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

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

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THE UNIVERSITY OF MINNESOTA.

CATALOGUE

FOR THE YEAR

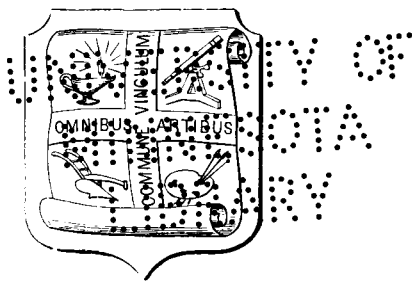
1889-90,

AND

ANNOUNCEMENT

FOR THE YEAR

1890-91,



BY THE UNIVERSITY.

MINNEAPOLIS.

1890.



|          |        |  |       |
|----------|--------|--|-------|
| JANUARY  | 24, S. | .....                                  | 6 w.  |
|          | 31, S. | .....                                  | 7 w.  |
| FEBRUARY | 7, S.  | .....                                  | 8 w.  |
|          | 14, S. | .....                                  | 9 w.  |
|          | 18, W. | University Charter, 1868.              |       |
|          | 21, S. | .....                                  | 10 w. |
|          | 22, S. | WASHINGTON'S BIRTHDAY.                 |       |
|          | 28, S. | .....                                  | 11 w. |
| MARCH    | 2, M.  | Term Examinations.                     |       |
|          | 3, T.  | " "                                    |       |
|          | 4, W.  | " "                                    |       |
|          | 5, T.  | Examinations for conditioned students. |       |
|          | 6, F.  | " " " "                                |       |
|          | 7, S.  | " " " "                                | 12 w. |

THIRD TERM.

|       |        |   |       |
|-------|--------|---|-------|
| MARCH | 9, M.  | Registration for third term.  |       |
|       | 10, T. | " " " " ; classes called at 10:45.                                      |       |
|       | 14, S. | .....   | 1 w.  |
|       | 21, S. | .....   | 2 w.  |
|       | 27, F. | GOOD FRIDAY.  |       |
|       | 28, S. | Holiday.....  | 3 w.  |
|       | 29, S. | EASTER SUNDAY.  |       |
| APRIL | 4, S.  | .....   | 4 w.  |
|       | 10, F. | School of Agriculture closes.   |       |
|       | 11, S. | .....   | 5 w.  |
|       | 18, S. | .....   | 6 w.  |
|       | 25, S. | .....   | 7 w.  |
| MAY   | 2, S.  | .....   | 8 w.  |
|       | 9, S.  | .....   | 9 w.  |
|       | 16, S. | .....   | 10 w. |
|       | 18, M. | Examinations for promotion and degrees in the Medical Department begin. |       |
|       | 19, T. | Senior Examinations begin.  |       |
|       | 23, S. | .....   | 11 w. |
|       | 26, T. | Senior examinations for degrees in the Law Department.                  |       |
|       | 27, W. | Library closes.   |       |
|       | 28, T. | Term Examinations.  |       |
|       | 29, F. | "   |       |
|       | 30, S. | "   | 12 w. |

COMMENCEMENT WEEK, 1891.

|            |         |  |   |             |
|------------|---------|--|---|-------------|
| SUNDAY,    | MAY 31. | BACCALAUREATE SERVICE,                             | - | 3:00 P. M.  |
| MONDAY,    | JUNE 1. | FIELD DAY SPORTS,                                  | - | 2:00 P. M.  |
|            |         | ORATORICAL CONTEST,                                | - | 8:00 P. M.  |
| TUESDAY,   | JUNE 2. | SENIOR CLASS DAY EXERCISES,                        | - | 2:00 P. M.  |
| WEDNESDAY, | JUNE 3. | ALUMNI DAY—  |   |             |
|            |         | Business Meeting,                                  | - | 10:00 A. M. |
| THURSDAY,  | JUNE 4. | COMMENCEMENT DAY—                                  |   |             |
|            |         | Graduating Exercises,                              | - | 9:00 A. M.  |
|            |         | Commencement Dinner,                               | - | 1:00 P. M.  |
|            |         | Drill and Dress Parade of the Military Department, | - | 4:00 P. M.  |
|            |         | President's Reception,                             | - | 8:00 P. M.  |
| FRIDAY,    | JUNE 5. | SUMMER VACATION BEGINS.                            |   |             |

The year 1891-'92 will begin September 1st, 1891.

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## BOARD OF REGENTS.

|   |       |                    |
|---|-------|--------------------|
| The HON. GREENLEAF CLARK, M. A., ST. PAUL,    | - - - | 1892.              |
| The HON. CUSHMAN K. DAVIS, M. A., ST. PAUL,   | - - - | 1892.              |
| The HON. KNUTE NELSON, ALEXANDRIA,            | - - - | 1896.              |
| The HON. JOHN S. PILLSBURY, MINNEAPOLIS,      | - - - | 1896.              |
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| The HON. GORDON E. COLE, LL. B., FARIBAULT,   | - - - | 1891.              |
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| The HON. S. M. EMERY, LAKE CITY,              | - - - | 1895.              |
| The HON. WILLIAM R. MERRIAM, ST. PAUL,        | - - - | <i>Ex-Officio.</i> |

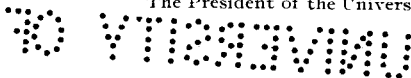
The Governor of the State.

|   |     |                    |
|---|-----|--------------------|
| The HON. DAVID L. KIEHLE, LL. D., ST. PAUL, | - - | <i>Ex-Officio.</i> |
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The State Superintendent of Public Instruction.

|                                      |       |                    |
|--------------------------------------|-------|--------------------|
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|--------------------------------------|-------|--------------------|

The President of the University.



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| The HON. DAVID L. KIEHLE.                    |
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## FACULTY AND INSTRUCTORS.

- CYRUS NORTHROP, LL. D., President, 519 Tenth Avenue S. E.
- WILLIAM W. FOLWELL, LL. D., 1020 Fifth Street S. E.  
Professor of Political Science and Librarian; and  
Lecturer on International Law.
- JABEZ BROOKS, D. D., 1708 Laurel Avenue.  
Professor of the Greek Language and Literature.
- NEWTON H. WINCHELL, M. A., 10 State Street S. E.  
Professor of Geology and Mineralogy, in charge of the  
Geological Survey. Curator of the General Museum.
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University Professor of Sanitary Science.
- JOHN G. MOORE, B. A., 2850 University Avenue S. E.  
Professor of the German Language and Literature.
- CHRISTOPHER W. HALL, M. A., 803 University Avenue S. E.  
Professor of Geology, Mineralogy and Biology. Assist-  
ant Curator of the Museum.
- JOHN C. HUTCHINSON, B. A., 3806 Blaisdell Avenue.  
Associate Professor of Greek and Mathematics.
- JOHN S. CLARK, B. A., 1523 University Avenue S. E.  
Professor of the Latin Language and Literature.
- MATILDA J. WILKIN, B. L., 1303 Fifth Street S. E.  
Instructor in English and German.
- JOHN F. DOWNEY, M. A., C. E., 9 Florence Court.  
Professor of Mathematics and Astronomy.
- WILLIAM A. PIKE, S. B., 2525 University Avenue S. E.  
Professor of Engineering.

- JAMES A. DODGE, Ph. D.,  
Professor of Chemistry. 813 Fifth Street S. E.
- MARIA L. SANFORD,  
Professor of Rhetoric and Elocution. 1401 Sixth Street S. E.
- CHARLES W. BENTON, B. A.,  
Professor of the French Language and Literature. 1427 University Avenue S. E.
- O. J. BREDA,  
Professor of the Scandinavian Languages and Literatures. 612 Fifteenth Avenue S. E.
- GEORGE EDWIN MACLEAN, Ph. D.,  
Professor of the English Language and Literature. 328 Tenth Avenue S. E.
- CHARLES F. SIDENER, B. S.,  
Assistant Professor of Chemistry. 1316 Fifth Street S. E.
- HENRY F. NACHTRIEB, B. S.,  
Professor of Animal Biology. 12 Florence Court.
- HARRY PRATT JUDSON, M. A.,  
Professor of History and Lecturer on Pedagogics. 316 Tenth Avenue S. E.
- FREDERICK S. JONES, B. A.,  
Professor of Physics.
- WILLIAM R. HOAG, B. C. E.,  
Assistant Professor of Civil Engineering. 1516 Seventh Street, S. E.
- JOHN H. BARR, B. M. E.,  
Assistant Professor of Mechanical Engineering. 428 University Avenue S. E.
- CONWAY McMILLAN, M. A.,  
Instructor in Botany. 803 University Avenue S. E.
- HENRY T. ARDLEY,  
Principal of the school of Free Hand Drawing, Designing  
and Wood Carving. 1521 University Avenue S. E.
- W. S. HOUGH, Ph. M.,  
Assistant Professor of Mental and Moral Philosophy and Logic. 1301 Fifth Street S. E.
- HON. WILLIAM S. PATTEE, M. A.,  
Dean of the Department of Law and Professor of the Law  
of Contracts. Minneapolis.



|  |                       |
|--|-----------------------|
| HON. GORDON E. COLE, LL. B.,<br>Lecturer on Corporations.  | Faribault.            |
| FRANK B. KELLOGG,<br>Lecturer on Equity Jurisprudence.   | St. Paul.             |
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| JUDGE JAMES O. PIERCE,<br>Lecturer on Constitutional and Statutory Law.  | Minneapolis.          |
| HON. C. D. O'BRIEN,<br>Lecturer on Criminal Law and Procedure.   | St. Paul.             |
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| CHARLES W. BUNN, LL. B.,<br>Lecturer on Suretyship and Mortgages, Practice in United<br>States Courts.           | St. Paul.             |
| HON. GEORGE B. YOUNG, A. M., LL. B.,<br>Lecturer on the Conflict of Laws.  | St. Paul.             |
| PERRY H. MILLARD, M. D.,<br>Dean of the Department of Medicine and Surgery and<br>Professor of Clinical Surgery. | St. Paul.             |
| RICHARD O. BEARD, M. D.,<br>Professor of Physiology.   | Minneapolis,          |
| C. J. BELL, A. M.,<br>Professor of Chemistry.  | 39 Eleventh Street S. |
| H. M. BRACKEN, M. D., L. R. C. S. E.,<br>Professor of Materia Medica and Therapeutics.                           | Minneapolis.          |
| ALBERT E. SENKLER, M. D.,<br>Professor of Theory and Practice of Medicine.                                       | St. Paul.             |
| CHARLES H. HUNTER, A. M., M. D.,<br>Professor of Clinical Medicine.  | Minneapolis.          |
| EVERTON J. ABBOTT, A. B., M. D.,<br>Professor of Clinical Medicine.  | St. Paul.             |

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Professor of Principles and Practice of Surgery. St. Paul.
- FREDERICK A. DUNSMOOR, M. D.,  
Professor of Clinical and Operative Surgery. Minneapolis.
- PARKS RITCHIE, M. D.,  
Professor of Obstetrics. St. Paul.
- ALEX J. STONE, M. D., LL. D.  
Professor of Diseases of Women. St. Paul.
- JOHN F. FULTON, Ph. D., M. D.,  
Professor of Ophthalmology, Otology and Hygiene. St. Paul.
- FRANK ALLPORT, M. D.,  
Clinical Professor of Ophthalmology and Otology. Minneapolis.
- C. EUGENE RIGGS, A. M., M. D.,  
Professor of Nervous and Mental Diseases. St. Paul.
- AMOS W. ABBOTT, M. D.,  
Clinical Professor of Diseases of Women. Minneapolis.
- CHARLES H. BOARDMAN, M. D.,  
Professor of Medical Jurisprudence. St. Paul.
- JAMES H. DUNN, M. D.,  
Professor of Diseases of the Genito Urinary Organs. Minneapolis.
- CHAS. L. WELLS, A. M., M. D.,  
Professor of Diseases of Children. Minneapolis.
- JAMES E. MOORE, M. D.,  
Professor of Orthopædic Surgery. Minneapolis.
- M. P. VANDERHORCK, M. D.,  
Professor of Diseases of the Skin. Minneapolis.
- W. S. LATON, M. D.,  
Professor of Diseases of the Throat and Nose. Minneapolis.
- J. CLARK STEWART, B. S., M. D.,  
Professor of Histology, Pathology and Bacteriology. Minneapolis.
- J. W. BELL, M. D.,  
Professor of Physical Diagnosis and Diseases of the Chest. Minneapolis.

- E. C. SPENCER, A. B., M. D.,  
Professor of Surgical Anatomy. St. Paul.
- A. B. CATES, A. M., M. D.,  
Adjunct Professor of Obstetrics. Minneapolis.
- A. McLAREN, A. B., M. D.,  
Adjunct Professor of Gynecology. St. Paul.
- W. A. JONES, M. D.,  
Adjunct Professor of Nervous and Mental Diseases. Minneapolis.
- BURNSIDE FOSTER, M. D.,  
Demonstrator of Anatomy. Minneapolis.
- WILLIAM E. LEONARD, A. B., M. D.,  
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College of Homeopathy. Minneapolis.
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College of Homeopathy. Minneapolis.
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College of Homeopathy. Minneapolis.
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- ALBERT E. HIGBEE, M. D.,  
Clinical Professor of Gynecology in the College of Homeopathy. Minneapolis.
- JOHN F. BEAUMONT, M. D.,  
Professor of Ophthalmology in the College of Homeopathy. Minneapolis.
- HENRY W. BRAZIE, M. D.,  
Professor of Pædology in the College of Homeopathy. Minneapolis.
- WILLIS HENRY HAVILAND, M. D.,  
Professor of Diseases of the Nervous System in the  
College of Homeopathy. Minneapolis.

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Professor of Clinical and Orthœpædic Surgery in the  
College of Homeopathy. St. Paul.
- EUGENE L. MANN, A. M., M. D.,  
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College of Homeopathy. St. Paul.
- B. HARVEY OGDEN, A. M., M. D.,  
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Genito Urinary Diseases in the College of Homeopathy. St. Paul.
- HENRY C. ALDRICH, D. D. S., M. D.,  
Adjunct Professor of Materia Medica and Therapeutics  
in the College of Homeopathy. Minneapolis.
- D. A. STRICKLER, M. D.,  
Professor of Otology and Rhinology in the College of  
Homeopathy. Duluth.
- CHAS. M. BAILEY, D. M. D.,  
Professor of Prosthetic Dentistry in the College of Den-  
tistry. Minneapolis.
- THOMAS C. WEEKS, D. D. S.,  
Professor of Operative Dentistry. Minneapolis.
- EDWARD H. ANGLE, D. D. S.,  
Professor of Histology and Orthodontia in the College  
of Dentistry. Minneapolis.
- L. D. LEONARD,  
Professor of Pathology and Oral Surgery in the College  
Dentistry. Minneapolis.
- ALBERT J. SCHUMACHER,  
Instructor in Mechanical Drawing. 472 Hopkins Street, St. Paul.
- EDWIN F. GLENN, U. S. A.,  
Professor of Military Science and Tactics. 99 Mackubin Street, St. Paul.
- SAMUEL B. GREEN, B. S.,  
Horticulturist of the Experiment Station. St. Anthony Park.
- WILLET M. HAYES, B. S. A.,  
Assistant in Agriculture. St. Anthony Park.
- OTTO LUGGER,  
Entomologist and Botanist of the Experiment Station. St. Anthony Park.

