conduce to that object.

"2d. All applicants for special studies shall file, with their application to the registrar of the University, a statement, with reasons therefor, of the special lines of study they wish to pursue, which lines of study they will not thereafter change without the permission of the faculty in charge.

"3d. 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, 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, with Physical Geography, also; if English studies, or a modern language, then entrance English; if Latin, then entrance Latin; if Greek, then entrance Latin or English.

"4th. Applicants who pass the examinations mentioned in the third resolution, may be admitted to studies pursued by the Sub-Freshman, Freshman, Sophomore, Junior, or Senior classes, their fitness to enter upon them having been previously determined by such examinations as the faculty in charge of such studies may require."

COURSES OF STUDY.

There are three courses of study in this department:

1. CLASSICAL,
2. SCIENTIFIC,
3. MODERN.

Applicants desiring to pursue Greek and Latin will select the classical course. Those desiring to pursue English, German, and French, with or without Latin, will select the modern course. Those desiring to pursue a course of scientific studies will select the scientific course.

Scientific students can take but one language at a time. This may be English, Latin, Greek, or German, followed by French.

Scientific students will govern themselves in the choice of a language according to the following regulation:

"Scientific students are required, upon admission, to select the languages they will respectively pursue, and cannot thereafter change, except as allowed by vote of general faculty; *provided*, however, that scientific students shall be free to elect French at the beginning of the third [Sophomore] year; and, *provided further*, that scientific students who have pursued German in the first [Sub-Freshman] year shall be free to elect between German and English at the beginning of the second [Freshman] year."

Applicants are free to select their courses of study upon admission, but cannot thereafter change them, except as allowed by a vote of the general faculty.

Each student completing a course receives a final certificate, which admits him to any appropriate college of the University at the beginning of the Junior year.

The following schedules do not include rhetorical exercises, for a scheme of which see page 50.

First Year—SUB-FRESHMAN CLASS. (III.)

TERM.	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek— <i>Grammar</i> , 2. } History— <i>ancient</i> (3). 3. } Algebra (2). 3. Latin— <i>Cicero</i> .	1. Chemistry— <i>elements</i> . 2. } History— <i>ancient</i> (3). 2. } Algebra (2). 3. English— <i>Lat. elements</i> or Latin— <i>Cicero</i> , or German—(<i>begun</i>).	1. German (<i>begun</i>). 2. } History— <i>ancient</i> (3). 2. } Algebra (2). 3. English— <i>Latin elements</i> , or Latin— <i>Cicero</i> .
II.	1. Greek— <i>Grammar and Anabasis</i> . 2. Plane Geometry. 3. Latin— <i>Virgil</i> .	1. Drawing (10 hours). 2. Plane Geometry. 3. English— <i>Lat. elements</i> or German (<i>continued</i>) or Latin— <i>Virgil</i> .	1. German (<i>continued</i>). 2. Plane Geometry. 3. English— <i>Lat. elements</i> , or Latin— <i>Virgil</i> .
III.	1. Greek— <i>Anabasis</i> . 2. Geometry (<i>completed</i>). 3. Latin— <i>Virgil</i> . 4. Drawing— <i>Free-hand</i> , (<i>optional</i>).	1. Botany— <i>elements</i> . 2. Geometry (<i>completed</i>). 3. English— <i>etymology</i> , or German— <i>selections</i> , or Latin— <i>Virgil</i> . 4. Drawing— <i>Free-hand</i> , (<i>optional</i>).	1. German— <i>selections</i> . 2. Geometry (<i>completed</i>). 3. English— <i>etymology</i> , or Latin— <i>Virgil</i> . 4. Drawing— <i>Free-hand</i> , (<i>optional</i>).

Second Year—FRESHMAN CLASS. (II.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Greek— <i>biography</i> . 2. Higher Algebra. 3. Latin— <i>Livy</i> .	1. Draughting (10 hours). 2. Higher Algebra. 3. English— <i>Old English Grammar</i> , or German— <i>Lessing</i> , or Latin— <i>Livy</i> .	1. German— <i>Lessing</i> . 2. Higher Algebra. 3. English— <i>Old English Grammar</i> , or Latin— <i>Livy</i> .
II.	1. Greek— <i>history</i> . 2. Trigonometry & Conic Sections. 3. Latin— <i>Sallust</i> .	1. Physics— <i>sound and heat</i> . 2. Trigonometry and Conic Sections. 3. English— <i>Old and Middle English</i> , or German— <i>Schiller</i> , or Latin— <i>Sallust</i> .	1. German— <i>Schiller</i> . 2. Trigonometry and Conic Sections. 3. English— <i>Old and Middle English</i> , or Latin— <i>Sallust</i> .
III.	1. Greek— <i>oratory</i> . 2. Botany— <i>elements</i> . 3. Chemistry— <i>elements</i> . 4. Surveying (<i>optional</i>).	1. Chemistry— <i>general</i> , (<i>continued</i>). 2. Botany (<i>continued</i>). 3. Physics. 4. Surveying (<i>required</i>).	1. German— <i>Goethe</i> . 2. Botany— <i>elements</i> . 3. Chemistry— <i>elements</i> . 4. Surveying (<i>optional</i>).

Third Year—SOPHOMORE CLASS. (I.)

TERM	CLASSICAL COURSE.	SCIENTIFIC COURSE.	MODERN COURSE.
I.	1. Latin— <i>Horace</i> . 2. Physics (<i>begun</i>). 3. English— <i>hist. English lang. Chaucer</i> , or French (<i>begun</i>). 4. Astronomy (3).	1. Chemistry— <i>organic</i> . 2. Zoology. 3. English— <i>hist. E. lang.</i> or French (<i>begun</i>), or Latin— <i>Horace</i> , 4. Astronomy (3).	1. French (<i>begun</i>). 2. Physics (<i>continued</i>). 3. English— <i>hist. English lang. Chaucer</i> , or Latin— <i>Horace</i> . 4. Astronomy (3).
II.	1. Greek— <i>tragedy</i> . 2. Rhetoric. 3. English— <i>Shakspeare</i> , or French (<i>continued</i>).	1. Descriptive Geometry (10 hours). 2. Rhetoric. 3. English— <i>Shakspeare</i> , or French (<i>continued</i>). 4. Chemistry— <i>applied</i> (3).	1. French (<i>continued</i>) 2. Rhetoric. 3. English— <i>Shakspeare</i> .
III.	1. Greek— <i>philosophy</i> . 2. History— <i>modern</i> , or Analytical Geometry.* 3. Latin— <i>Tacitus</i> .	1. Zoology or German. 2. History— <i>modern</i> , or Analytical Geometry.* 3. English— <i>Milton</i> , or French (<i>continued</i>), or Latin— <i>Tacitus</i> .	1. French (<i>continued</i>). 2. History— <i>modern</i> , or Analytical Geometry.* 3. English— <i>Milton</i> , or Latin— <i>Tacitus</i> .

1. The members of the Sub-Freshman class, and all students lately admitted, are required to attend courses of lectures as follows: (1) on the use of the library and the relations of students to the university, to be delivered by the president, in alternate weeks during the first term of each year; (2) on books and reading, by the professor of English, in alternate weeks during the second term.

2. Each student, whether regular or special, must have, as a general rule, three recitations a day (15 per week), besides rhetorical exercises. The faculty, upon application in writing, may, in their discretion, excuse a student from one or more studies or exercises, or may allow an additional study or exercise. Unless otherwise specially provided, all such indulgences cease with the term.

Changes in course of study, except in urgent cases, will be allowed only at the beginning of the year.

EXAMINATIONS.

1. Examinations in this department are held in every study at the close of each term. The marks for these are combined with the

*Analytical Geometry is required of students who are to take any course in the College of Mechanic Arts.

daily marks of recitations in such a way as to throw increasing weight upon the examinations as the student proceeds from year to year in his course. In order to be "passed" in any study or exercise, the student must obtain sixty-five per cent. of the available marks. The object of the marking system is to preserve, for the use of the faculty, a convenient record of the diligence and proficiency of the students, so far as these can be inferred from numerous averages of approximate judgments. Statements of standing will be furnished to parents or guardians at any time, upon request. Students receive notice of failures and deficiencies.

2. Students who have been unsuccessful in examinations are separated into two classes: (1) those who have "failed;" (2) those who have been "conditioned," *i. e.*, may pass on making up in a satisfactory manner certain specified parts of the subjects. Students who have "failed" are required to take the subjects over with a succeeding class. Students who have been "conditioned" must remove the conditions within two terms, or be regarded as having "failed."

3. All examinations are conducted in writing, but any professor or instructor in charge may add such oral questions as he may deem proper.

4. No student of the collegiate department can be advanced in rank whose conditions amount in the aggregate to more than one term's work. No student can receive a final certificate of admission from the collegiate department who has any condition whatever.

5. *Particular attention* is called to the following rules:

I. All examinations of the students of the collegiate department other than the regular term examinations of classes or sections are designated "special examinations."

II. Public special examinations will be held as follows:

(1). In the first week of the first term in connection with the regular entrance examinations.

(2). In the last week of the second term, beginning on Thursday morning. The program of this examination will be made to accommodate all students who may give two weeks notice.

III. No other special examination shall be held except by vote of the general faculty—upon application in writing.

IV. The regular class examinations being regarded as a part of the course of instruction, and the merits of students being only

partly determined by them, are calculated for students who have received the instruction of the class. Persons, therefore, who have not attended the instruction in whole or in part will be examined so as fully to test their proficiency.

Public special examinations are adapted to the following cases :

- (1). Of students who have been unsuccessful in the regular examinations.
- (2). Of students who, for reasons satisfactory to the faculty, have been absent from the regular examinations.
- (3). Of students intending to be absent, for reasons approved by the faculty, who desire to be examined in advance of their classes.
- (4). Of students who are allowed by the faculty to be advanced in rank upon examination without attending the class instruction.

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

THE FACULTY.

The PRESIDENT, PROFESSORS BROOKS, DOWNEY, MOORE, DODGE, HALL, BENTON, SANFORD, and PIKE.

ADMISSION.

Applicants who have completed courses of study in the collegiate department are entitled to admission to the corresponding courses of this college upon their final certificates. No person can obtain admission to regular standing who has any conditions below Junior year. Other applicants, if candidates for graduation, must pass equivalent examinations. Persons desiring to pursue special studies in this college apply in writing to the faculty of the college, and submit to such tests as the faculty or the professors require.

This college is intended to furnish higher courses of LIBERAL studies leading to the customary academical degrees. Much of the instruction is given by lectures, and, in general, the methods and principles are those proper to university students.

COURSES OF STUDY.

There are three regular under-graduate courses, as given below. They are arranged according to the following principles:

1. There are, in general, in each course fifteen hours per week of recitations and lectures, besides rhetorical and other exercises not shown in the schedule.
2. There are five hours per week of prescribed, and at least ten of optional or elective work.
3. The required studies of any two courses are electives with reference to the third course.

JUNIOR YEAR.

1ST TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In the classical course: Greek—<i>Homer</i>. In the scientific course: Physics—<i>mechanics</i>. In the modern course: German—<i>Goethe</i>.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>History of Civilization (3), Comparative Philology (2), Analytical Geometry, Analytical Chemistry, Zoology, Scandinavian, English.</p>
2D TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In the classical course: Latin—<i>Plautus, Cicero</i>. In the scientific course: Mineralogy. In the modern course: German—<i>Lessing</i>.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>Logic, Differential Calculus, Analytical Chemistry (3), Theoretical Chemistry (2), Physics, Zoology, Scandinavian, English.</p>
3D TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In all courses: English Literature.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>Psychology, Integral Calculus, Analytical Chemistry, Latin, German (literature), Physics, Zoology, Scandinavian.</p>

SENIOR YEAR.

1ST TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In all courses: Geology.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>History of Philosophy, American Literature with Lectures on Oratory, Analytical Chemistry, Astronomy, French.</p>
2D TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In all courses: Ethics.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>Civil Government (4), French, Analytical Chemistry (4), Economic Geology (4), Sanitary Science (1), International Law (1).</p>
3D TERM—	<p style="text-align: center;"><i>Required.</i></p> <p>In all courses; Political Economy.</p> <p style="text-align: center;"><i>Elective.</i></p> <p>Practical Astronomy, French, Analytical Chemistry, English Literature (2), Natural Theology (2), Anthropology (2), Greek (2).</p>

1. When not otherwise indicated by an appended figure, the studies and exercises named in the tables occur five times in the week.

2. In regard to rhetorical work, students in this college are authorized to choose between essay-writing and orations. Those choosing essays are required to write two each term. Those choosing orations are required to write and deliver one each term. See page 51.

3. Students of the classical and scientific courses who begin German in the Junior year are at liberty to continue it as an elective during the Senior year.

4. Classical and scientific students who have not previously had French, can begin it in the Senior year.

5. Seniors are allowed to elect mathematics of the Junior year.

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 a person pass in all the studies and exercises of a course, he is entitled to the appropriate degree.

EXAMINATIONS.

The proficiency of the students of this college in the various departments of instruction is ascertained by means of examinations only. The principal examination in any subject takes place at the end of the term. Intermediate examinations are held during the term, without notice, at the discretion of professors. The results are combined and reported on a scale of one hundred. The merits of the rhetorical and other exercises are reduced to the same scale at the end of each term. A minimum mark of seventy-five per cent. in each study and exercise is necessary to "pass."

THE COLLEGE OF MECHANIC ARTS.

FACULTY.

The PRESIDENT, PROFESSORS HALL, DOWNEY, PIKE (Secretary).
Instructors: DECKER and CARR.

ADMISSION.

TO THE UNDERGRADUATE COURSES.

Applicants who have completed the scientific course of the collegiate department are entitled to admission to the Junior class without further examination. Other applicants, if candidates for graduation, must pass satisfactory examinations in all the studies of that course. Applicants for special studies in this college are admitted to the classes if competent, in the judgment of the professors concerned, to receive the instruction.

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, and drawing, so that, with the practice in field, shop and office 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.

COURSES OF STUDY.

Three regular undergraduate courses have been organized upon the following data:

1. There are fifteen lectures or recitations per week, besides daily exercises in drawing, field or shop work, and the theoretical and other exercises.

2. As a general rule there are ten hours a week of prescribed recitation work, and five of elective.

3. The electives are chosen from corresponding years and terms of this and other colleges.

The third study is, as a rule, elective. The one named is generally recommended to be taken, but the student is free to pursue any of the authorized "electives."

The rhetorical exercises of this college consist of papers or reports each term, on professional subjects approved by the professor in charge of the course in which the student is enrolled. The labor of preparing these papers or reports is not designed to exceed that required by the rhetorical exercises in the college of science, literature and the arts. As a condition of graduation, each student is required to present a satisfactory thesis, with the necessary drawings, which are accepted in lieu of other rhetorical exercises in the last term of the Senior year. These theses are to be deposited in the university library.

JUNIOR YEAR.

TERM	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	<ol style="list-style-type: none"> 1. Elements of Mechanism. 2. Analytical Geometry. 3. History of Civilization (3), Comparative Philology (2), or other electives. 4. Drawing or shop work. 	<ol style="list-style-type: none"> 1. Curves, leveling, and earthwork. 2. Analytical Geometry. 3. History of Civilization (3), Comparative Philology (2), or other electives. 4. Field work or drawing.
II.	<ol style="list-style-type: none"> 1. Mechanics (statics). 2. Differential Calculus. 3. Mineralogy. 4. Drawing (des. geom.) or shop work. 	<ol style="list-style-type: none"> 1. Mechanics (statics). 2. Differential Calculus. 3. Mineralogy. 4. Drawing (Descriptive Geometry).
III.	<ol style="list-style-type: none"> 1. Mechanics (dynamics) and strength of materials. 2. Integral Calculus and Theory of Equations. 3. English Literature, or other electives. 4. Drawing or shop work. 	<ol style="list-style-type: none"> 1. Mechanics (statics) and strength of materials. 2. Integral Calculus and Theory of Equations. 3. English Literature, or other electives. 4. Topography and drawing.

SENIOR YEAR.

TERM	I. MECHANICAL ENGINEERING.	II. CIVIL ENGINEERING.
I.	<ol style="list-style-type: none"> 1. Machinery. 2. Applied Descriptive Geometry. 3. Geology or Astronomy. 4. Drawing or shop work. 	<ol style="list-style-type: none"> 1. Arches, retaining walls and hydrants. 2. Stereotomy. 3. Geology or Astronomy. 4. Railroad work and Drawing.
II.	<ol style="list-style-type: none"> 1. Steam engines, and other motors. 2. Testing strength of materials. 3. Civil Government, or other elective. 4. Drawing or shop work. 	<ol style="list-style-type: none"> 1. Roofs, trusses, and lectures on motive power. 2. Testing strength of materials. 3. Civil Government, or other elective. 4. Drawing.
III.	<ol style="list-style-type: none"> 1. Designs and Specifications. 2. Practical Astronomy. 3. Political Economy, or other elective. 4. Drawing on designs. 	<ol style="list-style-type: none"> 1. Designs and Specifications. 2. Practical Astronomy. 3. Political Economy, or other elective. 4. Drawing on designs.

III. ARCHITECTURE.

This course coincides with that in civil engineering, except as follows:

1. The drawing throughout the course is especially arranged for architectural work.
2. In the first term of the Junior year, history and orders of architecture are substituted for curves, leveling, and earth work.
3. In the second term Senior year, lectures on decoration and color are substituted for lectures on motive power.
4. In the third term Senior year, the designs and specifications are those of buildings, instead of bridges, etc.

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 Architecture.

Students completing either of the courses in the Artisans' Training School may receive certificates of proficiency from the faculty.

Special students receive certificates for successful examinations in 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 degrees.

EXAMINATIONS.

The proficiency of students in this college is ascertained by examinations conducted in writing at the close of each term. These are estimated on a scale of one hundred. The marks of the rhetorical and other exercises are reduced to the same scale at the close of each term. A minimum of seventy-five per cent. in each study and exercise is necessary to "pass."

METHODS OF INSTRUCTION.

Instruction in the several subjects pertaining to civil and mechanical engineering and architecture is given by text-books, lectures, reading in the general library, and practical exercises, the theories taught in the class-room being applied in the solution of practical

problems and the construction of original drawings. Accurate tests of the strength of all the most common materials of construction are made by the students by the use of the testing machine. Among the important tests are those on the deflection and ultimate strength of full sized beams. Careful records are kept by the students of each test, and the moduli of elasticity and rupture are calculated from the data thus obtained. The students are also required to visit the various machine shops, bridges and important structures in the vicinity, and make reports upon them, accompanied by sketches and necessary measurements. The students in mechanical engineering receive a thorough drill in the use of tools in a series of instruction shops, thus fitting them for superintending the construction of the designs which their training in class and drawing-rooms will prepare them for. Instruction is also given in the actual use of the steam engine indicator, and by its use in connection with other observations, these students make an accurate test of the power of the university engine. Field practice is a portion of the regular course of civil engineering. The classes in surveying are drilled in the measurement of land already divided up, in the laying out of fields of given shape and area, in the subdivision of land as practiced by the government surveyors, and in the solution of various geometrical and trigonometrical problems from data taken by the students themselves. In railroad work the students have practice in laying out curves, taking levels, cross-sectioning, staking out—in fact, they do all the work of locating a railroad line, from the preliminary survey up to the point of actual construction. In topography the classes make a complete survey of a piece of land with diversified surface, and make a finished drawing, showing the contour lines and other details. In the drawing room the students in the various courses receive thorough drill in making both working and finished drawings from plates, from machines and structures already built, and from original designs of their own.

APPARATUS.