- W. W. PENDERGAST, St. Anthony Park.  
Principal of the School of Agriculture and Instructor  
in Physics, Physical Geography and Mathematics.
- H. W. BREWSTER, A. B., St. Anthony Park.  
Assistant Principal of the School of Agriculture, and  
Instructor in Chemistry.
- DAVID N. HARPER, Ph. B. Minneapolis.  
Chemist of the Experiment Station.
- OLOF SCHWARTZKOPFF, V. M. D., St. Anthony Park.  
Professor of Veterinary Medicine. Veterinarian of the  
Experiment Station.
- DANIEL W. SPRAGUE, Minneapolis.  
Instructor in Penmanship and Accounts at the School of  
Agriculture; Accountant of University.
- C. R. ALDRICH, Minneapolis.  
Instructor in Drawing and Manual Training in the School  
of Agriculture.
- W. J. BRADY, D. D. S., Minneapolis.  
Demonstrator, in charge of Infirmary and Technical Teach-  
ing, College of Dentistry.
- ALBERT I. JONES, Minneapolis.  
Instructor in Metal Working.
- HARRY E. SMITH, Minneapolis.  
Instructor in Mechanical Engineering and Wood Work.
- GEORGE A. HENDRICKS, M. S., M. D., Minneapolis.  
Professor of Anatomy.
- NELSON WYLIE MCLAIN, LL. B., St. Anthony Park.  
Director of the Experiment Station.
- SELDEN BACON, LL. B., Minneapolis.  
Lecturer on Civil Procedure.
- CHAS. B. ELLIOTT, Ph. D., Minneapolis.  
Lecturer on Wills and Administration.
- HON. RALPH WHELAN, LL. B., Minneapolis.  
Lecturer on the Law of Torts.

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

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

OTHER OFFICERS.

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

OSCAR W. OESTLUND, M. A., 506 Oak Street S. E.  
Entomologist, Assistant on Geological Survey.

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

E. B. JOHNSON, B. S.,  
Registrar.

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

## STUDENTS.

ALPHABETICAL ROLL BY CLASSES, 1889-90.

## I. GRADUATE STUDENTS, 48.

- Abbott, Howard Strickland, B. L., '85, University of Minnesota.  
 Aldrich, John Merton, B. S., '88, Dakota Ag. College.  
 Babcock, Kendric Chas., B. L., '89, University of Minnesota.  
 —Barr, Mrs. John H., B. L., '83, University of Minnesota.  
 —Benton, Mary Lathrop, B. A., '85, University of Minnesota.  
 —Blanchard, Mary Lizzie, B. L., '88, University of Minnesota.  
 Brewster, Henry Webb, B. A., '87, University of Minnesota.  
 Childs, Joel N., B. A., '77, University of Minnesota.  
 Cook, John, B. A.  
 —Countryman, Gratia Alta, B. S., '89, University of Minnesota.  
 Crocker, A. L., B. A., A. M., Bowdoin.  
 —Daniels, Lulu Celeste, University of Wisconsin.  
 —Dodge, Mrs. James A., Harvard Annex.  
 —Dinwiddie, Mary L., B. L., '80, University of Wisconsin.  
 Faries, John Culbert, B. A., '89, University of Minnesota.  
 —Firkins, Ina, B. L., '88, University of Minnesota.  
 Firkins, Oscar, B. A., '84, University of Minnesota.  
 —Gale, Anna, B. A., Smith College.  
 Hadley, Wm. Aaron, M. A., '88, University of Minnesota.  
 Hawley, John B., B. S., '87, University of Minnesota.  
 Hoag, Wm. R., J. B. C. E., '84, University of Minn.  
 Holtzinger, John M., M. C. E., '88, University of Minn.  
 —Hunt, Caroline L., A. B., '79, Olivet College.  
 Johnson, E. B., Northwestern University.  
 —Kiehle, Ada, B. S., '88, University of Minnesota.  
 —Mann, Ida V., B. L., '86, University of Minnesota.  
 Mann, Eugene Landon, B. A., '86, University of Minnesota.  
 Merritt, Stephen A., J. B. A., '83, Hobart College.  
 —Miner, Viola Fuller, Hahneman Med. College, '86.  
 —Powell, Mary, B. S., '84, Tabor College.  
 Plumb, Geo., H. R., B. L., '77, University of Minnesota.  
 Reed, Fred., B. L., '85, University of Minnesota.  
 Richardson, Geo. Lynde, M. S., '77, Lafayette College.  
 B. A., Grinnell, Iowa.  
 B. A., '88, Williams College.

|                           |                                      |
|---------------------------|--------------------------------------|
| —Roe, Marion Hooker,      | B. L., '79, University of Minnesota. |
| —Sewall, Margaret L.,     | B. A., '89, University of Minnesota. |
| Shepherd, Fred. S.,       | B. A., Beloit College.               |
| —Shillock, Anna,          | B. L., '88, University of Minnesota. |
| Stockwell, Walter L.,     | B. S., '89, University of Minnesota. |
| —Strohmeier, Kathrina L., | B. A., '89, University of Minnesota. |
| Soublette, Geo. W.,       | B. A., '78, Kirksville Normal.       |
| —Schall, Bina C.,         | Ph. B., '88, Albion College.         |
| —Southworth, Mary L.,     | B. S., '87, Wellesley.               |
| Triggs, Oscar Lovell,     | B. A., '89, University of Minnesota. |
| —Van Vliet, Jessie L.,    | Wellesley, '85.                      |
| —Wallace, Elizabeth,      | B. S., Wellesley.                    |
| —Waters, Edith,           | B. L., '89, University of Minnesota. |
| —Waters, Elizabeth,       | B. S., '85, University of Wisconsin. |
| —Wilkins, Matilda J. C.,  | B. L., University of Minnesota.      |

## II. UNDERGRADUATE STUDENTS.

### SENIOR CLASS, 57.

#### CLASSICAL 10.

|                             |                            |
|-----------------------------|----------------------------|
| —Andrews, Hattie Louise,    | Minneapolis.               |
| Christianson, Christian H., | Bath.                      |
| Conger, Charles Thompson,   | 78 Washington Place, N. Y. |
| —Countryman, Lana Mariah,   | Minneapolis.               |
| Fryberger, Harrison Earl,   | Minneapolis.               |
| Kennedy, Lewis Henry,       | Litchfield.                |
| Petri, Gustav Axel,         | Minneapolis.               |
| Pike, Joseph Brown,         | Minneapolis.               |
| Rex, Milton,                | Minneapolis.               |
| Wait, Fred Coggswell.       | Winona.                    |

#### SCIENTIFIC, 22.

|                               |                  |
|-------------------------------|------------------|
| Baily, Henry Patterson.       | Minneapolis.     |
| Beach, William Artemus.       | Minneapolis.     |
| Brabec, Frank Joseph,         | Hutchinson.      |
| Christianson, Peter,          | Bath.            |
| Cotton, Henry,                | Prescott, Wis.   |
| Covell, Frank Edward,         | Minneapolis.     |
| Cutts, Charles Rollin, E. M., | Forest City.     |
| Dodge, Warren Maynard,        | Farmington.      |
| Grant, James Colfax,          | Minneapolis.     |
| Gross, Otis Carsley,          | Pickwick.        |
| Jackson, Charles William,     | Brooklyn Centre. |
| Kennedy, Harry Martin,        | Litchfield.      |
| Kennedy, Patrick,             | Oshawa.          |
| Lum, Burt Frank,              | Minneapolis.     |



|                             |              |
|-----------------------------|--------------|
| —Montgomery, Louise,        | St. Cloud.   |
| Richardson, Herbert Gilman, | Minneapolis. |
| Richardson, Oscar Kelsey    | Minneapolis. |
| Shaw, Albert Woodward,      | Minneapolis. |
| Spaulding, Edward Martin,   | Minneapolis. |
| West, Max,                  | Minneapolis. |
| Wilson Ole Knute,           | Gilchrist.   |
| Wilson, Walter Edwin,       | Minneapolis. |

## LITERARY, 11.

|                               |              |
|-------------------------------|--------------|
| —Abernethy, Antoinette J.,    | Minneapolis. |
| Clark, Victor Selden,         | Minneapolis. |
| —Comfort, Sarah Catherine,    | Minneapolis. |
| —Frost, Flora Joy,            | Jackson.     |
| —Mills, Mary,                 | Elk River.   |
| —Nicol, Jessie May,           | Minneapolis. |
| —Phillips, Edith Viola,       | Minneapolis. |
| Rutherford, William Henry A., | Rockford.    |
| Serumgard, Siver,             | Minneapolis. |
| Sommers, Charles Lyesring,    | St. Paul.    |
| —Weber, Mary Louise,          | Ellington.   |

## CIVIL ENGINEERS, 11.

|                            |              |
|----------------------------|--------------|
| Burt, John Lucius,         | Minneapolis. |
| Dann, Wilbur Wainright,    | Minneapolis. |
| Douglass, Fred Luke,       | Minneapolis. |
| Gilman, Fred Howard,       | Rosemount.   |
| Greenwood, Williston Wirt, | Mankato.     |
| Hayden, John Foote,        | Fargo, N. D. |
| Higging, John Turner,      | Hutchinson.  |
| Hoyt, William Hausmer,     | Minneapolis. |
| Mann, Fred Maynard,        | Minneapolis. |
| Smith, William Carpenter,  | St. Cloud.   |
| Trask, Birney Elias,       | Minneapolis. |

## MECHANICAL ENGINEERS, 3.

|                          |              |
|--------------------------|--------------|
| Gerry, Martin Hugh, Jr., | Minneapolis. |
| Nilson, Thorwald Eid,    | Atwater.     |
| Woodward, Herbert M.,    | Richfield.   |

## JUNIOR CLASS, 66.

## CLASSICAL, 19.

|                             |                  |
|-----------------------------|------------------|
| —Bestor, May,               | Minneapolis.     |
| Blethen, Alden Joseph, Jr., | Minneapolis.     |
| Bray, Charles William,      | Norwood.         |
| Browne, Squire Fred,        | Kalamazoo, Mich. |
| Dahl, John Frithiof,        | Minneapolis.     |
| —Frye, Nora,                | Elk River.       |
| —Guthrie, Anna Loraine,     | Minneapolis.     |

|                           |                  |
|---------------------------|------------------|
| Guthrie, Charles Elise,   | Minneapolis.     |
| Hammond, Asa John,        | Lake City.       |
| Leach, Harlan Edward,     | Spring Valley.   |
| Merrill, John Ernest,     | Minneapolis.     |
| Morris, William Beaumont, | Montclair, N. J. |
| Pemberton, John,          | South Park.      |
| Purdy, Milton Dwight,     | White Hall, Ill. |
| Savage, Charles A.,       | Minneapolis.     |
| Soares, Theodoro Geraldo, | Minneapolis.     |
| Stout, Thompson Welliver, | Minneapolis.     |
| Sweigle Curtiss,          | Ortonville.      |
| Webster, Albert Martin,   | Hamline.         |

## SCIENTIFIC, 19.

|                              |                 |
|------------------------------|-----------------|
| Bebb, William Bennett,       | Minneapolis.    |
| Boyum, Sigurd Johnson,       | De Lamere, Dak. |
| Chase, Charles Lincoln,      | Hastings.       |
| Dodge, Albert Arthur,        | Farmington.     |
| Gardiner, Edward Brown,      | Minneapolis.    |
| —Guthrie, Dora May,          | Minneapolis.    |
| Hanft, Frank,                | New Ulm.        |
| Knappen, Theodore Mc F.,     | Minneapolis.    |
| Lommen, Christian Peterson,  | Spring Grove.   |
| Matteson, Charles Dickerman, | Decorah, Ia.    |
| —Montgomery, Frances,        | St. Cloud.      |
| —Morin, Margaret Belle,      | Albert Lea.     |
| Nickerson, Ernest Arthur,    | Elk River.      |
| Peterson, Carl Christian,    | Newark, S. D.   |
| Smith, George Arthur,        | Brown's Valley. |
| Snedicor, Marshall D.,       | Minneapolis.    |
| Stacy, Albert W.,            | Washburn.       |
| Trussell, Willie Francis     | Minneapolis.    |
| Weeks, Leonard Case,         | Litchfield.     |

## LITERARY, 22.

|                           |                   |
|---------------------------|-------------------|
| —Ankeny, Martha V.,       | Minneapolis.      |
| —Bebb, Rose Ann,          | Minneapolis.      |
| —Berry Blanche Parker,    | Minneapolis.      |
| —Chapman, Grace,          | Minneapolis.      |
| Chapple, Benjamin Philip, | Beldenville, Wis. |
| Church, Arthur Bliss,     | Minneapolis.      |
| Clark, George Archibald,  | Minneapolis.      |
| —Connor, Myrtle,          | Minneapolis.      |
| —Cross, Nellie Malura,    | Minneapolis.      |
| Dahl, John Albion,        | Minneapolis.      |
| Grinager, William Fred,   | Minneapolis.      |
| Harmon, William W.,       | Minneapolis.      |
| Jorgens, Joseph Oscar,    | Grand Meadow.     |

|                           |               |
|---------------------------|---------------|
| —Martin, Lillie May,      | Minneapolis.  |
| Peirson, Homer Francis,   | Grand Meadow. |
| —Rexford, Minnie Agnes,   | Minneapolis.  |
| —Rose, Hattie E.,         | Hamline.      |
| Sardeson, Fred William.   | Minneapolis.  |
| Sias, Edgar Daniel,       | Rochester.    |
| Stearns, Victor Alonzo,   | Duluth.       |
| —Sumbardo, Ava,           | Hamline.      |
| Timberlake, Byron Harvey. | Minneapolis.  |