This college possesses the following apparatus :

For mechanical engineering—a Haskin's vertical steam engine and boiler; a Sturtevant pressure blower, and a Sturtevant exhaust fan; eight stationary forges with anvils, and the necessary tools for

a thorough drill in forge work; a portable forge with anvil and tongs: benches fitted with ten vises and the tools for systematic instruction in filing and chipping; benches, vises, and eight complete sets of tools for wood work; two circular saws, a band saw, a foot lathe, with tools for working in wood and metal; a Thompson's steam engine indicator, with full list of accessories; 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; a pair of very accurate and highly finished test gauges, registering pressures up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure gauges, and a pump for testing boilers.

For civil engineering—a compass, three transit instruments (one with solar attachment), two levels with rods, two chains, three tapes, pins, transit rods, a self reading rod, a hand level, several models of bridges and roofs, a few drawings and tools for modeling in the course in stereotomy.

For general use—a 50,000 pounds testing machine, manufactured by Tinius Olsen, of Philadelphia, which can be adapted for compressive, tensile, transverse, 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. The machine as adapted for testing large beams is shown in Plate 1. Apparatus for taking blue prints, with adjustments for turning the paper so as to be always perpendicular to the direction of the sun's rays, made from designs by the department, and which is used by the engineering students in copying drawings; a full set of Schröder's models for descriptive geometry; a set of large plates for wall use, from which drawings are made; a photographic outfit, by means of which photographs from four by five to eight by ten inches can be taken.

The United States Coast survey has furnished the University with a set of standard weights and measures which have been put under the charge of this college. The complete set embraces: 1. A yard scale divided to inches and tenths, with a matrix for comparison of end yards. 2. Weights from one grain to twenty-five pounds. 3. Liquid capacity measures, a pint, a quart, and a gallon. 4. Dry capacity measures, a quart, a half peck, a peck, and a half bushel.

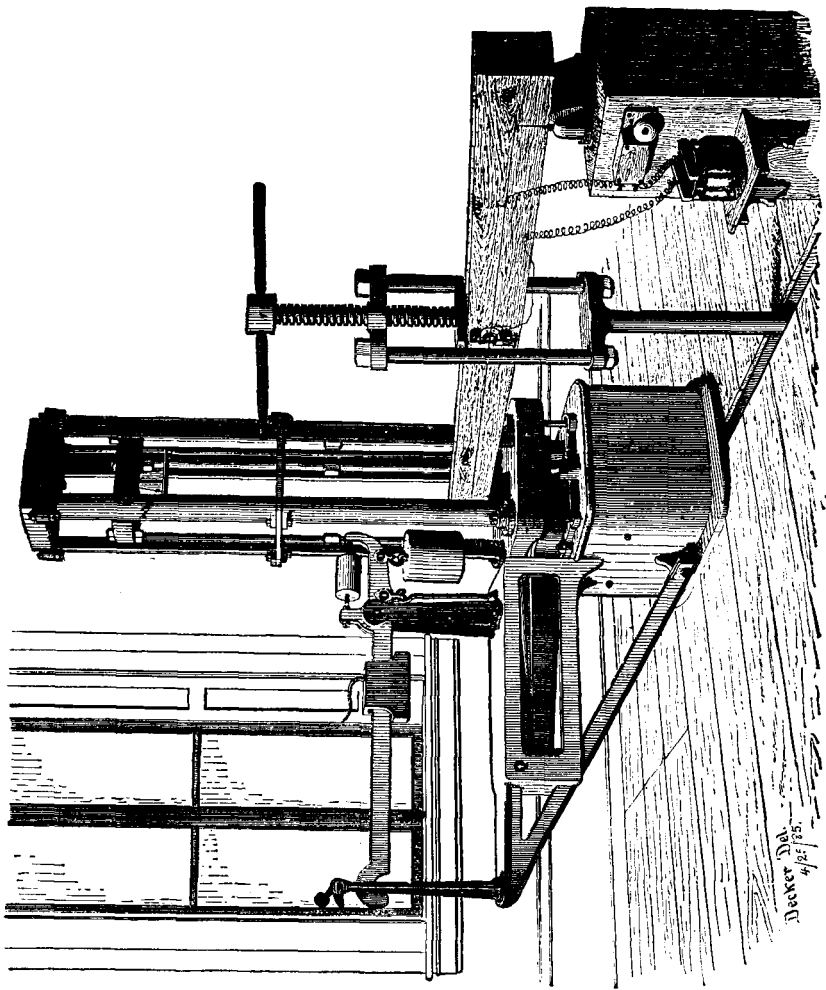


PLATE 1.—Olsen Testing Machine.

Adjustments of these Standards.—The yard is a line measure and an end measure. The jaws of the matrix forming the latter are given a slight slope. The yard scale is standard at 55.3° Fahrenheit. The bottom of matrix is standard at 71.7° Fahr. The expansion of the brass scale may be assumed as 0.00036 inch per 1° Fahr.

The weights are so closely adjusted to the standards that final comparison could detect no sensible corrections. The liquid measures are adjusted to the temperature of 60° F. At this temperature,

The gallon equals a standard gallon less 0.01 cu. inch.

The quart equals a standard quart less 0.005 cu. inch.

The pint equals a standard pint plus 0.007 cu. inch.

The dry measures are adjusted to the temperature of the maximum density of water or 39.01°. At this temperature:—

The half bushel equals the standard less 0.01 cu. inch.

The peck equals the standard less 0.003 cu. inch.

The half peck equals the standard less 0.009 cu. inch.

The quart equals the standard less 0.009 cu. inch.

SPECIAL ANNOUNCEMENT.

During the coming summer the new building for the use of this college will be erected and equipped, and will afford facilities for extending the practical work of the college, due announcement of which will be made.

THE ARTISANS' TRAINING SCHOOL.

This school has been established as a department of the College of Mechanic Arts to meet the wants of mechanics and others, and takes the place of the courses in shop work and drawing heretofore given.

The students of this school are separated into four divisions, viz:

A. Those who wish to devote themselves wholly to shop work and industrial drawing as a preparation for entering upon active life.

B. Those desiring to receive instruction in mathematics, as well as in shop work and drawing.

C. Those whom circumstances prevent from taking either of these courses, and who wish day instruction in drawing.

D. The evening drawing class for working artisans.

A. DIVISION.

<i>I. Term.</i>	<i>II. Term.</i>	<i>III. Term.</i>
Vise work. Drawing.	Forge work. Drawing.	Wood work. Drawing.

B. DIVISION.

<i>I. Term.</i>	<i>II. Term.</i>	<i>III. Term.</i>
Vise work. Drawing. Algebra.	Forge work. Drawing. Trigonometry.	Wood work. Drawing. Solid geometry or surveying.

C. DIVISION.

Industrial drawing, beginning at any time, but to be pursued consecutively.

D. DIVISION.

Twenty-five evening lessons in mechanical drawing, beginning October 12, at 7:30 P. M.

ADMISSION.

Applicants for admission to any of the divisions must be at least fifteen years of age, and must pass examinations as follows: A Division—In reading, writing, and arithmetic; B Division—In reading, writing, arithmetic, elementary algebra, and plane geometry. Members of this division who pass examinations in geography and United States history may be allowed to select studies from the collegiate department under direction of the faculty; C and D Divisions—No examinations required.

METHODS OF INSTRUCTION.

In the courses of the Artisans' Training School the instruction in shop work is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the stu-

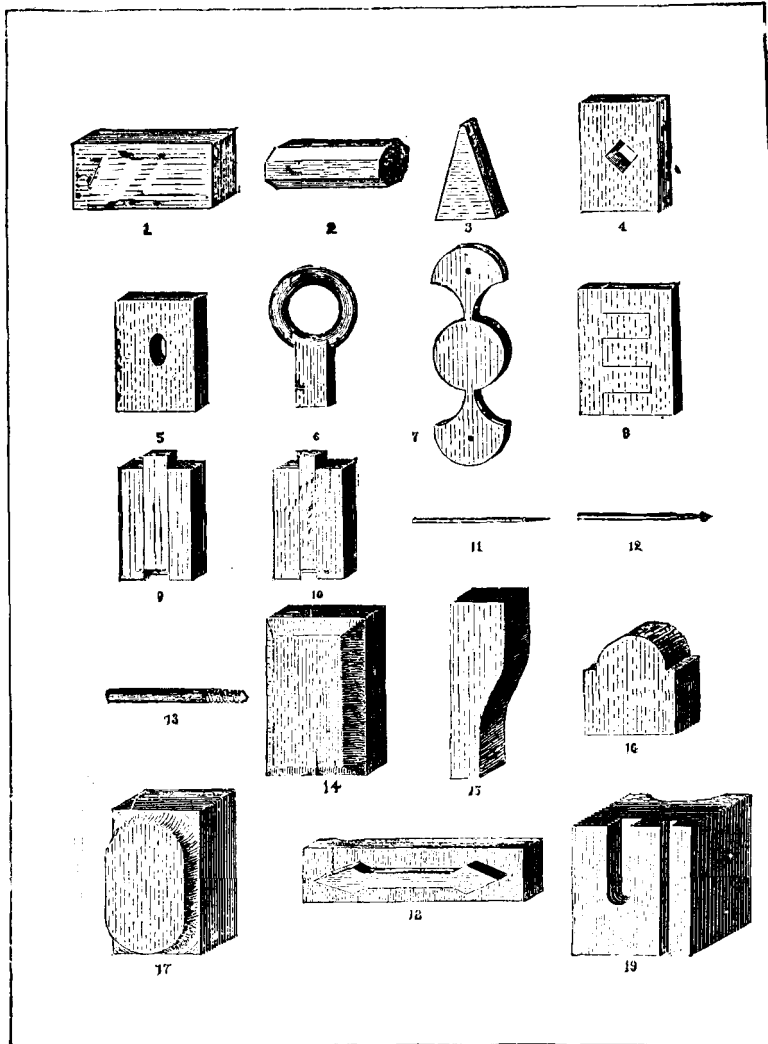


PLATE 2.—Course in Vise work

dent in the use of tools, leaving out the idea of construction except in so far as it may not interfere with instruction. The function of this school being to teach the use of tools in general, rather than any particular trade, 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 necessarily occurs when construction is an object rather than an incidental. 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. Thus, if we examine into the work usually done at the vise, we see that the greater part of the work done there is made up of various combinations of the following operations:—Filing to straight or curved lines, either between two lines or to one line alone, filing to template, fitting, free hand filing, with and without the hand vise, sawing and chipping plane and curved surfaces. Starting, then, with these operations to be taught, a course is designed which shall take them up one at a time and apply them to wrought iron, cast iron, and steel. The course as thus planned is shown in Plate 2. Plate 3 represents the course in forge work which covers the following operations:—Bending, upsetting, drawing out, welding, punching, splitting, forming, and tempering. These are applied to various grades of iron and steel. In the course in wood work, shown in Plate 4, the work covers the following:—Striking, driving nails, marking, sawing, planing, an application of the preceding to making a carpenter's horse; chiselling, rabbetting, sand papering, application of all preceding lessons in a set of shelves, which also includes an exercise in blind nailing; timber joints, straight and oblique mortise and tenon, application of all the preceding in making an oak drawing desk, including three methods of dove-tailing. The drawing in this school is conducted on the same plan as in the engineering courses, the students first using the text-book prepared for the department, and afterwards varying their work to meet their individual requirements.

In mathematics the instruction covers algebra, solid geometry and trigonometry, taught with special reference to the needs of this class of students, and giving many applications to practical matters,

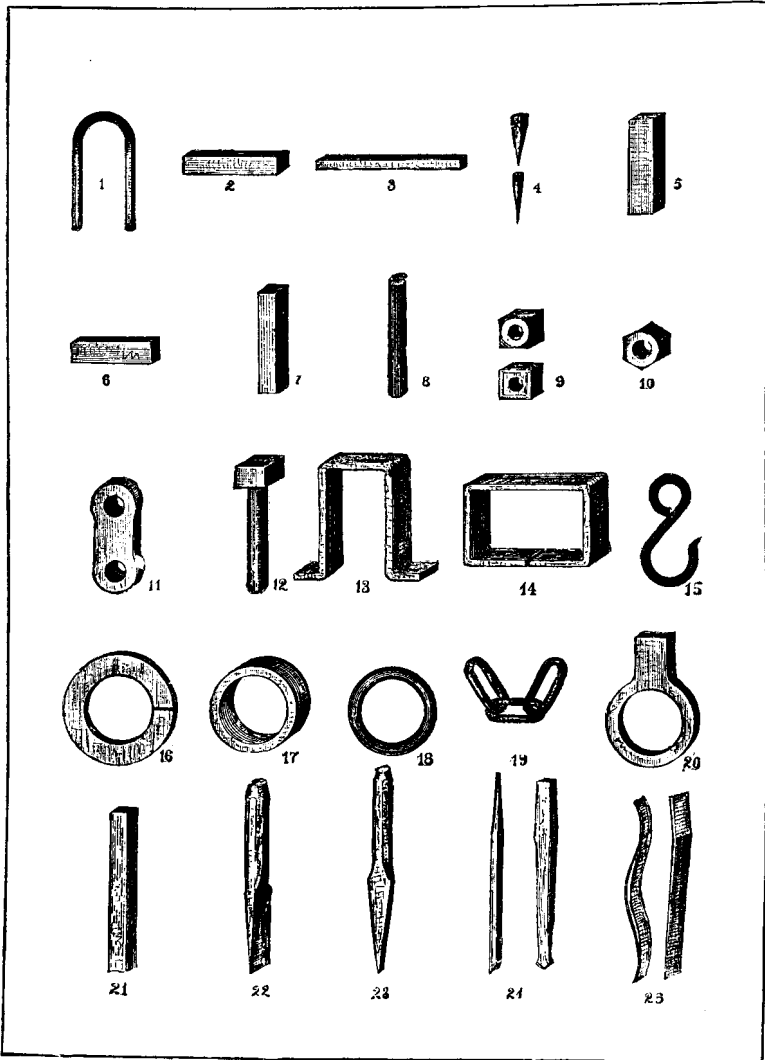


PLATE 3.—Course in Forge work.

REGULATIONS.

All members of this school are required to deposit \$5.00 with the treasurer of the University or his agent, which will be returned to members of divisions A, B, and C when connection with the school ceases, less such charges as may be made for damage to tools or other property, and to members of division D when their connection ceases, if they have been regular in attendance, less such charges for damages as may be made. Divisions A, B, and C will come under general regulations as to attendance, etc.

Students of the B Division should, if possible, enter at the beginning of the year; of the A Division at the beginning of the term; of the C Division preferably at the beginning of terms, and of D Division as stated on page 70.

Tuition is free in all the courses. The annual fee of \$5.00 is required of all the students of this college except members of the Artisans' Training School. Of these a deposit of \$5.00 will be required on admission, to insure regular attendance, return of tools, etc. This deposit will be returned at the end of the course if the requirements are fulfilled.

For further information as to this college apply in person or by letter to the secretary of the faculty, PROF. WM. A. PIKE.

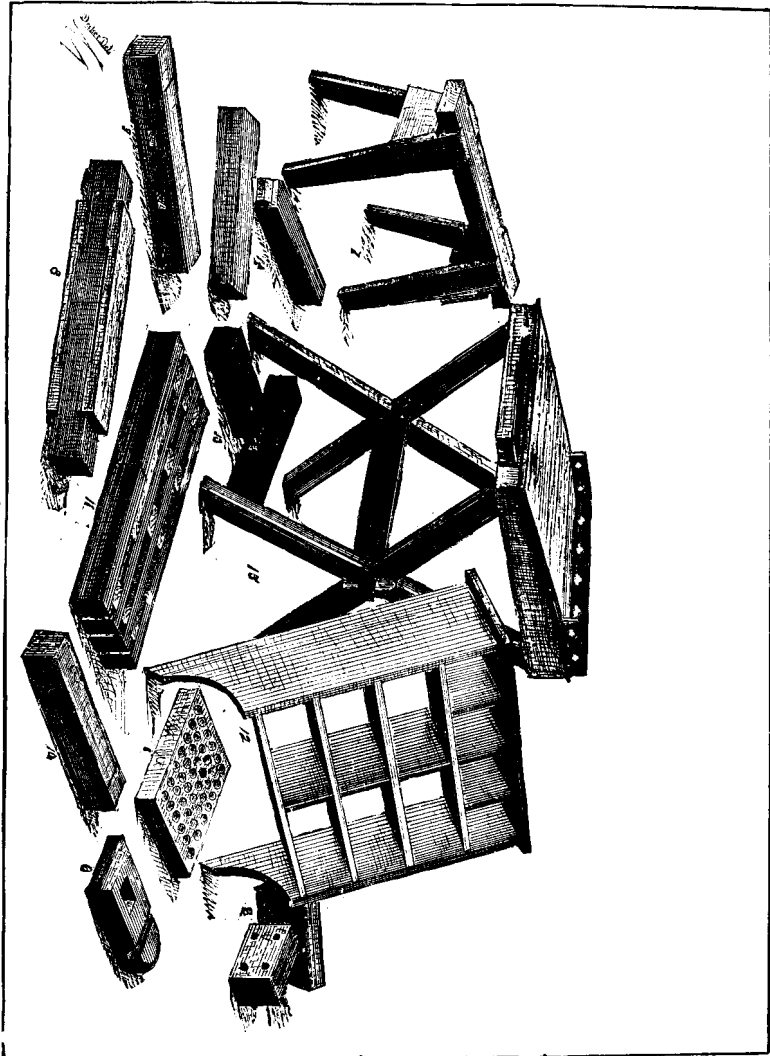


PLATE 4.—Course in Wood work.

GRADUATE DEPARTMENT.

This department is designed to meet the wants of graduates of colleges who desire to pursue special lines of study further than is possible in undergraduate courses. It is not intended to be a mere extension of the college course in the interest of general culture, but rather a school for the education of *specialists* in the various branches of knowledge offered. The work required will be much less general than the subjects as stated below would indicate, the object being to secure high attainments in something, rather than a superficial knowledge of everything. The department is open to all graduates of colleges, whether desiring to become candidates for the master's degree or not.

The regulations governing this department are contained in the following resolutions, adopted by the general faculty in April, 1885:

I. Masters' degrees in science, literature, and the arts will be conferred on bachelors of this or any other reputable college or university, who, not sooner than two years after graduation, pass an examination on certain prescribed lines of classical, scientific, or literary studies, and present a satisfactory thesis.

II. Candidates are required to present their applications on the proper blank, stating the particular degree desired, the several subjects selected by them in which to be examined, and the titles of their theses. Graduates of other college 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. The following lines of study are offered to candidates:

1. Mathematics, including Astronomy.
2. Natural Science, including Botany, Zoology, and Anthropology.

3. Physical Science, including Chemistry, Physics, Mineralogy, and Geology.
4. Philosophy, including Logic.
5. Political Science, including International Law, History of Civilization, and Comparative Philology.
6. Greek Language and Literature.
7. Latin Language and Literature.
8. German Language and Literature.
9. Romance Languages and Literatures.
10. English Language and Literature, including Rhetoric.
11. Scandinavian Languages and Literatures.
12. History.

IV. The amount of work done by the candidates shall be equivalent to that done by the Senior class, viz: three terms work on three distinct subjects each term, with a thesis in addition.

V. The following is the schedule of work requisite for the master's degrees:

FOR MASTER OF ARTS.

1. Greek and Latin.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a classical subject.

FOR MASTER OF SCIENCE.

1. Two distinct lines of science.
2. Any two other distinct lines of study selected from the list in III. above.
2. A thesis on a scientific study.