## CIVIL ENGINEERS, 3.

|                       |              |
|-----------------------|--------------|
| Chowen, Walter Abram, | Chowen.      |
| Hall, Theodore D.,    | St. Paul.    |
| Sacre, Burt Leverett, | Minneapolis. |

## MECHANICAL ENGINEER, 1.

|                          |          |
|--------------------------|----------|
| Aslakson, Baxter Martin, | Willmar. |
|--------------------------|----------|

## ELECTRICAL ENGINEERS, 1.

|                      |              |
|----------------------|--------------|
| Huhn, George Philip, | Minneapolis. |
|----------------------|--------------|

## ARCHITECT, 1.

|                         |              |
|-------------------------|--------------|
| Plowman, George Taylor, | Minneapolis. |
|-------------------------|--------------|

## SOPHOMORE CLASS, 88.

## CLASSICAL—22.

|                             |                 |
|-----------------------------|-----------------|
| —Bailey, Clara Edith,       | Minneapolis.    |
| Bradford, James Everett,    | Minneapolis.    |
| Cates, Alton M.,            | Minneapolis.    |
| Clarke, Benjamin Franklin,  | Rich Valley.    |
| Dewey, Rupert Carthalo,     | Lake City.      |
| Dittenhoefer, Frank Herman, | Minneapolis.    |
| —Friedlander, Esther,       | Minneapolis.    |
| Graves, John Wesley,        | Minneapolis.    |
| Hannum, Harry Oliver,       | Minneapolis.    |
| Hoag, Albert B.,            | Minneapolis.    |
| Hult, Gottfrid Emanuel,     | Scandia.        |
| Keefer, George Lenfesty,    | Minneapolis.    |
| Leary, William Connor,      | Appleton.       |
| Nelson, Andrew,             | Otisville.      |
| O'Brien, J. Edward,         | Lake City.      |
| Paquin, Samuel Savil,       | Little Falls.   |
| Phillips, James Erastus,    | Lake City.      |
| —Potter, Franc Murray,      | Ortonville.     |
| Ranum, Arthur,              | La Crosse, Wis. |
| Selover, William Arthur,    | Lake City.      |
| Smith, Carlton Wilbert,     | Howard.         |
| —Stearns, Stella Burger,    | Duluth.         |

## SCIENTIFIC—28.

Baldwin, Daniel Eugene  
 —Bassett, Mary Elizabeth,  
 Belden, George Kimball,  
 Berkey, Charles Peter,  
 Best, Rista Nimmons.  
 —Bradford, Mary Grace,  
 Cross, John Grosvenor,  
 Dickerson, Edward Martin,  
 Folin, Otto Knute Olof,  
 Head, George Douglas,  
 Holtz, Fred. Leopold,  
 Huntington, Elon O.,  
 Hurd, Bradford Coryelle,  
 —Kellogg, Clara N.,  
 Kenyon, Paul Emerson,  
 Kirk, Everett Buell,  
 Krafft, Edwin James,  
 —Lucy, Sarah Bird,  
 Madigan, James Edward,  
 Pierce, Lyman Love,  
 Pillsbury, Alfred Fisk,  
 Rossman, Grant Beebee,  
 Sikes, George Cushing,  
 Smith, Fred Andrews,  
 Sylvester, Charles A.,  
 Tunell, George,  
 Zeleny, Anthony,  
 Zeleny, John.

St. Cloud.  
 Hastings.  
 Minneapolis.  
 Farmington.  
 Minneapolis.  
 Minneapolis.  
 Rochester.  
 Minneapolis.  
 Stillwater.  
 Fargo, N. D.  
 Minneapolis.  
 Minneapolis.  
 Minneapolis.  
 St. Paul.  
 Fargo, N. D.  
 St. Paul.  
 Minneapolis.  
 Minneapolis.  
 Maple Lake.  
 Stockton, N. Y.  
 Minneapolis.  
 Argyle.  
 Rugby, N. Dak.  
 Gilman Lake, S. Dak.  
 Madelia.  
 Minneapolis.  
 Hutchinson.  
 Hutchinson.

## LITERARY, 24.

—Ames, Effie Frances,  
 —Austin, Mabel Fletcher,  
 —Baldwin, Clara Frances,  
 Chapple, Charles Loran,  
 —Cheney, Mary Moulton,  
 Covell, Arthur Eugene,  
 Elftman, Arthur Hugo,  
 —Erb, Anna Wilhelmine,  
 Farmer, John Frederick,  
 Hale, Charles S.,  
 —Kemp, Mary Emma,  
 —Lougee, Mary Holley,  
 —Manson, Kathrina Emaline,  
 —Mathes., Lizzie Helen,  
 Monfort, Frederick Delos,  
 —Palmer, Carrie Adaline,  
 —Pearson, Adelaide,

Minneapolis.  
 St. Paul.  
 St. Paul.  
 Beldenville, Wis.  
 St. Anthony Park.  
 Minneapolis.  
 Prescott, Wis.  
 Minneapolis.  
 Spring Valley.  
 Minneapolis.  
 Minneapolis.  
 Minneapolis.  
 Shakopee.  
 Minneapolis.  
 St. Paul.  
 Pontiac, Ill.  
 Howard Lake.

|                             |               |
|-----------------------------|---------------|
| —Robinson, Louise Florence, | Minneapolis.  |
| —Rose, Florence Julia,      | Minneapolis.  |
| —Sammis, Eveline Van W.,    | Minneapolis.  |
| —Severance, Carrie Anna,    | Minneapolis.  |
| —Shuey, Fanny Damon,        | Minneapolis.  |
| —Tombs, Helen Huntington,   | Grafton, Dak. |
| —White, Mira May,           | Minneapolis.  |

## AGRICULTURE, 1.

|                  |                  |
|------------------|------------------|
| Sherman, Sidney, | Eau Claire, Wis. |
|------------------|------------------|

## CIVIL ENGINEERS, 5.

|                           |                 |
|---------------------------|-----------------|
| Carroll, James Edward,    | Minneapolis.    |
| Higgins, Elvin Lydiard,   | Hutchinson.     |
| Ohnstad, John Christian,  | Menomonie, Wis. |
| Phoenix, Edward Chauncey, | LeRoy.          |
| Spottswood, Edward W.,    | Minneapolis.    |

## MECHANICAL ENGINEERS, 3.

|                           |                |
|---------------------------|----------------|
| Gill, James Herbert,      | Cottage Grove. |
| Stevens, Andrew Elbridge, | Winona.        |
| Williams, Edwin Robert,   | Minneapolis.   |

## ELECTRICAL ENGINEERS, 5.

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

## FRESHMAN CLASS, 158.

## CLASSICAL, 29,

|                            |                 |
|----------------------------|-----------------|
| Angus, William,            | Garfield.       |
| Bates, Frank A.,           | Minneapolis.    |
| Davis, Frank D.,           | Mankato.        |
| Ferree, Charles W.,        | Minneapolis.    |
| —Gates, Emma Abbie,        | St. Paul.       |
| Goldblum, Hal Sol,         | Minneapolis.    |
| Hartley, Heber Lindon,     | Minneapolis.    |
| Jenson, Nels,              | Minneapolis.    |
| Knudson, Albert Cornelius, | St. Paul.       |
| Larson, Constant,          | Alexandria,     |
| Lunke, Richard Olaus.      | Minneapolis.    |
| McWhorter, Lou Francis N., | Austin.         |
| Merrill, George Plumer,    | Minneapolis.    |
| Miller, Charles Flagler,   | Minneapolis.    |
| Nickerson, Archie,         | Tamworth, N. H. |
| Northrop, Cyrus, Jr.,      | Minneapolis.    |
| —Northrop, Elizabeth,      | Minneapolis.    |

Officer, Harvey, Jr.,  
 —Peters, Elizabeth A.  
 Pratt, Albert Fuller,  
 —Rhoades, Grace,  
 —Rhoades, Jessie Virginia,  
 Sethre, John Olaf,  
 Stack, George Franklin,  
 Walker, Edward David,  
 Wallace, Thomas Freeman,  
 Warnock, Arthur William,  
 Whitman, Clarence Leroy,  
 Young, Charles, Elon,

St. Paul.  
 Minneapolis.  
 Anoka.  
 Minneapolis.  
 Minneapolis.  
 Carlisle.  
 Anoka.  
 St. Paul.  
 Minneapolis.  
 Minneapolis.  
 Owatonna.  
 Minneapolis.

## SCIENTIFIC, 83.

—Aitchison, Kate,  
 Anderson, Ole J.,  
 Avery, Henry B.,  
 Bale James C.,  
 Ballard, Caswell A.,  
 Barton, Frederick William,  
 Batchelder, Harry Lee,  
 Batchelder, Frank Leslie,  
 —Berg, Anna N.,  
 Berseth, Andrew Mikkelson,  
 —Bonwell, Sadie L.,  
 Bovey, William Howard,  
 Brown, Charles Colgrove,  
 Brown, William J.,  
 —Buckley Margaret Cecilia,  
 —Buckley, Nellie Augusta,  
 Bull, Alvah Milton,  
 —Burr, Anne Martin,  
 Carel, Hubert Charles,  
 Chase, Arthur W.,  
 Christenson, Charles Rasmi,  
 Cowing, Charles Frank,  
 Davis, Walter S.,  
 Davis, Wallace H.,  
 —Dobson, Nettie,  
 Erf, John William,  
 Farnsworth, Arthur J.,  
 —Fleming, Hattie Evelyn,  
 Folwell, Russell Heywood,  
 —Foster, Eva May,  
 Frost, William Dodge,  
 —Gibbs Gertrude,  
 Gilman, James,  
 Goodnow, Merton Stearnes,  
 Grotte, Anthony,

Fargo, N. D.  
 Nicollet.  
 Minneapolis.  
 Duluth.  
 Zumbrota.  
 Wayzata.  
 Stillwater.  
 Stillwater.  
 Minneapolis.  
 Colfax, Dak.  
 Blue Earth City.  
 Minneapolis.  
 Minneapolis.  
 Rochester.  
 Farmington.  
 Farmington.  
 Edina Mills.  
 St. Paul.  
 St. Paul.  
 Hastings.  
 Owatonna.  
 Alexandria.  
 Minneapolis.  
 Minneapolis.  
 Blue Earth City.  
 Monroeville, O.  
 Minneapolis.  
 Minneapolis.  
 Minneapolis.  
 Stillwater.  
 Minneapolis.  
 Monticello.  
 Minneapolis.  
 Hutchinson.  
 Minneapolis.

Guthrie, John DeMott,  
 Hahn, Roland Bruce,  
 Hogeland, Justus Mitchell,  
 Hoyt, Hiram Patrick,  
 Huntington, Arthur Elon.  
 Huntington, George Lincoln,  
 Iltis, Herman Mathias,  
 Jackson, Robert Lyon,  
 Kennedy, Harry Atkinson,  
 Kimble, Ralph Grierson,  
 King, George Thomas,  
 —McCoy, Josephine,  
 —McCoy, Louise,  
 McElligott, Thomas James,  
 Macauley, John W.,  
 Medley, Eugene,  
 Mitchell, Harold Ebenezer,  
 Morse, George Hart,  
 —Newman, Lizzie Burwell,  
 Palmer, George Perry,  
 Pearce, Harvey Fred,  
 Pitman, John Richmond,  
 Poehler, August,  
 Poehler, Franklin Theodore,  
 Reidhead, Frank Erven,  
 —Robbins, Edith A.,  
 Rockwell, George A.,  
 Rockwell, Thomas A.,  
 Setnan, John Magnus,  
 Sigvaldson, Sigurdur,  
 Smith, LeRoy Vernon,  
 —Smith, Mary C.,  
 Springer, Frank Wesley,  
 Spry, James E.,  
 Squires, Roy White,  
 —Strohmeier, Anna Emilia,  
 Taylor, Benjamin C.,  
 Thornton, Guy Livingstone,  
 Triggs, Floyd W.,  
 Upton, Wendall Phillips,  
 Wakefield Harry B.,  
 Wakeman, John VanHoesen,  
 Washburn, Delos Cuyler,  
 Washburn, Orson Monroe,  
 Weeks, William Charles,  
 Wells, Fred B.,  
 Wollan, Carl Thomas,  
 York, James,

Minneapolis.  
 St. Paul.  
 St. Paul.  
 Minneapolis.  
 Lu Verne.  
 Lu Verne.  
 Chaska.  
 Minneapolis.  
 Minneapolis.  
 Ridgeway, Kan.  
 Minneapolis.  
 Algona, Ia.  
 Algona, Ia.  
 Glencoe.  
 Menomonie, Wis.  
 Ithica, Mich.  
 Duluth.  
 Excelsior.  
 Fargo, N. D.  
 Detroit, Mich.  
 St. Paul.  
 Ft. Snelling.  
 Henderson.  
 Henderson.  
 Camden Place.  
 Merriam Park.  
 Oshkosh, Wis.  
 Oshkosh, Wis.  
 Minneapolis.  
 Marshall.  
 Minneapolis.  
 Algona, Ia.  
 Anoka.  
 Minneapolis.  
 Minneapolis.  
 Minneapolis.  
 Minneapolis.  
 Excelsior.  
 Minneapolis.  
 Minneapolis.  
 Hutchinson.  
 Hastings.  
 Otsego.  
 Monticello.  
 Minneapolis.  
 Minneapolis.  
 Starbuck.  
 Minneapolis.