FOR MASTER OF LITERATURE.

1. German and Romance Languages.
2. Any two other distinct lines of study selected from the list in III. above.
3. A thesis on a literary subject.

VI. The time allowed for each line of study shall be from one to three terms.

VII. The proficiency of candidates shall be determined by examinations only.

VIII. A residence at the University is not required of candidates for the masters' degrees, but instruction will be given to such candidates as are resident and desire it, by the professors in charge of the studies pursued.

IX. All examinations shall be held at the University.

X. All the regulations governing candidates for the masters' degrees shall apply to the candidates for the second degree in the college of mechanic arts. The following is the schedule of work requisite for the degree:

FOR CIVIL ENGINEERING.

1. Some subject in civil engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in civil engineering.
4. A thesis on a subject in civil engineering.

FOR MECHANICAL ENGINEERING.

1. Some subject in mechanical engineering.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in mechanical engineering.
4. A thesis on a subject in mechanical engineering.

FOR ARCHITECT.

1. Some subject in architecture.
2. Any two distinct lines of study selected from the list in III. above.
3. A design in architecture.
4. A thesis on a subject in architecture.

XI. Bachelors of this or any other reputable college or University, not desiring to take a degree, are allowed, subject to all the regulations governing the candidates for degrees, to pursue and to be examined in the studies of the post-graduate courses, and a certificate of attainments will be given them if they desire it.



THE COLLEGE OF AGRICULTURE.

THE FACULTY.

The PRESIDENT, PROFESSORS DODGE, HALL, PORTER (*Secretary*).

FACILITIES.

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

(1.) The general library of the University, containing nearly 20,000 volumes, and receiving frequent additions. More than one hundred volumes are especially devoted, in a practical manner, to the subjects of agriculture, horticulture, tree culture, and stock raising. Besides these there are several hundred volumes on botany, zoology, anatomy, physiology, and other sciences related to agriculture.

(2.) The general museum of the University, containing a large collection of minerals, casts of extinct animals, stuffed mammals and birds.

(3.) The museum of technology, containing materials and products used in illustrating manufacturing processes.

(4.) 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; a large collection of woods from the United States Department of Agriculture; a collection of plates and lithographs; miscellaneous objects and materials used in agriculture. Donations always welcome.

(5.) Chemical and physical laboratories, supplying opportunities for the student to practice with his own hands.

(6.) Drawing rooms.

(7.) Engineers' and surveyors' instruments, and a testing machine.

(8.) The plant house, 24 x 46 feet, with a recent addition of half these dimensions supplying plants and flowers for the study of botany, and apparatus for instruction in propagation and the care of plants.

(9.) The experimental farm, used for testing the different varieties of vegetables, grains, and fruit, is made to illustrate as much as possible the principles taught in the class room.

The farm heretofore occupied for this purpose having been cut into four unequal and ill-shapen pieces by University avenue and the C. M. & St. P. R. R., and being needed to meet the wants of a rapidly growing city, has been abandoned and sold, and the proceeds invested in a new farm, located on Como avenue, between Minneapolis and St. Paul, and containing three hundred and forty-two acres of most valuable land, admirably diversified in soil, exposure prairie, and woodland.

The regents are erecting a complete set of buildings, and it is designed to furnish this farm with such an equipment of stock, implements, and machinery as will fitly represent the agricultural resources of Minnesota, and render this department of the University one of the finest experimental stations of the country.

SCOPE OF INSTRUCTION.

IN AGRICULTURAL CHEMISTRY.—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; a study of the

atmosphere and the soil as related to vegetation, and as sources of food to plants; a course in the analysis of soils, fertilizers, grain, and fodders.

IN ECONOMIC ENTOMOLOGY.—General characters 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.

IN HORTICULTURE.—Relations of heat, light, moisture, and food to plant growth, and the means of controlling their supply and intensity; plant houses, hot beds, etc.; soils and manures, and their manipulation; propagation of plants; grafting, budding, pruning, training, etc.; planting and transplanting; hybridizing, crossing, and selecting; cultivation of the apple, pear, plum, and other large fruits; cultivation of the currant, strawberry, raspberry, cranberry, and other small fruits; kitchen gardening, market gardening, landscape gardening, and floriculture.

IN ARBORICULTURE.—Reasons for planting forest trees; what trees to plant; method of propagating; care in the nursery; special culture of each species.

IN PRACTICAL AGRICULTURE.—History of agriculture; brief review of chemical composition and physical properties of air and water as related to the soil and vegetation; the chemical constituents and practical classifications of soils; properties, peculiarities, treatment, and adaptations of each kind; reclamation and improvement of soils, including drainage, subsoiling, trenching, altering, following, paring and burning, preparatory tillage, road making, and fencing; manufacture, preservation and application of manures and stimulants; green manuring and irrigation; farm implements and machinery; production, management and sale of the different crops; the different breeds of farm animals, their characteristics and adaptations; breeding, rearing, feeding, and management for different purposes to which is suited; selection and purchase of farms; the situation, relative position, size, and internal management of farm buildings, and their adaptation to purposes for which they are intended.

IN COMPARATIVE ANATOMY AND PHYSIOLOGY.—Anatomy, physiology, and hygiene of the domestic animals.

IN VETERINARY MEDICINE AND SURGERY.—Prevention and treatment of diseases and injuries of the domestic animals.

ECONOMICS.—Farm accounts, grain raising, stock raising, dairying, general farming, fruit culture, market gardening, and other specialties; relations and sequence of farm operations; legislation relating to agriculture; relations of agriculture to commerce, manufactures, labor, government, taxation, etc.

THE REGULAR UNDERGRADUATE COURSE.

JUNIOR YEAR.	
1st TERM—	1. Composition and physiology of plants—"how crops grow." 2. Horticulture. 3. Mechanical physics, <i>or other elective.</i>
2d TERM—	1. Agricultural chemistry. 2. Mineralogy and chemistry. 3. Mineralogy, <i>or other elective.</i>
3d TERM—	1. Atmosphere and soils—"how crops feed." 2. Horticulture. 3. Psychology, <i>or other elective.</i>
SENIOR YEAR.	
1st TERM—	1. Practical agriculture—"soils and fertilizers." 2. Comparative anatomy and physiology. 3. Geology, <i>or other elective.</i>
2d TERM—	1. Practical agriculture—"farm crops." 2. Veterinary medicine and surgery. 3. Civil government, <i>or other elective.</i>
3d TERM—	1. Practical agriculture—"farm animals." 2. Economics—"accounts, markets, etc." 3. Political economy, <i>or other elective.</i>

The third study named in the above table is the one recommended to be generally taken, but students are free to pursue any one of the other authorized electives.

The rhetorical exercises in the college of agriculture are the same as in corresponding years and terms of the scientific courses.

Students completing the above course to the satisfaction of the faculty, are entitled to receive the degree of Bachelor of Agriculture.

This course properly follows the scientific course of the collegiate department, but it may also follow either of the other courses of that department or the elementary course in agriculture. Applicants who have completed any of these courses are therefore entitled to admission to this college. Other applicants, if candidates for graduation, must be examined in the same or equivalent studies.

THE ELEMENTARY COURSE.

This course agrees in the main with the scientific course of the collegiate department, but differs from it in the substitution of some natural sciences and practical instruction for languages and mathematics in the latter part. The requisites for admission are the same as for admission to the collegiate department.

SPECIAL COURSES.

While the above courses of study are provided for those who desire a systematic education in scientific agriculture, the board of regents provide in their by-laws for the ADMISSION OF ANY PERSONS TO ANY CLASS in this College, upon the sole condition that they appear to be competent to receive the instruction.

Under the authority of this by-law the following courses have been arranged. They are not designed in any way to limit the advantages offered by the by-law. Any person who can read and write the English language can enter either course without examination.

Beginning First Term, September, 1885.

	FIRST TERM.	SECOND TERMS.	THIRD TERM.
I.	1. Agricultural chemistry— <i>how crops are raised.</i> 2. Agriculture— <i>soils and manures.</i> 3. Horticulture— <i>fruits.</i>	1. Agricultural chemistry— <i>how crops grow.</i> 2. Agriculture— <i>farm animals.</i> 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture— <i>farm crops.</i> 3. Horticulture— <i>vegetables.</i>

Beginning Second Term, December, 1885.

	SECOND TERM.	THIRD TERM.
II.	1. Agricultural chemistry— <i>how crops grow.</i> 2. Agriculture— <i>farm animals.</i> 3. Arboriculture.	1. Farm drainage and farm accounts. 2. Agriculture— <i>farm crops.</i> 3. Horticulture— <i>vegetables.</i>

Beginning Third Term, March, 1886.

III.	1. Farm drainage and farm accounts.	2. Agriculture— <i>farm crops.</i>	3. Horticulture— <i>vegetables.</i>
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THE FARMERS' LECTURE COURSE.

This course is specially designed to meet the wants of farmers and others who desire scientific and practical information relating to their calling, and whose business prevents them from spending the entire year away from home.

The instruction given is both scientific and practical. The former includes agricultural chemistry, botany, physiology, entomology, geology and mechanics, and is given by those professors who have these departments in charge in the University. The latter includes the improvement of soils by drainage, subsoiling, trenching, plowing, rotations, manures, etc., grain raising, dairying, fruit culture, forest culture, farm accounts and rural architecture, and is given by the professor of agriculture and by men who have become successful and noted in these special departments.

No fees, examinations, or other conditions are imposed for admission to this course, but its advantages are **ABSOLUTELY FREE TO ALL.**

THE COLLEGE OF MEDICINE.

THE FACULTY.

The PRESIDENT, PROFESSORS HEWITT, SMITH, STAPLES, WOOD, HAND, SIMPSON, LEONARD, DODGE, and MILLAID (*Secretary*).

It is the duty of the faculty of this college to test and ascertain by examinations, experiments, and other appropriate means the qualifications, proficiency, and skill of all candidates for degrees in medicine and surgery, and to recommend them to the Board of Regents for graduation accordingly.

No instruction is offered in this college. The faculty is an examining body solely.

In the college of medicine there are two terms in each year; the September term beginning with the opening of the university year, the April term beginning on the third Monday in April.

The entrance and scientific examinations take place in the September term; the professional examinations in the April term.

Enrollment regularly take place at the September term upon completion of the entrance examinations, but candidates entitled to be excused from this and the scientific examinations may be enrolled at the opening of the April term.

No person not enrolled is admitted to the professional examinations. All enrolled students are expected to report in person or in writing at the beginning of every April term until graduation. Candidates not so reporting may be dropped from the rolls.

EXAMINATIONS.

These are:

I. THE ENTRANCE EXAMINATION.

The entrance examination takes place at the September term in connection with the general examinations conducted under direction of the general faculty for admission to the University.

The entrance examination embraces the following subjects :

- (1.) The English Language, including Grammar, Analysis and Composition.
- (2.) Arithmetic, Elementary Algebra, and Plane Geometry.
- (3.) Geography, United States History, and the outlines of General History.
- (4.) Latin Grammar and Caesar's Commentaries (or any one Latin author), or an equivalent knowledge of German, French, or one of the Scandinavian languages.

The examination certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects, and the holder is accordingly excused from further examination therein.

After passing the entrance examination the candidate is entitled to apply for enrollment in the college of medicine.

II. THE SCIENTIFIC EXAMINATION.

The scientific examination follows immediately after enrollment in the September term, and embraces the following subjects :

- (1.) Physical Geography.
- (2.) Natural Philosophy.
- (3.) Elementary Botany.
- (4.) Chemistry.
- (5.) Drawing, free-hand or mechanical.

This examination is conducted by a committee of the general faculty, one of whom must be a professor of this college.

The certificates of the STATE HIGH SCHOOL BOARD are accepted for any of the above subjects except chemistry, in which greater proficiency is required.

Applicants who bring a final certificate for the scientific course of the collegiate department (end of Sophomore year) are excused from the scientific examination as well as the entrance examination.

Applicants who bring a final certificate for the classical or modern courses of the collegiate department are excused from the entrance examination and the scientific examination except in chemistry.

Baccalaureates of the colleges of science, literature, and the arts, of mechanic arts and of agriculture in this University, and graduates of any reputable college or university are excused from the entrance and scientific examinations, and receive credit of one year on professional study.

The entrance and scientific examinations are conducted in writing, according to the rules and methods in use in the collegiate department of the University.

III. THE PROFESSIONAL EXAMINATION.

FIRST,—*Examinations for Bachelor of Medicine.*

These take place only in the April term of each year. They are divided among the following nine departments:

- (1.) Anatomy and Physiology.
- (2.) Pathology.
- (3.) *Materia Medica* and Therapeutics.
- (4.) Medical Chemistry.
- (5.) Preventive medicine, personal and public hygiene.
- (6.) Practice of medicine.
- (7.) Surgery.
- (8.) Obstetrics and diseases of women and children.
- (9.) Diseases of the nervous system and medical jurisprudence.

The examinations have for their object to test:

1st. The candidates familiarity with the literature of the subject.
2d. His clinical and laboratory experience. For this purpose, properly authenticated specimens of his work in any department will be examined, and he may submit certificates and other evidence thereof.

3d. His skill in the actual use of physical, chemical, and other tests in diagnosis and the use of remedies and instruments.

It is understood in all cases that the candidate is prepared for examination on the text-book advised for each department; for which, see list of text and reference books in this announcement.

The following statements summarize the requirements in each of the nine general departments into which the whole science and art of medicine is divided:

I. ANATOMY AND PHYSIOLOGY.

1. *Anatomy.* Evidence of having dissected or performed autopsies.

Properly authenticated preparations, wet, dry, or microscopic, may be submitted.

Demonstration of such anatomical material as may be submitted for the purpose.

Histology and regional anatomy.

2. *Physiology*. Demonstration of normal tissues and products, and the relation of the living body to its environments.

II. *PATHOLOGY AND PATHOLOGICAL ANATOMY.*

The demonstration of specimens submitted for examination, and the examination of cases for the diagnosis of morbid conditions.

The use of chemical agents and the microscope to this end.

III. *MATERIA MEDICA AND THERAPEUTICS.*

1. *Materia Medica*. The demonstration of drugs and their preparations from examples submitted.

Practical pharmacy in the preparation and dispensing of medicines.

Prescription making, writing, and filling.

I. *Therapeutics*. Indications for the use of drugs or other remedies; their physiological action.

IV. *MEDICAL CHEMISTRY.*

Demonstration by the use of chemical agents of normal and diseased products.

The chemistry of drugs, foods and poisons.

V. *PREVENTIVE MEDICINE.*

The physical and chemical relations of rocks and soils to water supply, drainage, and the disposal of refuse matters.

1. *Meteorology*; the relations of atmospheric conditions to health, and the use of apparatus.

2. *Sanitary Mechanics*; water and air supply and their mechanical purification; ventilation, lighting and heating of inhabited buildings.

Chemistry and microscopy, as aids to the determining the character and purity of air, water and food supply.

Preventible diseases, infectious diseases, etiology, disinfectants.

Hygiene, or the art of prolonging life in health; dangerous or offensive matter.

Public health legislation as respects duties of citizens and physicians.

Vital statistics.

VI. PRACTICE OF MEDICINE.

The diagnosis, prognosis and prescription for cases of disease submitted.

The use of methods and instruments for diagnosis; the clinical examination and record of cases.

Properly authenticated work of this kind by the candidate may be submitted.

VII. SURGERY, INCLUDING SURGICAL PATHOLOGY.

Diagnosis, prognosis and prescription for cases submitted.

The use of instruments and apparatus.

Methods of arriving at knowledge of pathological condition, as also for alleviation or cure.

VIII. OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

The physiology of pregnancy and child birth as natural processes.

Diagnosis and treatment of abnormal conditions in mother or child. Labor, natural and abnormal; diagnosis and treatment. Postpartum conditions and dangers; surgery of women and diseases incidental to the sex.

The use of instruments and apparatus.

IX. DISEASES OF THE NERVOUS SYSTEM, AND MEDICAL JURISPRUDENCE.

1. *Diseases of the Nervous System.* Examination and report upon cases. Use of instruments and apparatus.

2. *Medical Jurisprudence.* Examinations of and reports on cases.

The law respecting insanity, the construction and management of hospitals for the care of the insane; with means to that end.

In addition to the examination above, an opportunity will be given for special examinations in diagnosis and treatment of diseases of the eye, ear, skin, nervous system, and in forensic medicine, as departments of general practice.

A special examination is provided for such graduates in medicine as wish to prepare themselves for the functions of health officers in the state. It will include the use of a text book and collateral reading, and will demand on the part of the candidate a familiarity with the subjects of the examination for preventive medicine, as above noted, and greater actual experience in the control of preventable disease, the processes of water, air, and food analysis, and the principles and construction of systems of water supply, sewage disposal, and the administration of sanitary law.

TEXT BOOKS.

The books named are, as a rule, those already selected by the best American colleges of medicine. They are given as an aid to students. The faculty advise the use of *one* book as a text book and if it can be interleaved it should contain notes or reference to other books, pamphlets articles which have been read on the same subject. The examinations in text-books will be in those noted as such in the following list. Additional information will add to the student's standing:

Text Book.

Collateral Reading.

ANATOMY.

Gray.

Quain. Holden's Manual. Holden's Landmarks. Frey's Histology. Wilson.

PHYSIOLOGY.

Dalton.

Yeo. Carpenter. Flint. Foster.

PATHOLOGY.

Greene's Pathology and Morbid Anatomy.

Wagner's General Pathology. Cornil and Ranvier's Pathological Histology. Virchow's Post Mortems. Rindfleisch's Elements of Pathology. Orth's Diagnosis in Pathological Anatomy. Billroth's Surgical Anatomy.

MATERIA MEDICA.

Biddle's Materia Medica.

Maisch: Manual of Organic Materia Medica. U. S. Dispensatory.

Text Book.

Ringer's Therapeutics.

THERAPEUTICS.

Collateral Reading.

H. C. Wood's Materia Medica and Therapeutics. Stille's Therapeutics and Materia Medica. Bartholows Therapeutics.

MEDICAL CHEMISTRY.

Reese's Manual of Toxicology.

Taylor on Poisons. Green's Manual. Flint or Tyson on Urine.

PREVENTIVE MEDICINE.

Wilson's Hand Book.

Richardson's Preventive Medicine. Water Analysis Wanklyn's. Food Adulteration Hassall's. Arnold, Nouveax Elements d'Hygiene. Boucharlat, Traite d'Hygiene. Parke's Manual. Fox: Sanitary Examinations of Water, Air and Food.

PRACTICE OF MEDICINE.

Flint's Practice.

Bartholow's Practice. Roberts' Hand Book. Flint's Clinical Medicine. Niemeyer's Text Book. Aitken's Practice. Reynold's System (by Hartsborn.) DaCosta's Medical Diagnosis.

SURGERY.

Agnew.

Van Buren and Keyes. Holmes. Smith. Bryant. Gouley. Billroth. Erichsen. Gross.

OBSTETRICS.

Lusk's Manual.

Cazeau's Midwifery. Barnes' Fairplay. Obstetric Operations.

DISEASES OF WOMEN AND CHILDREN.

Thomas : Diseases of Women.

Emmet.

Smith : Diseases of Children.

Meigs and Pepper's Diseases of Children. Day's Diseases of Children.

DISEASES OF THE NERVOUS SYSTEM.

Hamilton A. Mc.

Mitchell's Manual. Buckerill and Lake's Hammond.

MEDICAL JURISPRUDENCE.

Taylor's Manual by Reese (last edition).

Taylor's Principles and Practice Medical Jurisprudence. Wormley's Micro-Chemistry of Poisons.