## LITERARY, 44.

|                              |                |
|------------------------------|----------------|
| —Adams, Ada Edith,           | Minneapolis.   |
| Austen, James Frederick,     | St. Paul.      |
| Birdsall, Albert Thornton,   | New York City. |
| —Burnett, Ida Arvilla,       | Mankato.       |
| —Colgrove, Maude C.,         | Minneapolis.   |
| —Cooley, Martha May,         | Minneapolis.   |
| —Colter, Mabel Augusta,      | St. Paul.      |
| —Craik, May A.,              | Edina Mills.   |
| —Dresser, Medora Estella,    | Minneapolis.   |
| —Elwell Jessie Helen C.,     | Minneapolis.   |
| —Eyles, Clara,               | St. Paul.      |
| —Firkins, Orra Estelle.      | Minneapolis.   |
| —Folsom, Mamie Louise,       | Minneapolis.   |
| —Frankenfield, Laura Eliza,  | Glencoe.       |
| Fridley, Don Phelps,         | Becker.        |
| —Fuller, Lillian,            | Litchfield.    |
| Hansen, Oscar Lee,           | Argyle, Wis.   |
| —Hawley, Mary Everett,       | Geneva, N. Y.  |
| —Hays, Helen Lyon.           | Minneapolis.   |
| —Herzog, Ida May,            | Chowen.        |
| —Johnson, Leila Pamela,      | Minneapolis.   |
| —Joslyn, Sarah,              | Rochester.     |
| —Lyll, Helen Gage,           | Minneapolis.   |
| —McClary, Zue,               | Minneapolis.   |
| —McCormick, Minnie Agnes,    | Minneapolis.   |
| —McGregor, Jessie,           | Minneapolis.   |
| —McGregor, Saidee,           | Minneapolis.   |
| Means, George Emery,         | Minneapolis.   |
| —Michelet, Maren Bastine H., | Minneapolis.   |
| —Palmer, Marie Antoinette,   | Minneapolis.   |
| —Perkins, Minnie Arabella,   | Minneapolis.   |
| Poehler, Henry Charles,      | Henderson.     |
| Pryor, Leonard Henry,        | Redwood Falls. |
| —Randall, Grace,             | St. Paul.      |
| Salisbury, Perry Pritchard,  | Minneapolis.   |
| —Shaughnessey, Gertrude,     | Minneapolis.   |
| Smith, E. Fay,               | St. Paul.      |
| Spear, George Hancock,       | Minneapolis.   |
| —Stacy, Anna Laurie,         | Washburn.      |
| Trissal, Julius Ross,        | St. Paul.      |
| —Walther, Louise Grace.      | St. Paul.      |
| —Wallace, Lutie Jane,        | Algona, Ia.    |
| White, Harry Edgar,          | Clear Lake.    |
| —Zimmerman, Una.             | St. Paul.      |

## AGRICULTURE, 2.

|                        |                |
|------------------------|----------------|
| Jones, Hugh Griffith,  | Minneapolis.   |
| Sheldon, Edmund Perry, | Prospect Park. |



## SUB-FRESHMAN CLASS, 46.

## CLASSICAL, 5.

|                             |                  |
|-----------------------------|------------------|
| Aspden, Herbert Henry,      | Excelsior.       |
| Greene, Eugene Kibbey,      | Brooklyn Center. |
| Lucken, Clement Leonard O., | Crookston.       |
| —Rhoades, Mary Eliza,       | Minneapolis.     |
| Steenon, James,             | Eden Prairie.    |

## SCIENTIFIC, 25.

|                               |                    |
|-------------------------------|--------------------|
| —Andrews, Abbie,              | North Vernon, Ind. |
| Barney, Frank Hadeven,        | Minneapolis.       |
| Bisbee, Edgar Charles,        | Madelia.           |
| Blake, Robert Pennel,         | St. Paul.          |
| Bray, George Eben,            | Norwood.           |
| Candee, Wilbur Charles,       | Kasson.            |
| Carter, Norton Ellis,         | Delevan, Wis.      |
| Carswell, Robert Edward,      | Hayward.           |
| Clark, Theodore,              | St. Cloud.         |
| Donovan, Andrew,              | Belle Plaine.      |
| Elliott, Joseph R.,           | West Liberty, Ia.  |
| Fanning, Frank Baker,         | Jamestown, Dak.    |
| Harding, Everhart Percy,      | Waseca.            |
| Horner, Warren Murdock,       | Albert Lea.        |
| House, Henry Allen,           | Albert Lea.        |
| Hultquist, Chas. Constantine, | Schafer.           |
| Johnson, Aaron Eugene,        | St. Peter.         |
| Lawrence, James Clark,        | Marshall.          |
| Muir, William Cyrus,          | Hunter, N. D.      |
| Nelson, Nels C. G.,           | Wheaton.           |
| Paulson, Alfred Parker,       | Waseca.            |
| —Peterson, Jonina Rose,       | Newark, S. D.      |
| —Peterson, Johanna Thorunn,   | Newark, S. D.      |
| Sands, Walter B.,             | Maiden Rock.       |
| Walsh, Frank L.,              | Long Lake.         |

## LITERARY.—16.

|                              |                    |
|------------------------------|--------------------|
| Bellamy, Smith Baldwin,      | Nashua, Ia.        |
| —Burnes, Clara Thornton,     | Hopkins.           |
| Gislason, Christian M.,      | Minneota.          |
| Gjerset, Knut,               | Montevideo.        |
| —Goodsill, Mary Isabel,      | Hopkins.           |
| Gray, Harry Hughes,          | Indianapolis, Ind. |
| —Hawley, Elizabeth McK.,     | Geneva, N. Y.      |
| Holasek, Frank Joseph,       | Edina Mills.       |
| —Huntoon, Ruth A.,           | Lakeland.          |
| —Jackson, Harriet,           | Minneapolis.       |
| —Jennison, Bertie Ethelwinn, | Browntown.         |
| Metcalf, Wilbert C.,         | Paullina.          |

|                           |              |
|---------------------------|--------------|
| —Morse, Minnie Frances,   | Minneapolis. |
| —Thornton, Amanda Loella, | Excelsior.   |
| Ward, Roscoe Percy,       | Waseca.      |
| —Wells, Maude A.,         | Plainview.   |

## SPECIALS—101.

|                             |                 |
|-----------------------------|-----------------|
| Adams, Alton A.,            | St. Paul.       |
| —Anderson, Martha Scott,    | Minneapolis.    |
| Andrist, Charles Martin,    | Roscoe.         |
| Bardwell, Sidney W.,        | Excelsior.      |
| Bebb, David Price,          | Minneapolis.    |
| —Best, Mary Anna,           | Minneapolis.    |
| —Best, Maude B.,            | Minneapolis.    |
| —Blaisdell, Abbie Jean,     | Minneapolis.    |
| —Blake, Clara J.,           | Minneapolis.    |
| Booth, Harry Walter,        | Pittsburg, Pa.  |
| —Brown, Anna Augusta,       | Minneapolis.    |
| —Brown, Mrs.,               | Minneapolis.    |
| —Burbank, Fannie C.,        | Duluth.         |
| Bushnell, Harley G.,        | Minneapolis.    |
| Chadbourn, Rodney Whitney,  | Minneapolis.    |
| —Chapin, Nellie P.,         | Minneapolis.    |
| —Chase, Abbie E.,           | Minneapolis.    |
| —Cochran, Mrs. Margaret M., | Minneapolis.    |
| —Cohen, Minnie,             | Minneapolis.    |
| —Colborn, Mrs. Minnie W.,   | Minneapolis.    |
| Couper, George B.,          | Northfield.     |
| Cowles, William Henry,      | Minneapolis.    |
| —Cross, Kate,               | Minneapolis.    |
| —Dice, Mrs. Malinda Rachel, | Minneapolis.    |
| Drake, William Thomas,      | Minneapolis.    |
| —Dyer, Alice Clark,         | Minneapolis.    |
| Eastman, Arthur Henry,      | Minneapolis.    |
| * Evans, Miller,            | Minneapolis.    |
| Falk, John T.,              | Bloomington.    |
| Fanning, Rennie B.,         | Minneapolis.    |
| —Fleming, Anna R.,          | Minneapolis.    |
| —Folwell, Mary A.,          | Minneapolis.    |
| Frederickson, William D.,   | Lake Elizabeth. |
| —Gilbert, Priscilla Grace,  | Minneapolis.    |
| Gray, Orrin J.,             | Taylor's Falls. |
| —Grimes, Minnie Theresa,    | High Forest.    |
| Hahn, Emilie Alexander,     | St. Paul.       |
| Ham, Charles Sumner,        | Irving.         |
| Ham, John Albion,           | Minneapolis.    |
| Harris, John Addison,       | Kent.           |
| Hasty, Jerome A.,           | Minneapolis.    |
| Havdal, Martin,             | Minneapolis.    |
| Heile, Louis,               | Minneapolis.    |

|                             |                       |
|-----------------------------|-----------------------|
| Herrick William Howard,     | Granville, O.         |
| —Hill, Anna E.,             | Minneapolis.          |
| —Hutchinson, Mrs. J. C.,    | Minneapolis.          |
| —Kellam, Clara,             | St. Anthony Park.     |
| Lackor, Harry Daniels,      | Minneapolis.          |
| Laughlin, Herbert Servetus, | Fairmont, Mo.         |
| —Leavitt, Emma M.,          | Minneapolis.          |
| —Leach, Lucy Wood,          | Minneapolis.          |
| Lee, Henry T.,              | Minneapolis.          |
| Liland, Ragnvald,           | Minneapolis.          |
| —Loemans, Lizzie Bertha,    | Minneapolis.          |
| —Lyll, Jeannette,           | Minneapolis.          |
| Mills, John S.,             | Elk River.            |
| Moffett, Charles T.,        | Minneapolis.          |
| Morris, Henry Stephen,      | Sisseton Agency, Dak. |
| —Morrison, Mrs. Ellen,      | Minneapolis.          |
| —Moulton, Mrs. Emma Selden, | Faribault.            |
| Nord, Bernard P.,           | Minneapolis.          |
| Olson, Martin Luther,       | Minneapolis.          |
| Osterhout, Fred H.,         | Minneapolis.          |
| —Outcalt, Frances,          | Minneapolis.          |
| —Owen, Jessie,              | Minneapolis.          |
| —Parcher, Mary Louise,      | Minneapolis.          |
| —Pardee, Mrs. Etta S.,      | Minneapolis.          |
| —Patten, Alicia,            | St. Paul.             |
| Perrin, Glover,             | St. Paul.             |
| —Phillips, Minnie Blanche,  | Minneapolis.          |
| —Pratt, Jessie Augusta,     | Minneapolis.          |
| —Redfield, Mary E.,         | Minneapolis.          |
| —Roby, Mabel Augusta,       | Minneapolis.          |
| —Rose, Virginia D.,         | Merriam Park.         |
| —Rutherford, Fanny,         | Minneapolis.          |
| Scherer, Robert Walter,     | New Ulm.              |
| Smith, Ashley F.,           | Minneapolis.          |
| —Smith, Frances M.,         | Red Wing.             |
| —Smith, Jessie P.,          | Algona, Ia.           |
| Snyder, Albert R.,          | Minneapolis.          |
| Sølsnes, Lars,              | Minneapolis.          |
| —Sommermeyer, Louise W.,    | Minneapolis.          |
| Spottswood, Edward W.,      | Minneapolis.          |
| —Stephan, Emma,             | Minneapolis.          |
| —Sterrett, Frances,         | Lake City.            |
| Stevens, Frank L.,          | Ashtabida, Ohio.      |
| Strass, Christian Olaus,    | Minneapolis.          |
| —Taylor, Mary Harlan,       | Minneapolis.          |
| —Thompson, Julia Keys,      | Cincinnati, O.        |
| Titus, Albert Addison,      | Minneapolis.          |
| Turner, John W.,            | Minneapolis.          |

|                              |                   |
|------------------------------|-------------------|
| —Upham, Rose Maude,          | St. Anthony Park. |
| —Van Cleve, Charlotte H.,    | Minneapolis.      |
| Watrous, Martin W.,          | Duluth.           |
| Wattis, Warren Lafayette,    | St. Paul.         |
| —Watts, Grace F.,            | Minneapolis.      |
| —White, Mrs. Martha Birdora, | Minneapolis.      |
| —Wightman, Daisy Caroline,   | Minneapolis.      |
| —Williams, Clara,            | Minneapolis.      |
| Wilson, Halsy William,       | Minneapolis.      |
| Zimmerman, Arthur P.,        | Minneapolis.      |
| * Died 1889.                 |                   |

## SCHOOL OF PRACTICAL MECHANICS, 72,

## A DIVISION (FIRST YEAR), 6.

|                 |                 |
|-----------------|-----------------|
| Clark, E. J.,   | Richfield.      |
| Grendahl, Olaf, | Swift Falls.    |
| Mashek, Geo.,   | Kewanee.        |
| Olson, O. N.,   | St. Ansgar, Ia. |
| Prichett, John, | Minneapolis.    |
| Towner, M. H.,  | Winona.         |

## A DIVISION (SECOND YEAR), 16.

|                       |                   |
|-----------------------|-------------------|
| Aschenden, Ernest W., | Minneapolis.      |
| Anthony, Ole,         | Norseland.        |
| Bird, Chas. E.,       | Fairmount.        |
| Carnes, Robert K.,    | St. Paul.         |
| Day, Wm. H.           | Mazeppa.          |
| Elvidge, Walter S.,   | St. Anthony Park. |
| Hill, C. H.,          | Lac Qui Parle.    |
| Mueller, John B.,     | Minneapolis.      |
| Muther, Henry,        | Minneapolis.      |
| Pratt, Irenus,        | Mapleton.         |
| Rutherford, Harry W., | Minneapolis.      |
| Sheahan, Chas. E.,    | Minneapolis.      |
| Smith, O. C.,         | St. Ansgar.       |
| Truesdale, Albert V., | Minneapolis.      |
| Weinbeck, Joseph,     | Winsted.          |
| Wernicke, Rudolph,    | Minneapolis.      |

## B DIVISION, 12.

|                    |              |
|--------------------|--------------|
| Day, Bert W.,      | Mazeppa.     |
| Hoff, Frank D.,    | Fillmore.    |
| Jamieson, Harry,   | Mazeppa.     |
| Ladue, Samuel C.,  | Fertile.     |
| Lake, Otis K.,     | Fairmont.    |
| Lyon, Everett E.,  | Minneapolis. |
| Seaton, Walter, L. | Minneapolis. |
| Semmen, Andrew,    | Minneapolis. |
| Sundby, Martin,    | Minneapolis. |



|                         |                  |
|-------------------------|------------------|
| —Foote, Mrs. Helen,     | Minneapolis.     |
| —Fox, Etta,             | Minneapolis.     |
| Hitchings, C. E.,       | Minneapolis.     |
| —Hood, M. Mary,         | Minnehaha Falls. |
| —House, Elizabeth A.    | Minneapolis.     |
| —Hurd, Annah,           | Hamline.         |
| —Johnson, Mrs. E. B.,   | Minneapolis.     |
| —Kneisly, Daisy,        | Minneapolis.     |
| —Lane, Celeste,         | Minneapolis.     |
| —Leonard, Gertrude J.,  | Minneapolis.     |
| Manson, Frank M.,       | Minneapolis.     |
| Mendenhall, Richard P., | Minneapolis.     |
| —Moore, Mrs. J. G.,     | Minneapolis.     |
| —Orff, Julia E.,        | Minneapolis.     |
| —Pike, Mrs. William A., | Minneapolis.     |
| —Pyle, Mrs. E. W.,      | Minneapolis.     |
| —Perrine, Francesca W., | Minneapolis.     |
| —Rogers, Helen,         | Minneapolis.     |
| Saugstad, Olaf,         | Minneapolis.     |
| Sinai, Alex,            | Minneapolis.     |
| —Sloat, Floy,           | Minneapolis.     |
| Sloat, H. D.,           | Minneapolis.     |
| —Suffern, Mary E.,      | Minneapolis.     |
| Sumner, Francis,        | Minneapolis.     |
| Towne, Burton A.,       | Minneapolis.     |
| Wright, Ernest A.,      | Minneapolis.     |

## SCHOOL OF AGRICULTURE, 78.

## PREPARATORY CLASS, 29.

|                    |                    |
|--------------------|--------------------|
| Brewster, L. J.,   | Wendell.           |
| Buffington, A. L., | Minneapolis.       |
| Clement, Carlos,   | Cottage Grove.     |
| Cross, Frank,      | Ked Wing.          |
| Davis, Edwin,      | Bloomington Ferry. |
| Day, Nelson,       | Richfield.         |
| Elliott, E.,       | Minneapolis.       |
| Emery, L. W.,      | Lake City.         |
| Foley, Joseph,     | Cottage Grove.     |
| Gaumnitz, A. H.,   | St. Cloud.         |
| Hays, Scott,       | Appleton.          |
| Holman, Alfred,    | Cottage Grove.     |
| Ilstrup, F. A.,    | Buffalo.           |
| Jacob, W. F.,      | Zumbro Falls.      |
| Lindig, John,      | Rose Town.         |
| Lommen, M. J.,     | Spring Grove.      |
| Noiswing, K. B.,   | Holden.            |
| Porter, W. N.,     | Great Falls, Mont. |

Pratt, F. F.,  
 Prescott, N. C.,  
 Schmitz, Edward,  
 Shields, J. A.,  
 Shields, C. A.,  
 Shinnabarger, Anan,  
 Shuman, W. H.,  
 Shuman, Fred,  
 Smith, E. C.,  
 Thompson, John,  
 Toombs, W. L.,

Bethel.  
 Herman.  
 Stewart.  
 Litchfield.  
 Litchfield.  
 Long Prairie.  
 Minneapolis.  
 Aberdeen, S. D.  
 Minneapolis.  
 Cottage Grove.  
 Hereford.