The examinations for the degree of bachelor of medicine are conducted in writing, but may be supplemented, at the discretion of the examiner in any case, by oral interrogations.

As prerequisite to admission to the professional examinations of the first year, each candidate must furnish—

(1.) A certificate of attendance upon one full course of lectures in some recognized college of medicine or in a school of medical instruction.

(2.) A certificate of dissection of the muscular, nervous, and circulatory systems, with the contents of the cavities of the head, throat, and abdomen.

STANDING PROGRAM FOR WRITTEN EXAMINATIONS.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.
<i>Monday.</i>	<i>Wednesday.</i>	<i>Friday.</i>
9:30 A. M. Anatomy.	Pathology.	Surgery.
1:30 P. M. Physiology.	Obstetrics.	Surgery Clinical.
<i>Tuesday.</i>	<i>Thursday.</i>	<i>Saturday.</i>
9:30 A. M. Medical Chemistry.	Dis. of Women and Child.	Practice.
1:30 P. M. Materia Medica, and Therapeutics.	Dis. Nervous System, and Medical Jurisprudence.	Practice Clinical.
9:30 A. M.		<i>Monday.</i>
		Preventive Medicine.

Written examinations are in such form as to admit of convenient preservation. The detailed regulations for conducting these examinations are made known at the opening.

Examinees conform to requirements intended to protect them against suspicion or suggestion of having submitted answers not their own production on the spot.

Any person detected in any dishonesty in his examination is at once stricken from the roll of candidates.

The final examinations for the degree of M. B. begin on Monday, in the first week of the April term, at 9:30 A. M.

These examinations are, in part, oral, and a stenographic report of them is made. They include practical and clinical tests, and use of instruments and apparatus, intended to assure the examiners of the candidate's qualifications for the practice of his profession.

SECOND,—*Examinations for the degree of Doctor of Medicine.*

This examination consists in each case essentially of a thesis and

its defense, but the faculty will demand in all cases clinical and practical tests and operations, which shall enable the examiners to decide not merely upon the scholastic proficiency of the candidates, but upon their actual professional skill.

All theses must be on subjects approved by the faculty, must be founded on original work and certified as the unaided productions of the candidates. Twenty-five printed copies of each thesis must be furnished to the faculty before reading and defense.

All theses to be defended in the April term must be submitted to the dean of the faculty on or before the second Monday in March. It is advised that the type-writing machine be used for making the copy. The printed copies required to be made after approval of the theses, shall be on the same size paper as this pamphlet, and the paper shall be white and of the quality as good as that used by the State of Minnesota. The size of the page shall be 22x38 ems, pica.

The faculty will make a calendar of theses, and publish the same on the fourth Monday in April term (second Monday of term).

GRADUATION.

Graduation takes place at the annual commencement of the University, near the first of June.

All candidates who pass the entrance, scientific, and professional examinations, including the appropriate clinical and experimental tests incidental thereto, and give satisfactory evidence of having attended three full courses of instruction, of not less than twenty weeks each, at a college of medicine or school of medical instruction recognized by the regents upon the recommendation of this faculty, and who are twenty-one years of age or upwards, and of good moral character, are recommended by the faculty of the college to the board of regents to receive the degree of Bachelor of Medicine (M. B.), which degree duly conferred is the warrant of the University of Minnesota for the practice of medicine and surgery.

All candidates for the first degree must furnish satisfactory evidence that they have severally pursued the study of medicine for four years in the office of and under the personal direction of a physician in active practice, who is a graduate of some college or school of medicine recognized by the board of regents upon the recommendation of the faculty of this college.

Provided, however, that

- (1) One course of lectures, with other work incidental thereto, in

a college of medicine recognized as above, shall be reckoned as equivalent to eight months of such study.

(2) One term of six months in a school of medical instruction, organized and conducted in conformity with the by-laws, shall be equivalent to one year of such study under a preceptor.

(3) Three courses of lectures, with work incidental thereto, in a college of medicine recognized as above, shall be equivalent to three years study under a preceptor. One year at least, must, in all cases, have been passed in a preceptor's office;

(4) Graduates of colleges and universities receive a credit of one year on professional study, in consideration of superior literary and scientific attainments.

Any Bachelor of Medicine of this University who furnishes satisfactory evidence that he has been actively engaged in professional practice for three years after his graduation, and who presents and defends a thesis in the manner prescribed, is recommended to receive the degree of Doctor of Medicine (M. D.)

Whenever the examinations for the bachelor's degree in any case evince great proficiency in the literature, theory, and practice of medicine the faculty of the college permit the candidate to present and defend a thesis; this being done to their satisfaction they recommend the candidate to receive at once the full degree of Doctor of Medicine (M. D.)

Doctors of medicine of other colleges of medicine recognized by the board of regents upon the recommendation of the faculty of this college, are recommended to receive the degree of Doctor of Medicine of this University upon successfully defending a thesis in the manner prescribed.

Any graduate so desiring may receive a statement showing the credit marks obtained by him in his several examinations.

During the year ending with the annual examinations in April, seventeen persons applied for examination. Of this number fifteen were for the degree of M. B., and two for branches of first year's examinations. Two of the fifteen evinced sufficient knowledge in literature and medicine to entitle them to the degree of M. B. They were Karl Henry E. Castle, of St. Paul, and Willard Byther Pineo, of Minneapolis.

All communications pertaining to this department should be addressed to the secretary, P. H. MILLARD, Stillwater, Minn.

GRADUATES.

MASTERS OF ARTS, 2.

Rev. Graham Cox Campbell, B. A. 1879,	Gaboon Mission, Africa,	1880
Willis Mason West, B. A. 1879,	Duluth,	1881

MASTER OF SCIENCE, 1.

Robert Henry Crafts, B. S. 1877,	Minneapolis,	1882
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BACHELORS OF ARTS, 73.

Warren Clark Eustis,	Hennepin County,	1873
Henry Martyn Williamson,	Nicollet "	"
George Edwin Ricker,	Hennepin "	1874
Andrew Russell Cass,	Canada,	1875
Julius Elliot Miner,	Goodhue County,	"
*Simon Peter Starritt,	Wright "	"
John Sinclair Clarke,	Nova Scotia,	1876
John Corrin Hutchinson,	Dakota County,	"
William Edward Leonard,	Hennepin "	"
Graham Cox Campbell,	Nova Scotia,	1877
Joel Nathaniel Childs,	Wisconsin,	"
Ebenezer Currie,	Fillmore County,	"
Frank Eustis,	Hennepin "	"
Fred Eustis,	" "	"
Stephen Mahoney,	Scott "	"
John Waldo Perkins,	Wright "	"
Charles Wilber Savidge,	LeSueur "	"
Albert McClure Welles,	Ramsey, "	"
Julian Clarence Bryant,	Nicollet "	1878
John Hamilton Lewis,	Wright "	"
Thomas Rogers Newton,	Hennepin "	"
Evan Roland Pritchard,	Blue Earth "	"
Daniel Williams,	Iowa,	"

John Franklin Collom,	Hennepin County,	1879
Etta Medora Elliot,	" "	"
John Finley Goodnow,	" "	"
Frank Smith McKean,	Washington "	"
Robert William Rhames,	Olmsted "	"
Chelsea Joseph Rockwood,	Blue Earth "	"
George Burt Thompson,	Hennepin "	"
Willis Mason West,	Stearns "	"
Cora Inez Brown,	Hennepin "	1880
James Francis Bryant,	Nicollet "	"
Albert William Rankin,	" "	"
Wm. Wadsworth Williams,	Iowa,	"
George Briggs Aiton,	Nicollet County,	1881
Samuel Gilmore Anderson,	Hennepin "	"
Otway Wilkinson Baldwin,	Wright "	"
*William Cullen Bryant,	Nicollet "	"
Herbert Oscar Chowen,	Hennepin "	"
Emily Louise Hough,	Pennsylvania,	"
Charles Edward Kent,	Ohio,	"
William Leslie King,	Blue Earth County,	"
Quinton John Rowley,	Freeborn "	"
Fred Beal Snyder,	Hennepin "	"
James Bennet Gould, ³	Hennepin County,	1882
Frank Healy,	Fillmore "	"
Andrew Franklin Hillyer,	Hennepin "	"
Carrie Warner Holt,	Fillmore "	"
*Lydia Rossiter Holt,	" "	"
Frances Ada Knox,	Blue Earth "	"
Frank Nichols Leavens,	Rice "	"
Alexander Hamilton Nunn,	Dodge "	"
Eli Milton Skiff Pickett,	Freeborn "	"
Charles Myron Webster,	Goodhue "	"
Jesse Craig Wilson,	Rice "	"
Edward Payson Baldwin,	Dakota "	1883
William Eastman Fay,	Massachusetts,	"
Edson Starr Gaylord,	Hennepin County,	"
David Percy Jones,	" "	"
Joseph Henry Locke,	Stearns "	"
Helen Louise Pierce,	Olmsted "	"
Martha Alma Sheldon,	Hennepin "	"
Sumner Lincoln Trussell,	" "	"
Elmer Ellsworth Adams,	Vermont,	1884
Patrick Joseph Butler,	Hennepin County,	"
Oscar Firkins,	" "	"
Joseph Henry Capper Hutchinson,	Dakota "	"
Anthony Johnson,	Houston "	"
Eli Larson,	" "	"
Hannah Robie Sewall,	Ramsey "	"
Susan Winifred Sewall,	" "	"
Zenas Newton Vaughn,	Mower "	"

BACHELORS IN SCIENCE, 73.

Edward Chatfield,	Fillmore County,	1874
Samuel Addison Rank,	" "	1875
Clark Stewart,	Hennepin "	"
Martha Appleton Butler,	Maine,	1876
Robert Henry Crafts,	Hennepin County,	"
Lewis Singer Gillette,	Michigan,	"
Eugene Alvin Hendrickson,	Ramsey County,	"
William Herod Locke,	Hennepin "	"
Albert Preston Hendrickson,	Ramsey "	1877
*John Charles Kassube,	Hennepin "	"
Edwin Burnham, Pribble,	" "	"
Fred Leslie Couillard,	" "	1878
Nettie Getchell,	" "	"
Judson Torrey Howell,	Houston "	"
Henry Clay Leonard,	(B. C. E., '75.)	"
Mary Warwick Robinson,	Hennepin County,	"
Harvey J. Smith,	Goodhue "	"
Myron De Vere Taylor,	Stearns "	"
Wm. John Warren,	Rice "	"
Walter Barrett,	Dodge "	1879
Fred Capin Bowman,	Meeker "	"
Catherine Amelia Burnes,	Hennepin "	"
Timothy Edward Byrnes,	Meeker "	"
Evelyn May Champlin,	Hennepin "	"
*Addison Gage, Jr.,	Anoka "	"
Allen Jay Greer,	Wabasha "	"
Laura Alberta Linton,	" "	"
George Henry Partridge,	Winona "	"
Etta Thompson,	Hennepin "	"
*Frederick Gerald Berry,	" "	1880
Horace Burnham Greeley,	Blue Earth "	"
Clarence Luther Herrick,	Hennepin "	"
Robert Peter Andrew Nix,	Brown "	"
Minnie Aurora Reynolds,	Clay "	"
Alva Lucius Roe,	Washington "	"
Gilman Walter Smith,	Goodhue "	"
Harvey Page Smith,	" "	"
Lillian Sanborn Todd,	Hennepin "	"
Fred Leslie Bardwell,	" "	1881
*Herbert John Broughton,	" "	"
Diana Burnes,	" "	"
George Sutherland Grimes,	" "	"
James Jennison,	Goodhue "	"
David Albert Locke,	Hennepin "	"
Samuel Allen Locke,	" "	"

Sarah Ellen Palmer,	Mower County,	1881
William Hines Savidge,	LeSueur "	"
Lilla Ruth Williams,	Blue Earth "	"
George Joseph Backus,	Goodhue "	1882
William Wyckoff Clark,	Blue Earth "	"
Alice Elizabeth Demmon,	Vermont	"
Carrie Delania Fletcher,	Ramsey County,	"
William Beans Linton,	Wabasha "	"
Henry Francis Nachtrieb,	Washington "	"
Rasselas Hamlin Prosser,	Fillmore "	"
Herbert Paine Shumway,	" "	"
Edward Duffield Neill Whitney,	Hennepin "	"
Robert Mowry Bell,	" "	1883
Frederick Henry Clark,	Massachusetts,	"
Louise Elma Hollister,	Lincoln County,	"
Edward Corydon Jones,	Hennepin "	"
George Nelson Salisbury,	Rice "	"
Charles, Frederic Sidener,	Goodhue "	"
Emma Jane Ware,	Fillmore "	"
Nathan Morton Baker, Jr.,	Nicollet "	1884
Jeremiah Ignatius Donohue,	Fillmore "	"
George Lorenzo Hendrickson,	Ramsey "	"
George Horace Klepper,	Freeborn "	"
Bessie Laythe,	Fillmore "	"
James Eugene Manchester,	Steele "	"
Henry Hastings Sibley Rowell,	Hennepin "	"
Charles Christian Schmidt,	Brown "	"
Emma Zwinggi,	Nicollet "	"

BACHELORS IN LITERATURE, 44.

Helen Mar Ely,	Winona County,	1875
Matilda Jane Campbell,	Maine,	1877
Viola Fuller,	Mower County,	"
*Charlotte Adelaide Rollit,	Hennepin "	"
Mary Anna Maes,	Steele "	"
George Albert Wood,	Fillmore "	1878
William Lincoln Bassett,	Hennepin "	1879
Alvin Hildreth,	Freeborn "	"
William Winchester Keysor,	Blue Earth "	"
Marion Hooker Roe,	Washington "	"
Caroline Rollit,	Hennepin "	"
Martha Isabel West,	" "	"
Andrew Holt,	Carver "	1880
Joseph Elisha Horton,	Fillmore "	"
Lizzie Augusta House,	Hennepin "	"
Bessie Summer Lawrence,	" "	"

Graduates.

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Harlow Horace Bonniwell,	McLeod County,	1881
Margaret Agnes Campbell,	Nova Scotia,	"
Lettie May Crafts,	Hennepin County,	"
Emma Elizabeth Grimes,	" "	"
William Edmund Harrington,	McLeod "	"
Emma Ernestine Maes,	Steele "	"
Bradley Phillips, Jr.,	Wisconsin,	"
Agnes Virginia Bonniwell,	McLeod County,	1882
Grace Webster Curtis,	Iowa,	"
Arthur Edwin Dickerman,	" "	"
Maria Louise Henry,	Hennepin County,	"
Mary Eliza Holt,	Fillmore "	"
Mary Nancy Hughes,	Hennepin "	"
Richard Hartwell Johnson,	Winona "	"
Louie Lillian Kilbourn,	Hennepin "	"
Emily Dana McMillan,	" "	"
*Ada Eva Pillsbury,	" "	"
Harry Amy Strong,	Iowa,	"
Samuel Doak Catherwood,	Mower County,	1883
Annie Harriet Jefferson,	Hennepin "	"
Kate Louise Kennedy,	" "	"
Sarah Pierrepont McNair,	" "	"
Anna Calista Marston,	" "	"
Jenet Nunn,	Dodge "	"
Emma Frances Trussell,	Hennepin "	"
Anna Helen Bonfoy,	Hennepin "	1884
Belle Marion Bradford,	Dakota "	"
Adalyna Kingsbury,	Michigan,	"

BACHELORS IN CIVIL ENGINEERING, 13.

Henry Clay Leonard,	Fillmore County,	1875
Samuel Addison Rank,	" "	"
Clark Stewart,	Hennepin "	"
Lewis Singer Gillette,	Michigan,	"
Eugene Alvin Hendrickson,	Ramsey County,	"
Charles Edward Thayer,	Hennepin "	"
William Sanborn Dawley,	Wabasha "	1879
Pierce Power Furber,	Washington "	"
William George Peters,	Hennepin "	1883
Louis Orville Smith,	Le Sueur "	"
William Ricketson Houge,	Olmsted "	1884
George John Loy,	Carver "	"
Irving Webber Matthews,	Rock "	"

BACHELORS IN MECHANICAL ENGINEERING.

Charles Spencer Bushnell,	Hennepin County,	1878
John Henry Barr,	Blue Earth "	1883

BACHELOR IN ARCHITECTURE.

Walter Stone Pardee, Hennepin County, 1877

BACHELOR IN AGRICULTURE.

William Johnson Barrett, Dodge County, 1882

CERTIFICATE IN CIVIL ENGINEERING.

Alexander Martin Holcomb, Hennepin County, 1883

BACHELORS OF MEDICINE.

James Kidd Simpson, Manitoba, 1884
Hugo Speier, Scott County, "

APPENDIX.

An Act for the Encouragement of Higher Education.

Be it enacted by the Legislature of the State of Minnesota :

SECTION 1. The governor, superintendent of public instruction, and the president of the University of Minnesota, *ex-officio*, are hereby constituted a board of commissioners on preparatory schools for the encouragement of higher education in this State. This board shall be called the "High School Board," and shall perform the duties, and have and exercise the powers hereinafter mentioned.

SEC. 2. Any public graded school * * * which school shall give preparatory instruction according to * * * this act, and shall admit students of either sex from any part of the State without charge for tuition, shall be entitled to receive pecuniary aid * * * Provided, etc.

SEC. 3. The said board shall require of the schools * * * compliance with the following conditions, to-wit :

FIRST. That there be regular and orderly courses of study, embracing all the branches pre-requisite for admission to the collegiate department of the University of Minnesota.

SECOND. That the said schools * * * shall at all times permit the said board of commissioners, or any of them, to visit and examine the classes pursuing the said preparatory courses.

SEC. 4. Requires inspection, report, and approval before payment of money.

SEC. 5. Appropriates \$23,000 annually—\$400 to each approved school.

SEC. 6. Requires members to serve without compensation, but pays expenses.

SEC. 7. Grants power to make all necessary and suitable rules and regulations.

SEC. 8. Requires records and an annual report.

SEC. 9. This act shall take effect, &c, Approved March 3, 1881.

The high school board was duly organized under this law, May 20, 1881, by the adoption of a resolution declaring that "the governor of the State shall be president, the superintendent of public instruction shall be the secretary, and the president of the State University shall have charge of all examinations required under this act."

A supplementary act, approved November 18, 1881, further provides that the high school board shall have full discretionary power to consider and act upon applications of schools for state aid, and to prescribe the conditions upon which said aid shall be granted, but not more than three schools shall be aided in each county in any one year.

A system of examinations on the studies of the "University preparatory course," as prescribed by the board, has been organized on the following plan: Two examinations are held during the year, the first beginning on the last Monday in February, and the second on the last Monday in May. Principals make requisition to the examiner for questions. These are sent to the clerk of the school board, from whom the principal obtains them on the morning of the examination. The envelopes containing the questions are kept sealed until the class is ready for work. The answers having been written, read and marked by the superintendent or principal, are transmitted to the examiner of the board, by whom they are finally examined, marked, and recorded. Every pupil passing the examination in any study, receives through his principal a certificate on which is printed the following endorsement: "On applying for admission to the UNIVERSITY OF MINNESOTA, present this certificate, and you will be excused from examination in the study named."

The high school board have further extended the advantages of their examination system to ALL high schools, normal schools, and academies of the State, and the board of regents have authorized the acceptance by the University of all high school board certificates duly awarded to their students.

General correspondence should be addressed to the secretary, Hon. D. L. Kiehle, State Superintendent, St. Paul, Minn.

Correspondence relating to examinations only should be addressed to Cyrus Northrop, President of the University of Minnesota, Minneapolis, Minn.

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