## JUNIORS, 35.

Adams, A. W.,  
 Bakken, E. H.,  
 Borchert, Arthur,  
 Boss, Andrew,  
 Day, Ernest,  
 Ellerman, Albert,  
 Fairchild, P. M.,  
 Field, Walter,  
 Fleckten, John,  
 Galloway, Burt,  
 Gilfillan, C. D.,  
 Gross, E. A.,  
 Haigh, Garry,  
 Hodgson, A. E.,  
 Ireland, F. M.,  
 Iverson, Peter,  
 Johnson, J. A.,  
 LeVesconte, Geo.,  
 Lommen, A. P.,  
 Manchester, J. L.,  
 Marvin, Charles,  
 Matterson, M. L.,  
 Moffet, W.,  
 Monson, N. L.,  
 Porter, N. H.,  
 Porter, H. H.,  
 Richardson, Frank,  
 Sandsten, Emil,  
 Sorkness, H. O.,  
 Stene, Edward,  
 Street, A. H.,  
 Wein, H. J.,  
 Western, John,  
 Wilson, R. H.,  
 Wing, H. O.,

Minnehaha.  
 Holden.  
 Bird Island.  
 Zumbro Falls.  
 Richfield.  
 Owatonna.  
 Dansville, N. Y.  
 Zumbro Falls.  
 Kandiyohi.  
 Austin.  
 Morgan.  
 Pickwick.  
 Mankato.  
 Fergus Falls.  
 Appleton.  
 Watson.  
 Hector.  
 Hastings.  
 Spring Grove.  
 Menomonie, Wis.  
 Garden City.  
 Round Prairie.  
 Biscay.  
 Buffalo Lake.  
 Minneapolis.  
 Great Falls, Mont.  
 Richfield.  
 St. Anthony Park.  
 Ashby.  
 Ashby.  
 Alden.  
 Renville.  
 Ashby.  
 St. Paul.  
 Aspeland.

## SENIORS, 14.

Graduated April 4, 1890.

|                        |                   |
|------------------------|-------------------|
| Dunford, James W.,     | St. Louis, Mo.    |
| Emery, Harvey H.,      | Lake City.        |
| Higbie, Wilson S.,     | Grand Meadow.     |
| Hoverstad, Torger A.,  | Holden.           |
| Hummel, August.        | New Ulm.          |
| LeVesconte, John.      | Hastings.         |
| Mackintosh, Roger S.,  | Langdon.          |
| Payne, Carroll E.,     | Dexter.           |
| Pendergast, Warren W., | Hutchinson.       |
| Pfaender, Herman,      | New Ulm.          |
| Power, James A.,       | Power, N. D.      |
| Sanders, Jesse J.,     | Appleton.         |
| Smith, William G.,     | Fond du Lac, Wis. |
| Stark, Albert O.,      | Harris.           |

## LAW STUDENTS, 134.

JUNIOR CLASS, 89.

|                               |              |
|-------------------------------|--------------|
| Arnold, Guy Halbert,          | Minneapolis. |
| Arntzen, C. J.,               | Wadehl.      |
| Bauman, Edward Charles.       | Duluth.      |
| Benson, Charles Stuart.       | Anoka.       |
| Bentley, Lester Howard.       | Minneapolis. |
| Best, John William,           | St. Paul.    |
| Bestor, George Wilber,        | Minneapolis. |
| Biddeman, Abram M.,           | Minneapolis. |
| Bolles, H. A.,                | Minneapolis. |
| Bookwalter, S.,               | Minneapolis. |
| Brower, Ripley Bernard,       | Minneapolis. |
| Burr, Stiles Wilton,          | St. Paul.    |
| Carey, William Harrison.      | Duluth.      |
| Carlton, Linwood Christopher, | Minneapolis. |
| Carr, Greely E.,              | Argyle.      |
| Casey, John M.,               | Waverly.     |
| Corey, C. M.,                 | Minneapolis. |
| Davidson, Martin Bradner.     | Austin.      |
| Denagre, James D.,            | St. Paul.    |
| Dickerman, Gilbert G.,        | St. Paul.    |
| Doe, Richard K.,              | St. Paul.    |
| Doeflier, Joseph,             | Minneapolis. |
| Donahoe, David J.,            | Minneapolis. |
| Drennen, Michael R.,          | Minneapolis. |
| Ferodowill, Frank Xavier,     | St. Paul.    |
| Fiske, Douglas A.,            | Minneapolis. |
| Fosket, William,              | Pipestone.   |
| Galbraith, J. P.,             | St. Paul.    |



|                                  |               |
|----------------------------------|---------------|
| Gearhart, Harry Gilbert,         | Duluth.       |
| *Gehm, Albert W. F.,             | Buffalo.      |
| Glenn, Lieut. Edwin F.,          | St. Paul.     |
| Godfrey, Eugene Harland,         | Minneapolis.  |
| Goodsell, Chas Ernest,           | Fergus Falls. |
| Gould, Charlie Devereaux,        | Minneapolis.  |
| Gray, James E.,                  | Lake City.    |
| Gregerson, Lawrence,             | Geneva.       |
| Hamblin, Chas. N.,               | Minneapolis.  |
| Hammon, Louis Linge,             | Minneapolis.  |
| Harden, Geo. W. W.,              | LeRoy.        |
| Harris, Alfred James,            | Kent.         |
| Higgins, Arthur Minot,           | Minneapolis.  |
| Holmes, Eugene D.,               | Minneapolis.  |
| Ingwaldson, Benjamin E.,         | Vineland.     |
| Jellison, Jesse L.,              | Minneapolis.  |
| Knight, Henry L.,                | LeRoy.        |
| Krause, William A.,              | Paynesville.  |
| Lange, D.,                       | St. Paul.     |
| Lindsay, John,                   | St. Paul.     |
| Linsey, F. F.,                   | Minneapolis.  |
| Little, E. O.,                   | Minneapolis.  |
| Lothrop, Veranus Willis,         | St. Paul.     |
| McCord, Alvin Carr,              | Minneapolis.  |
| McCrea, Ezra E.,                 | Hamline.      |
| McGowan, John G.,                | Minneapolis.  |
| McGowen, John,                   | Minneapolis.  |
| —Matteson, Flora E.,             | Faribault.    |
| Mayer, W. F.,                    | Union Grove.  |
| Megaarden, Theodore,             | Minneapolis.  |
| Merrick, Harry Hopkins,          | Minneapolis.  |
| Miller, Thomas Alfred,           | Minneapolis.  |
| Moore, Albert Randall,           | St. Paul.     |
| Mueller, Lewis B.,               | Minneapolis.  |
| Neff, Porter Joseph,             | Minneapolis.  |
| Nelson, Jacob J.,                | Perley.       |
| Nelson, John Peter,              | Minneapolis.  |
| Ofsthum, Andrew Olson,           | Cyrus.        |
| Pilgram, William Henry Harrison, | Minneapolis.  |
| Rackett, Alfred George,          | Minneapolis.  |
| Remmen, Martin E.,               | Holden.       |
| Robinson, Horace Randall,        | Minneapolis.  |
| Rogers, Arthur R.,               | Minneapolis.  |
| Ross, Edward Wesley,             | LuVerne.      |
| Schaeffer, Edwin H.,             | Minneapolis.  |
| Selover, George Howard,          | Minneapolis.  |
| Smith, Fred Pearson,             | Le Sueur.     |
| Snell, William,                  | Minneapolis.  |

|                         |              |
|-------------------------|--------------|
| Stone, J. E.,           | St. Paul.    |
| Thompson, Ralph D.,     | St. Paul.    |
| Tompkins, F. S.,        | St. Paul.    |
| Trowbridge, H. H.,      | St. Paul.    |
| Tryon, George W.,       | Owatonna.    |
| Vaule, Ole John,        | St. Cloud.   |
| Walgren, John Arvid,    | Minneapolis. |
| Walker, George D.,      | Minneapolis. |
| Ware, Frank L.,         | Minneapolis. |
| Wheeler, Thomas Joseph, | St. Paul.    |
| Williams, George,       | Minneapolis. |
| Wilson, Ole Knute,      | Gilchrist.   |
| Woodward, J. P.,        | Minneapolis. |
| *Died October, 1889.    |              |

## SENIOR CLASS, 45.

|                                    |                |
|------------------------------------|----------------|
| Allen, J. Boyd,                    | Minneapolis.   |
| Anderson, Michael M.,              | Hendrum.       |
| Avery, Bertrand A.,                | Albert Lea.    |
| Bardwell, Winfield W.,             | Minneapolis.   |
| Bickenbach, Otto B.,               | Albert Lea.    |
| Bond, Charles E.,                  | Minneapolis.   |
| Brill, William Hascal,             | St. Paul.      |
| Burlingame, James Montgomery, Jr., | Owatonna.      |
| Campbell, Johnston.                | Marine Mills.  |
| Corrison, Frank Thomas,            | Minneapolis.   |
| Conlow, John William,              | Minneapolis.   |
| Dalby, Charles Andover,            | Minneapolis.   |
| Dawley, Daniel Lincoln,            | Smithfield.    |
| Dickinson, Horace Danforth,        | Minneapolis.   |
| Douglass, George Perkins,          | Minneapolis.   |
| Ferree, Simpson,                   | Minneapolis.   |
| Getty, John Thomas,                | Minneapolis.   |
| Gummer, Edgerton Ferguson,         | Frazee City.   |
| Gyde, James Ellsworth,             | Minneapolis.   |
| Holt, Charles August,              | Minneapolis.   |
| Jones, Paul,                       | Minneapolis.   |
| Judge, John C.,                    | Minneapolis.   |
| Kolliner, Robert S.,               | Stillwater.    |
| Larimore, John Andrew,             | Minneapolis.   |
| Locke, Cassius Marcus,             | Minneapolis.   |
| Mead, Henry Stowell,               | Minneapolis.   |
| Monson, Charles J.,                | Otisville.     |
| Nutting, Robert Boyd,              | Northfield.    |
| Paige, James,                      | Minneapolis.   |
| Parker, Ralph James,               | Spring Valley. |
| Pettibone, Orrin Harmon,           | Minneapolis.   |
| Polley, Samuel Cleland,            | Aitkin.        |
| Purdy, Charles Edward,             | Minneapolis.   |

|                                |                    |
|--------------------------------|--------------------|
| Rogers, William F.,            | Minneapolis.       |
| Rustgard, John,                | Minneapolis.       |
| Schaeffer, Charles Melancthon, | Minneapolis.       |
| Serumgard, Siver,              | Cooperstown, S. D. |
| Smeltzer, Jacob Daniel,        | Minneapolis.       |
| Smith, Albert J.,              | Minneapolis.       |
| Stocker, Harry Davis,          | Minneapolis.       |
| Stone, Charles Fielding,       | Howard Lake.       |
| Triggs, William Robert,        | Minneapolis.       |
| Waters, James Henry,           | Minneapolis.       |
| Winterer, Edward,              | LeSueur.           |
| Young, John Ridgely,           | Minneapolis.       |

### COLLEGE OF MEDICINE AND SURGERY,—87.

#### FRESHMEN, 37.

|                               |                 |
|-------------------------------|-----------------|
| Ames, Charles C.,             | Minneapolis.    |
| Anderson, Christopher August, | Nicollet.       |
| Aurnes, Peter Andreas,        | Minneapolis.    |
| Bergdahl, Charles August,     | Minneapolis.    |
| Binder, George Alexander,     | St. Paul.       |
| —Buell, Mary C.,              | Minneapolis.    |
| Chapman, Charles R.,          | Minneapolis.    |
| Connor, Uri B.,               | Duluth.         |
| Corliss, John Harry,          | Fergus Falls.   |
| Davidson, James,              | Minneapolis.    |
| Edsall, J. L.,                | Minneapolis.    |
| Erickson, John Gustaf,        | Minneapolis.    |
| Falk, John Theodore,          | Bloomington.    |
| Ferree, George Perry,         | Minneapolis.    |
| Fjelde,, Herman Olaus,        | Minneapolis.    |
| Free, Earle Perry,            | Minneapolis.    |
| —Garber, Lou Maria,           | Berne.          |
| Gilkinson, Andrew Jackson,    | Kingston.       |
| Healy, Herbert Henry,         | Drayton, N. D.  |
| Janson, Eiliu,                | Minneapolis.    |
| Janson, Ivan,                 | Minneapolis.    |
| Kirkwood, Samuel Markel,      | Macalester.     |
| Krogstad, Olaf Emil,          | Duluth.         |
| Liland, Ragnvald,             | Minneapolis.    |
| Marshall, Nelson,             | Minneapolis.    |
| Mayland, M. L.,               | Aspelund.       |
| Niemo, Louis,                 | St. Paul.       |
| Perl, Leon Allen,             | Houston, Texas. |
| Robertson, John Banks,        | Albert Lea.     |
| Rothwell, William P.,         | Clinton.        |
| Sabin, Alfred Augustus,       | Moorhead.       |
| Senkler, George E.,           | St. Paul.       |

|                             |              |
|-----------------------------|--------------|
| Skinner, George Alfred,     | St. Paul.    |
| Thompson, William Mellwain, | St. Paul.    |
| Weeks, Leonard Case,        | Litchfield.  |
| Winberg, Osten K.,          | Minneapolis. |
| Witham, Albion Keith Paris, | Minneapolis. |

## JUNIORS, 32.

|                                 |                |
|---------------------------------|----------------|
| —Allison, Mrs. Minnie L. M.,    | Minneapolis.   |
| Anderson, August,               | Minneapolis.   |
| Bakke, Peter,                   | Minneapolis.   |
| Bakke, Peter Halstensen.        | Kenyon.        |
| Beard, Isaac James.             | Minneapolis.   |
| Bergan, Ole K.,                 | Sacred Heart.  |
| Bohland, F. J.,                 | St. Paul.      |
| —Conant, Harriet Beecher,       | Minneapolis.   |
| Eckley, Ralph,                  | Minneapolis.   |
| Fjeldstad, Carl,                | Norway Lake.   |
| Gibbs, Thomas,                  | Lake City.     |
| Gilbertson, Julius C.,          | Minneapolis.   |
| —Hart, Mrs. Rachel Lucinda,     | Minneapolis.   |
| Hielscher, Julian Adolph,       | Preston.       |
| Hove, John Julius,              | Minneapolis.   |
| Hlstrup, Francis,               | Buffalo.       |
| Johnson, Andrew E.,             | Glencoe.       |
| Lind, Alfred,                   | Winthrop.      |
| Lockwood, Le Baron Stanley O.,  | Minneapolis.   |
| Mohn, Frederick Voss,           | Minneapolis.   |
| Moore, George Wilber,           | Minneapolis.   |
| —Petitt, Loretta J.,            | Rushmore.      |
| Ringnell, Carl John.            | St. Peter.     |
| Rogers, John Thomas,            | St. Paul.      |
| Salvage, Frederick E.,          | Fergus Falls.  |
| Sheppard, Prosper Ernest,       | Lake Side.     |
| —Smith, Martha Jane,            | Yankton, S. D. |
| Stewart, Allan Blanchard,       | Britton, S. D. |
| Suleeba, Thomas Shammass,       | Minneapolis.   |
| Tennyson, Ahasuerus Falkenberg, | Minneapolis.   |
| Upton, Edwin John,              | Minneapolis.   |
| White, James.                   | Belle Plaine.  |

## SENIORS, 18.

|                               |                  |
|-------------------------------|------------------|
| Dean, Frank Wilson,           | Minneapolis.     |
| Dugan, Rollo C.,              | Eyota.           |
| Ford, Corydon Lovine,         | Ann Arbor, Mich. |
| Franchere, Frederick Erasmus, | Lake Crystal.    |
| Fremstad, Ole,                | Minneapolis.     |
| Greene, Charles Lyman,        | St. Paul.        |
| Hennemuth, John Louis,        | St. Paul.        |
| Jones, Charles Henry,         | Minneapolis.     |

|                           |                  |
|---------------------------|------------------|
| Lyng John,                | Minneapolis.     |
| Miner, Clarence Jennings, | Ann Arbor, Mich. |
| O'Connor, Dennis Francis, | Afton.           |
| O'Connor, Timothy,        | Annandale.       |
| Otis, Charles A.,         | St. Paul.        |
| Ridgway, Alfred Miller,   | Minneapolis.     |
| Siemens, Abram,           | Mountain Lake.   |
| Soderlind, Andrew,        | Minneapolis.     |
| Stowell, Joab, Jr.,       | Minneapolis.     |
| Wright, Charles Osborne,  | Hastings.        |

## THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY,—8

### FRESHMEN, 3.

|                          |               |
|--------------------------|---------------|
| Cooper, Charles McHenry, | Marion.       |
| Prestegar, Torrey T.,    | Austin.       |
| Whitelaw, William Hope,  | Good Thunder. |

### JUNIORS, 2.

|                         |              |
|-------------------------|--------------|
| Drought, Warren Wesley, | St. Paul.    |
| Roberts, Adelbert A.,   | Minneapolis. |

### SENIORS, 3.

|                         |              |
|-------------------------|--------------|
| Carrell, Fred Augustus, | Plainview.   |
| Wait, Leon Adelbert,    | Minneapolis. |
| White, Arthur Eugene,   | Minneapolis. |

## COLLEGE OF DENTISTRY,—32.

### FRESHMEN, 12.

|                               |              |
|-------------------------------|--------------|
| Anderegg, Daniel Benjamin F., | Mankato.     |
| Bachman, Otto Brayton,        | Minneapolis. |
| Benjamin, Arthur Edwin,       | Hutchinson.  |
| Clements, Herbert D.,         | Faribault.   |
| Ehle, Nelson Henry.           | Minneapolis. |
| Gale, Charles Hazen,          | Faribault.   |
| Haas, Edward,                 | St. Paul.    |
| Knapp, Miland A.,             | Hastings.    |
| McAllister, William Dickens,  | Minneapolis. |
| Paul, James William,          | Minneapolis. |
| Whittaker, Frank Noble,       | Minneapolis. |
| Williams, Thomas Folvay,      | Concord.     |

### JUNIORS, 10.

|                     |              |
|---------------------|--------------|
| Breck, Henry Towne, | Minneapolis. |
| —Chandler, Ella Z., | Minneapolis. |

|                           |              |
|---------------------------|--------------|
| Force, Frank W.,          | Minneapolis. |
| Holmes, Frank August,     | Minneapolis. |
| Lenox, Fred Augustus,     | Minneapolis. |
| Marshall, Edgar Henry,    | Plainview.   |
| Meckstroth, Louis Wesley, | Le Sueur.    |
| Riddell, Edwin George,    | Northfield.  |
| Rose, William Johnson,    | Minneapolis. |
| Todd, Frank, Chisholm,    | Minneapolis. |

**SENIORS, 6.**

|                             |                     |
|-----------------------------|---------------------|
| Deitz, Clinton Smith,       | Lake Preston, S. D. |
| Dunn, William Herbert,      | Northfield.         |
| Peck, Arthur Ellsworth,     | Minneapolis.        |
| Van Duzee, Charles Alonzo,  | St. Paul.           |
| Wright, Franklin Randolph,  | Minneapolis.        |
| —White, Mrs. Edith Hew Ett, | Minneapolis.        |

**SPECIALS, 4.**

|                          |              |
|--------------------------|--------------|
| Davis, S. S.,            | Minneapolis. |
| Wilson, Louis Blanchard, | St. Paul.    |
| Nelson, N. Amherst,      | Minneapolis. |
| —Shemeld, Kate Iekler,   | St. Paul.    |

**PHILOSOPHICAL ORATORS.**

*Awarded upon the basis of Scholarship.*

|                     |                  |                     |
|---------------------|------------------|---------------------|
| JOSEPH BROWN PIKE,  | - - - - -        | Valedictorian.      |
| MILTON REX,         | - - - - -        | Salutatorian.       |
| CHARLES L. SOMMERS, | SIVER SERUMGARD, | HERERT M. WOODWARD. |

## SUMMARY 1889-90.

| DEPARTMENT.   | CLASS.              | Gentlemen. | Ladies | Total. |
|---|---------------------|------------|--------|--------|
| Graduate Students.....  |                     | 23         | 25     | 48     |
| College of Science, Literature and Arts,<br>and College of Mechanic Arts..... | { Senior.....       | 47         | 10     | 57     |
|   | { Junior.....       | 50         | 16     | 66     |
|   | { Sophomore.....    | 62         | 26     | 88     |
|   | { Freshman.....     | 105        | 53     | 158    |
|   | { Sub-Freshman..... | 33         | 13     | 46     |
| School of Practical Mechanics.....  | { Special.....      | 48         | 53     | 101    |
|   |                     | 62         |        | 62     |
| School of Design, Free-hand Drawing and<br>Wood Carving.....                  | }                   | 13         | 25     | 38     |
| School of Agriculture.....  |                     | 78         |        | 78     |
| Department of Law.....  | { Seniors.....      | 45         |        | 45     |
|   | { Juniors.....      | 88         | 1      | 89     |
| College of Medicine and Surgery.....  | { Seniors.....      | 18         |        | 18     |
|   | { Juniors.....      | 27         | 5      | 32     |
|   | { Freshman.....     | 35         | 2      | 37     |
| College of Homeopathic Med. and Surg.,  | { Seniors.....      | 3          |        | 3      |
|   | { Juniors.....      | 2          |        | 2      |
|   | { Freshman.....     | 3          |        | 3      |
| College of Dentistry.....   | { Seniors.....      | 5          | 1      | 6      |
|   | { Juniors.....      | 9          | 1      | 10     |
|   | { Freshman.....     | 12         |        | 12     |
| Special Medical Students.....   |                     | 3          | 1      | 4      |
| Department of Veterinary Medicine.....  | Juniors.....        | 4          |        | 4      |
|   |                     | 775        | 232    | 1007   |
| Twice counted.....  |                     | 5          |        | 5      |
| Total.....  |                     | 770        | 232    | 1002   |

## THE UNIVERSITY.

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

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

### DEPARTMENTS.

The University is composed of the following Departments:

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

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

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

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

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



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

AN EXPERIMENT STATION has been organized at the University farm.

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

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

A COLLEGE OF MEDICINE AND SURGERY.

A COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY.

A COLLEGE OF DENTISTRY.

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

THE DEPARTMENT OF VETERINARY MEDICINE.

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

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

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

#### BUILDINGS.

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

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

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

PILLSBURY HALL AND MUSEUM. A new building for the purpose of instruction in science, and for a museum. It is 245 feet in length, is built

of stone. It has two stories with a high basement, and contains two rooms for museums, each containing 4,000 square feet; it has also large laboratories for geology, mineralogy, botany, and animal biology, recitation and lecture rooms, and ample accommodations for the geological survey, and for the School of Mines. The building has been in use the past year; but the full equipment has but just been secured. The building is the munificent gift of the Hon. J. S. Pillsbury to the University and to the State.

**CHEMICAL AND PHYSICAL LABORATORIES.** A new building for a Chemical and Physical Laboratory, 190 feet front, will be ready for use the coming fall.

The **LAW BUILDING** was completed last October. For full description of this building, see statement under Law Department.

The buildings at the **UNIVERSITY FARM AND EXPERIMENT STATION** are six in number. A school building for the school of agriculture, a dormitory building, a building for horticulture and green-house, a station building, a farm house, and farm barn.

### 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 the east end of Pillsbury Hall. 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 7,000 entries, and 18,000 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, N. J., and a collection of sixty-four meteoric stones and irons from different parts of the world. Some 4,000 specimens collected by the geological survey will soon be placed in the Museum.

An archæological collection of several hundred specimens, chiefly from the region of the Mound Builders of Ohio, has also been deposited by Dr. H. E. Twichell. It is expected that this collection will ultimately become the property of the University.

In the same building, are upright cases filled with zoological 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.

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.

Sets of the collection 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 accumulation of the geological survey of the State, and is constantly used for the illustration of scientific instruction. The rooms are open daily during the University year for the convenience and use of the 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.

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 of illustrating the subject of horticulture, and the construction, heating, and management of plant houses.

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

The bound volumes number more than 25,000.

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

## EXPENSES.

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

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

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

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

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

## 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 Sunday afternoon lectures are given by prominent men of the State. All students are cordially invited to attend these meetings and aid in the work. The lecturers before the Students' Christian Association the past year have been as follows:

October 27, Rev. John B. Donaldson, D. D., "The Baptism of Fire;" Nov. 3, Rev. Wallace H. Butrick, "The Spirit of Truth;" Nov. 10, Rev. O. H. Tiffany, D. D., "The New Birth;" Nov. 17, Rev. Falk Gjertsen, "From Doubt to Faith;" Nov. 24, Prof. Daniel S. Gregory, D. D., "The Reasonableness of Faith;" Dec. 8, Rev. S. W. Sample, "The Bearing of Evolution on Christianity;" Dec. 15, Rev. A. H. Heath, D. D., "The Perfect Law of God;" Jan. 12, 1890, Dean Wm. S. Pattee, "Through Nature to Faith;" Jan. 25, Rev. Frank P. Woodbury, D. D., "Some Things the Church Stands For;" Feb. 2, Rev. Chas. F. Thwing, D. D., "Christianity as Natural;" Feb. 9, Rev. Lemuel Moss, D. D., "The Purpose of the Age;" Feb. 16, Rev. Edward M. Noyes, "The Logical Consequence of Belief in a Personal God;" March 2, Rt. Rev. Mahlon N. Gilbert, D. D., "The True Gentleman;" March 9, Prof. W. S. Hough, Ph. M., "The Complete Man and the Moral End of Life;" March 16, Rt. Rev. J. N. Fitzgerald, D. D., "Christian Missions."

A committee of the Association will be glad to assist all new students in securing rooms and board, and in giving any needed information. All communications should be addressed to J. E. Merrill, or Miss Emma Kemp, care of University of Minnesota.

THE YOUNG MEN'S CHRISTIAN ASSOCIATION has for its object: "to promote growth in grace and Christian fellowship among its members and ag-

gressive Christian work, especially by and for students." The active membership is composed of members of good standing in evangelical churches; and all young men of good moral character may become associate members. The association is connected with the Inter-Collegiate Y. M. C. A. movement.

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

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

**THE PI BETA NU** is an honorary society established in the spring of 1888. Its object is the selection of five men from each junior class who shall be decided to have attained the highest intellectual culture at the University. The society was founded by Helmus W. Thompson, William D. Willard, Ulysses S. Grant, Albert Graber, Albert A. Finch, of the class of '88; Henry Johnson, Kendric C. Babcock, R. Leslie Moffett, Arthur E. Giddings, Oscar L. Triggs, are the members from the class of '89; Patrick Kennedy, J. B. Pike, Henry P. Bailey, Siever Serumgard, Charles Sommers, are the members from the class of '90; T. G. Soares, W. W. Harmon, T. M. Knappen, A. J. Hammond, C. P. Lommen, are members from the class of '91.

**ALUMNI ASSOCIATION.** This association was organized in 1875. The graduates of the existing colleges of the university are members. The members of the Board of Regents and the general Faculty are honorary members. There are the usual officers charged with the customary duties. An Executive Committee conducts business not otherwise provided for. The annual meeting is on the day preceding Commencement, at 3 o'clock P. M. The Alumni attending commonly dine together after the public exercises on Commencement day. The following are the officers of the Association for the present year: President, J. E. Miner, '75; Vice-President, W. W. Keyser, '79; Secretary, S. L. Trussell, '83; Treasurer, Ida V. Mann, '85; Poet, W. L. Bassett, '79; Historian, Maude Lyall-Patrick, '86; Orator, C. J. Rockwood, '79.

**FELLOWSHIP ASSOCIATION.** This association was incorporated March 10, 1888. Its object is to encourage graduate students in special lines of study and for that purpose to raise a fund by endowment gift, grant, bequest, or annual contribution of its members. Awards of \$250 each have been made to the following recipients, known as "Fellows of the University:" 1888-89, U. S. Grant, Biology; 1889-90, K. C. Babcock, History, and O. L. Triggs, English Literature.

The Fellows, for the year 1890-91, have not yet been chosen.

Alumni, former students and other friends of the University become members of the association by pledging financial support of not less than

five dollars annually for five years. Life membership certificates are issued upon payment of \$100. The annual meeting is held at the University during the forenoon of the day preceding Commencement. The officers for the closing year are: John Goodnow, President; James Gray, Secretary; F. B. Snyder, 55 South Fourth Street, Treasurer.

#### PRIZES.

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

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

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

#### 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 been in operation since 1872, but has been confined principally to the geological portion of the work. More lately the regents have also ordered the beginning of botanical collections, with a view to the creation of a full herbarium of the flora of the state, and instituted systematic observation and reports on the birds, mammals and insects of Minnesota.

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

## THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS.

### THE FACULTY.

CYRUS NORTROP, LL. D.  
*President.*

WILLIAM W. FOLWELL, LL. D.  
*Professor of Political Science.*

JABEZ BROOKS, D. D.  
*Professor of Greek.*

JOHN G. MOORE, B. A.  
*Professor of German.*

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

JOHN C. HUTCHINSON, B. A.  
*Associate Professor of Greek and Mathematics.*

JOHN S. CLARK, B. A.  
*Professor of Latin.*

MATILDA J. WILKIN, B. L.  
*Instructor in English and German.*

MARIA L. SANFORD,  
*Professor of Rhetoric and Elocution.*

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

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

CHARLES W. BENTON, B. A.  
*Professor of French.*

O. J. BREDA,  
*Professor of Scandinavian.*

CHARLES F. SIDENER, B. S.  
*Assistant Professor of Chemistry.*

HENRY F. NACHTRIEB, B. S.  
*Professor of Animal Biology.*

GEORGE EDWIN MACLEAN, PH. D.  
*Professor of English.*

HARRY PRATT JUDSON, M. A.  
*Professor of History.*

FREDERICK S. JONES,  
*Professor of Physics.*

CONWAY McMILLAN, M. A.  
*Instructor in Botany.*

HENRY T. ARDLEY,  
*Instructor in Free Hand Drawing.*

ALBERT J. SCHUMACHER,  
*Instructor in Mechanical Drawing.*

W. S. HOUGH, PH. M.  
*Assistant Professor of Mental and Moral Philosophy and Logic.*

### TERMS.

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

### COURSES OF STUDY.

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

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

### ADMISSION.

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

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

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

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

### ADMISSION ON DIPLOMA.

By a special resolution of the Board of Regents, graduates of St. Paul and Minneapolis High Schools, and the Minneapolis Academy, will be admitted to the Freshman class without examination upon presentation of



their diploma. The State High School Board has inspected and classified the schools under its supervision. Graduates of the schools of the first rank are admitted to the Freshman class upon presentation of their diploma. At present the following schools are in this rank: Alexandria, Anoka, Austin, Duluth, Hastings, Lake City, Mankato, Owatonna, Red Wing, Rochester, Spring Valley, Stillwater, Winona, Faribault.

It is found that students who present diplomas of first-class high schools, and who are therefore entitled to admission, have not, in some cases, taken very important studies in their course, but substitute studies have been accepted in place of those omitted. To remedy this evil, principals are requested to furnish their pupils who come to the University, and students are required to bring to the University, a certified list of the studies actually covered by the diploma in each case. The diploma will be accepted by the University for all that it really represents of work done. And if important subjects required by the University have been omitted by the student, in his preparatory work, he will be required to make it up, notwithstanding his diploma. Candidates holding diplomas from high schools of the first rank should therefore present their diplomas (at the time of making their application for admission) accompanied by certified certificates of the principal of the school granting such diploma, showing the studies covered by the diploma. Candidates holding certificates of the High School Board should present their credentials on making application.

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

#### REQUIREMENTS FOR ADMISSION.

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

##### TO THE CLASSICAL COURSE.

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

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

**ENGLISH COMPOSITION.**—The candidate should have such knowledge of form, penmanship, orthography, punctuation, syntax and construction as will enable him to write with ease and elegance any letter of business or friendship; to draft

resolutions and petitions; to prepare for the press, reports of meetings and brief notices of current events. Accuracy upon these fundamental points will cover three-fourths of the examination. In addition to this some knowledge of English composition as a fine art is expected; of the power and beauty gained by the right use of rhetorical figures; of what is meant by purity, precision, brevity and harmony and style; and this not merely by committing to memory definitions and rules, but by studying the English classics and learning to appreciate the life and vigor of the great masters of English poetry and prose.

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

**ELEMENTARY ALGEBRA.**—Any one of the following books will furnish the necessary preparation: Ray's Elementary Algebra, Greenleaf's New Elementary Algebra, Davies' Elementary Algebra, Olney's Introduction to Algebra. If Olney's Complete Algebra or Wentworth's Elements of Algebra be used, selections can be made equivalent to the above.

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

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

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

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

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

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

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

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

**CÆSAR.**—First three books of the Gallic war. Translations of passages of the text into correct idiomatic English. Grammatical questions connected with the text, more especially on the subjunctive mood, indirect discourse and the sequence of tenses. The pupil should be able to rewrite in the *oratio recta* all the passages in

the *oratio obliqua* that occur in these books. The life of Cæsar and an account of his wars, especially those carried on in Gaul, with the geography of that country and the location of the different tribes mentioned in the text. The organization of the Roman army, the method of reckoning time, distance, etc., etc.

**CICERO.**—Six orations: four against Catiline, and any two of the three following: "Poet Archias," "Ligarius" and "Marcellus." Translations as in Cæsar. Grammatical questions, more especially on the syntax of the cases, the infinitive mood and participles. Composition of words as given in sections 313-343 of Harkness' Grammar; historical and geographical references found in the text; the life of Cicero and the history of his times, and of the Catilinian conspiracy; the antiquities connected with the text, particularly the Roman Senate, its origin, constitution, powers, duties, etc., the function of the consulship, prætorship and other offices.

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

**GREEK.**—Brooks' Attic Greek; Xenophon's *Anabasis*, three books.

### TO THE SCIENTIFIC COURSE.

**ENGLISH GRAMMAR.**

**ENGLISH COMPOSITION.**

**ESSAY.**

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

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

**PHYSIOLOGY.**

**NATURAL PHILOSOPHY.**

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

**DRAWING.**—Two terms of Frechand or Mechanical Drawing.

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

**CHEMISTRY.**—The non-metallic elements. The work corresponds nearly with the first 150 pages of Elliot and Storer's Elementary Manual of Chemistry.

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

**LATIN.**—As in the Classical Course.

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

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

### TO THE LITERARY COURSE.

**ENGLISH GRAMMAR.**

**ENGLISH COMPOSITION.**

**ESSAY.**

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

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

**PHYSIOLOGY.**

**NATURAL PHILOSOPHY.**

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

{ **LATIN.**—As in the Classical Course.

{ **AND**  
**GERMAN OR FRENCH.**—As in the Scientific Course.

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

In lieu of French, students may offer the following:

{ **DRAWING.**—Two terms of Frechand or Mechanical Drawing.

{ **SHAKSPERE.**—One term.

**REGISTRATION.**

All students of this college are required to pay an annual incidental fee of five dollars. No reduction is made for late entrance or for withdrawal before the end of the year. On payment of this fee, a registration card is issued which admits the holder to the recitations and lectures.

**INSTRUCTION.**

It would be impracticable to attempt to give a full description of the work in the various departments, and of the methods used in teaching. The courses of study given below will sufficiently indicate the scope of the work in the different subjects offered in this college. It will be noticed that in the earlier years of all the courses the studies are required, while in the junior year more than half are elective, and in the senior year all studies are elective. The object of this arrangement is to secure, in the earlier years, a thorough discipline, and to help the student to form correct habits of study and investigation, by compelling him to pursue the studies chosen long enough to enable him to master them in a good degree. He is then prepared to take up the work of the later years and to make selections for himself, guided by his own tastes and judgment.

**CURRICULUM.**

The following schedule shows the studies for the different courses, classes and terms. The figures in brackets indicate the number of exercises a week :

CLASSICAL COURSE.

FRESHMAN YEAR.

FIRST TERM.

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

SECOND TERM.

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

THIRD TERM.

- GREEK [4].—Demosthenes' *Olynthiacs* and *Philippics*.  
 ENGLISH [4].—Old English (Anglo-Saxon) Elements, and history of the English language.  
 BOTANY [4].—Gray's *Lessons and Manual*, with lectures on the leading characteristics of the algae, fungi, mosses and ferns, and on the physiology of plants.  
 MILITARY DRILL [3].—Drill and recitations in *Tactics*.  
 RHETORICAL WORK [1].—Compositions.  
 SURVEYING [2].—Four hours a week (OPTIONAL).

SOPHOMORE YEAR.

FIRST TERM.

- LATIN [4].—Horace, with history of Roman literature.  
 RHETORIC [4].—Genung's text-book; study and criticism of authors; essays.  
 CHEMISTRY [4].—A brief course in General Chemistry, consisting of lectures and recitations.  
 FRENCH [4].—Chardenal's French Course.  
 OR  
 GERMAN [4].—Whitney's German Grammar. Oral and written exercises. Grimm's *Maerchen*.

SECOND TERM.

- GREEK [4].—Greek Tragedy: *Antigone* or *Prometheus Vincetus*, with essays; Smith's *History of Greece*; collateral readings.

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

**LATIN** [4].—Plautus, with the study of early Latin,—Language and Literature.

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

OR

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

**RHETORICAL WORK** [1].—Orations.

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THIRD TERM.

**GREEK** [4].—Plato's *Apology* and *Crito*; Smith's *History of Greece*; Essays on Plato and collateral readings.

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

**PHYSICS** [4].—Mechanics, sound and heat.

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

**RHETORICAL WORK** [1].—Elocution.

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JUNIOR YEAR.

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FIRST TERM.

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

**GREEK** [4].—Homer's *Iliad* or *Odyssey*; the literature of Homer; essays on Homer; collateral readings.

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

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

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

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

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

**GERMAN A.** [4].—German Fiction. History of the same.

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

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

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

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

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

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

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

- GREEK B. [4].—(For literary and scientific students), Brooks' Introduction to Attic Greek.  
 FRENCH A. [4].—De Maistre's, Choix d'Extraits de Daudet. Racine's Andromaque, Translations into French. Lectures on the Literature of the 17th century.  
 FRENCH B. [4].—With the Sophomores, (begun.)

SECOND TERM.

- LOGIC [4].—Deductive and Inductive. Fowler's text-books; with lectures on the limits of formal logic, the interpretation of the laws of thought and the relation of deductive and inductive inference.  
 PHYSICS [4].—Light, Magnetism and Electricity.  
 RHETORICAL WORK [1].—One oration or two essays.

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

- MATHEMATICS [4].—Differential Calculus; differentiation of algebraic and transcendental functions; development of functions; maxima and minima; treatment of tangents, sub-tangents, normals, sub-normals, asymptotes, direction and rate of curvature, evolutes, and envelopes. The text-book is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed.  
 HISTORY [4].—Studies in the history of the United States. Seminary method. Investigation of selected subjects, and essays involving original work.  
 SCANDINAVIAN [4].—Jonas Lie: Lodsens og hans Hustru. Blackboard and oral exercises.  
 FRENCH A. [4].—Muzarelli's Antonymes de la Langue Francaise; Lamartine's Histoire de Jeanne d' Arc; Crane's Tableaux de la Revolution Francaise; lectures on the literature of the 18th century.  
 FRENCH B. [4].—With the Sophomores.  
 ANALYTICAL CHEMISTRY [4].—Laboratory work eight hours a week,  
 PHYSICS [4].—Recitations and laboratory work eight hours a week.  
 PHYSIOLOGICAL BOTANY [4].—Physiology of nutrition; metabolism and growth.  
 MINERALOGY [4].—Lectures and laboratory work, eight hours a week; descriptive mineralogy continued; qualitative and quantitative blow-pipe analysis; assaying of gold and silver.  
 PHYSIOLOGY AND HISTOLOGY [4].—Can be taken only by those who have had the first term's work.  
 ENGLISH [4].—Shakspeare's As You Like It. General introduction to the comedies.  
 GREEK B. [4].—Brooks' Introduction to Attic Greek.

THIRD TERM.

- PSYCHOLOGY [4].—Dewey's Psychology with lectures and assigned reading.  
 ASTRONOMY [4].—The text-book work is supplemented by lectures, especially upon the history of the science, and upon recent astronomical discoveries and theories.  
 RHETORICAL WORK [1].—One oration or two essays.

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

- MATHEMATICS [4].—Integral Calculus; integration of the various forms, rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, equations of loci by means of the calculus.  
 SCANDINAVIAN [4].—Jonas Lie: Lodsens og hans Hustru. Blackboard and oral exercises.  
 FRENCH B. [4].—With the Sophomores.

- GERMAN A.** [4].—Goethe's Faust, part I; Life and Works of Goethe.
- CHEMISTRY** [4].—Organic.
- PHYSICS** [4].—Laboratory work eight hours a week.
- PHYSIOLOGY AND HISTOLOGY** [4].—Work of first and second terms continued.
- PHYSIOLOGICAL BOTANY** [4].—Physiology of growth, irritability and reproduction; thesis work; experimental work on selected lines mapped out for individual students.
- MINERALOGY** [4].—Eight hours a week; lectures and laboratory work; this is essentially a study of minerals and must be preceded by the first and second term's work.
- ENGLISH** [4].—Milton; studies in Paradise Lost.
- LATIN** [4].—Outline of the history and elements of Roman Law, embracing lectures and text-book work, with translations at sight from Latin writers, illustrating the subject.
- GREEK A.** [4].—Lyrics, Lectures on Greek Literature.
- GREEK B.** [4].—Anabasis continued.
- DRAWING** [4].—Freehand, (eight hours).

### SENIOR YEAR.

The work of this year is the same for all courses and is sixteen exercises a week, chosen from the following list:

#### FIRST TERM.

- RHETORICAL WORK** [1].—Orations or Essays. Required.
- GEOLOGY** [4].—Dynamical and structural. The cosmic aspects of geology, erosion, sedimentation, oscillations of level and geological dynamics with discussions of facts and theories.
- HISTORY OF PHILOSOPHY** [4].—Zeller's "Outline of Greek Philosophy," with Lectures; and Modern Philosophy in lectures with assigned reading.
- PRACTICAL ASTRONOMY** [4].—The work embraces the theory and use of instruments, the use of the Ephemerides and Nautical Almanac, the various methods of determining time, latitude and longitude, methods of obtaining the parallax and position of celestial bodies, and of computing eclipses. The student is required to compute several eclipses before the time of their occurrence.
- POLITICAL SCIENCE** [4].—Lectures on the history of economics and established principles of private economics. Oral and written exercises.
- POLITICAL SCIENCE SEMINAR** [1].—Meets once a week throughout the year. Students pursuing this course successfully obtain a credit of one term's work in the Senior year.
- HISTORY** [4].—The Nineteenth Century. A topical study of the institutions and politics of Europe at the present time.
- SCANDINAVIAN** [4].—A. E. Eriksen: Norske og Danske Forfattere. Blackboard and oral exercises.
- ANIMAL MORPHOLOGY** [4].—The course is open only to those who have had Zoology, and who can read German. It is also important to be able to read French.
- CHEMISTRY** [4].—Organic and theoretical.
- ENGLISH** [4].—American Literature: syllabus of, studies in representative authors.
- THEORY OF KNOWLEDGE** [4].—Advanced Logic, and Theory of Knowledge. Everett's "Science of Thought," with lectures. This course gives the theoretical basis for the study of ethics.
- GREEK A.** [4].—Archæology of Art.
- GREEK B.** [4].—Iliad or Odyssey.
- GEOLOGY** [1].—A short course embracing an outline of the subject.



## SECOND TERM.

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

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

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

**ETHICS** [4].—Study of Green's "Prolegomena to Ethics," with lectures, discussions and theses.

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

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

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

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

**ENGLISH** [4].—Lectures on Oratory by the President. Critical studies in the authors at the opening of the Nineteenth Century.

**GREEK A.** [4].—Modern Greek.

**GREEK B.** [4].—Demosthenes.

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

**MATHEMATICS** [4].—Co-ordinate Geometry of three dimensions.

**MILITARY SCIENCE** [4].—Lectures and Recitations.

**FRENCH A.** [4].—Antonymes de la Langue Francaise; Tableaux de la Revolution Francaise. Lectures on the Literature of the 18th century. Composition.

## THIRD TERM.

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

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

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

**FRENCH A.** [4].—La Revolution Francaise. Antonymes de la Langue Francaise. Lectures on the Literature of the 19th century.

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

**LATIN** [4].—Selections from different authors.

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

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

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

**GREEK A.** [4].—Modern Greek or Lectures on Greek Literature.

**GREEK B.** [4].—Plato.

**POLITICAL PHILOSOPHY** [2].—Mulford's "The Nation," with lectures on the grounds of political obligation.

**PHILOSOPHY OF RELIGION** [2].—Caird's "Introduction to the Philosophy of Religion," with discussions. This course will be omitted in 91-92.

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

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

**PEDAGOGICS** [1].—Lectures.

**SHAKSPERE** [1].—Lectures by the President.

**SANITARY SCIENCE** [1].—Lectures.

## SCIENTIFIC COURSE.

## FRESHMAN YEAR.

## FIRST TERM.

**DRAWING** [5].—Ten hours a week—Freehand.

**MATHEMATICS** [5].—Higher Algebra:—Same as for the classical course.

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

OR

**GERMAN** [5].—Schiller—Maria Stuart or Wilhelm Tell; review of German grammar.

OR

**ENGLISH** [5].—Old English (Anglo-Saxon) grammar and prose masterpieces; history of Old English literature begun.

OR

**FRENCH** [5].—Subject to be announced later.

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

## SECOND TERM.

**MATHEMATICS** [4].—Logarithms and Plane and Spherical Trigonometry with numerous applications.

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

OR

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

OR

**ENGLISH** [4].—Old and Middle English poetry, with parallel history of literature.

OR

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

\***CHEMISTRY** [4].—Lectures, recitations and laboratory work; chemistry of the metals (begun).

OR

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

**RHETORICAL WORK** [1].—Elocution.

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

## THIRD TERM.

**ENGLISH A.** [4].—History of the English language with Chaucer for those in the English course.

OR

**ENGLISH B.** [4].—Old English (Anglo-Saxon) elements, and history of the English language for those not in the English course.

**GERMAN** [4]. Heine—Hartzreise and Buch der Lieder; oral and written exercises.

OR

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

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

OR

\***ZOOLOGY** [4].—Lectures and laboratory work—a general study of: the phenomena of living matter, the cell and the biology of a plant, with a general sur-

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

vey of vegetal biology. Sedgwick and Wilson's General Biology, Part I, is used as a reference book and laboratory guide; Animal Biology begun with protozoon. SURVEYING [2].—Four hours a week. Not required of lady students. MILITARY DRILL [3].—Same as for classical course. RHETORICAL WORK [1].—Compositions.

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### SOPHOMORE YEAR.

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#### FIRST TERM.

RHETORIC [4].—Genung's text-book; study and criticism of authors; essays.  
 CHEMISTRY [4].—Lectures, recitations and laboratory work—study of metallic elements completed.  
 OR  
 PHYSICS [4].—Ganot's Physics: Sound and Heat.  
 BOTANY [4].—Morphology of fungi and higher cryptogams.  
 OR  
 ZOOLOGY [4].—Lectures and laboratory work; Animal Biology continued.  
 FRENCH [4].—Chardenal's French Course.  
 OR  
 GERMAN A. [4].—German scientific prose selections.  
 OR  
 GERMAN B.—Whitney's German grammar; oral and written exercises; Grimm's Maerchen.  
 OR  
 LATIN [4].—Horace, with history of Roman literature.

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#### SECOND TERM.

HISTORY [4].—Institutions of the Middle Ages in Europe; lectures and assigned reading. The study of events is made subordinate to the study of institutions, especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.  
 CHEMISTRY [4].—Qualitative Analysis (begun).  
 OR  
 PHYSICS [4].—Ganot's Physics: Electricity.  
 BOTANY [4].—Anatomy and systematic study of higher cryptogams and flowering plants.  
 OR  
 ZOOLOGY [4].—Lectures and laboratory work; Animal Biology (continued).  
 FRENCH [4].—Chardenal's French Course.  
 OR  
 GERMAN A. [4].—Becker's Friederick der Grosse or Schrakamp's Deutsche Geschichte.  
 OR  
 GERMAN B. [4].—Anderson's Geschichten; oral and written exercises.  
 OR  
 LATIN [4].—Plautus, with study of early Latin language and literature.  
 RHETORICAL WORK [1].—Elocution.

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#### THIRD TERM.

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

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

OR

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

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

OR

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

OR

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

**RHETORICAL WORK** [1].—Orations.

### JUNIOR YEAR.

#### FIRST TERM.

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

**MINERALOGY** [4].—Lectures and laboratory work, eight hours a week; an outline of crystallography, physical and descriptive Mineralogy; blowpipe analysis.

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

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

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

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

**SCANDINAVIAN** [4].—M. Smith; Norwegian Grammar. I. M. Platou; Norsk Eksempel—Samling. Blackboard and oral exercises.

**GERMAN A.** [4].—German Fiction. History of the same.

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

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

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

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

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

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

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

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

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

#### SECOND TERM.

**LOGIC** [4].—Deductive and Inductive. Fowler's Text-books; with lectures on the limits of formal logic, the interpretation of the laws of thought and the relation of deductive and inductive inference.

**ELECTIVE** [4].—Student must elect one scientific subject.

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

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

**MATHEMATICS** [4].—Differential Calculus; differentiation of algebraic and transcendental functions; development of functions; maxima and minima; treatment

- of tangents, sub-tangents, normals, sub-normals, asymptotes, direction and rate of curvature, evolutes, and envelopes. The text-book is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed.
- HISTORY** [4].—Studies in the history of the United States. Seminary method. Investigation of selected subjects, and essays involving original work.
- SCANDINAVIAN** [4].—Jonas Lie: Lodsens og hans Hustru. Blackboard and oral exercises.
- FRENCH A.** [4].—Muzarelli's *Antonymes de la Langue Francaise*; Lamartines *Histoire de Jeanne d' Arc*; Crane's *Tableaux de la Revolution Francaise*; lectures on the literature of the 18th century.
- FRENCH B.** [4].—With the Sophomores.
- ANALYTICAL CHEMISTRY** [4].—Laboratory work eight hours a week.
- PHYSICS** [4].—Recitations and laboratory work; eight hours a week.
- PHYSIOLOGICAL BOTANY** [4].—Physiology of nutrition; metabolism and growth.
- MINERALOGY** [4].—Lectures and laboratory work, eight hours a week; descriptive Mineralogy continued; quantitative and qualitative blowpipe analysis; assaying of gold and silver.
- PHYSIOLOGY AND HISTOLOGY** [4].—Can be taken only by those who have had the first term's work.
- ENGLISH** [4].—Shakspere's *As You Like It*. General introduction to the comedies.
- GREEK B.** [4].—Brooks' *Introduction to Attic Greek*.

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 THIRD TERM.
 

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- PSYCHOLOGY** [4].—Dewey's *Psychology*; with lectures and assigned reading.
- ASTRONOMY** [4].—The text-book work is supplemented by lectures, especially upon the history of the science, and upon recent astronomical discoveries and theories.
- RHETORICAL WORK** [1].—One oration or two essays.

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

- MATHEMATICS** [4].—Integral Calculus; integration of the various forms, rectification of curves, quadrature of plane and curved surfaces, cubature of volumes, equations of loci by means of the calculus.
- SCANDINAVIAN** [4].—Jonas Lie: Lodsens og hans Hustru; blackboard and oral exercises.
- GERMAN A.** [4].—Goethe's *Faust*, part I; *Life and Works of Goethe*.
- FRENCH B.** [4].—With the Sophomores.
- CHEMISTRY** [4].—Organic.
- PHYSICS** [4].—Laboratory work eight hours a week.
- PHYSIOLOGY AND HISTOLOGY** [4].—Work of first and second terms continued.
- PHYSIOLOGICAL BOTANY** [4].—Physiology of growth, irritability and reproduction; thesis work; experimental work on selected lines mapped out for individual students.
- MINERALOGY** [4].—Eight hours a week; lectures and laboratory work; this is essentially a study of minerals and must be preceded by the first and second terms' work.
- ENGLISH** [4].—Milton; studies in *Paradise Lost*.
- LATIN** [4].—Outline of the history and elements of Roman Law, embracing lectures and text-book work, with translations at sight from Latin writers, illustrating the subject.
- GREEK A.** [4].—Lyrics, lectures on Greek Literature.
- GREEK B** [4].—Anabasis continued.
- DRAWING** [4].—Freehand; eight hours.

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 SENIOR YEAR.
 

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The studies for this year are the same for all courses; see pages 56 and 57.

## LITERARY COURSE.

## FRESHMAN YEAR.

## FIRST TERM.

- GERMAN** [5].—Maria Stuart or Wilhelm Tell. Review of German Grammar.
- OR**  
**FRENCH** [5].—For those who enter the University with French. Subject to be announced later.
- MATHEMATICS** [5].—Higher Algebra; same as for the classical course.
- LATIN** [5].—Livy 1st Book; review of syntax, composition of words, history of the period of the Kings, especially the growth of civil institutions.
- OR**  
**ENGLISH** [5].—Old English (Anglo Saxon) Grammar, and prose master-pieces. History of Old English Literature begun.
- MILITARY DRILL** [3].—Same as for the classical course.

## SECOND TERM.

- GERMAN** [4].—Goethe—Hermann and Dorothea. Oral and written exercises.
- OR**  
**FRENCH** [4].—For those who enter the University with French. Subject to be announced later.
- MATHEMATICS** [4].—Logarithms and Plane and Spherical Trigonometry with numerous applications.
- LATIN** [4].—Livy—selections, with history and Latin composition based on the text.
- OR**  
**ENGLISH** [4].—Old and Middle English poetry, with parallel history of literature.
- MILITARY DRILL** [3].—Same as for the classical course.
- RHETORICAL WORK** [1].—Elocution.
- DRAWING** [3].—Freehand; six hours a week (OPTIONAL).

## THIRD TERM.

- ENGLISH** [4].—History of the English language with Chaucer, for those in the English course, or Old English (Anglo Saxon) elements and history of the English language, for those not in the English course.
- GERMAN** [4].—Heine—Harzreise and Buch der Lieder. Oral and written exercises.
- OR**  
**FRENCH** [4].—For those who enter the University with French. Subject to be announced later.
- BOTANY** [4].—Gray's Lessons and Manual, with lectures on the leading characters of algae, fungi, mosses and ferns, and on the general physiology of plants.
- SURVEYING** [2].—Four hours a week (OPTIONAL).
- MILITARY DRILL** [3].—Same as for the classical course.
- RHETORICAL WORK** [1].—Compositions.

## SOPHOMORE YEAR.

## FIRST TERM.

- FRENCH** [4].—Chardenal's French Course.
- OR**  
**GERMAN B.** [4].—Whitney's German Grammar. Oral and written exercises. Grimm's Maerchen.

**CHEMISTRY** [4].—A brief course in General Chemistry consisting of lectures, and recitations.

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

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

OR  
**GERMAN A.** [4].—Scientific prose selections.

## SECOND TERM.

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

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

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

**GERMAN A.** [4].—Becker's *Friederich der Grosse* or Schrakamp's *Deutsche Geschichte*.

**ENGLISH** [4.].—Shakspere: Text of "As You Like It," with Abbott's Shakspearean Grammar. General introduction to the comedies.

**RHETORICAL WORK** [1].—Elocution.

## THIRD TERM.

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

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

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

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

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

OR  
**ENGLISH** [4.].—Milton. Studies in *Paradise Lost*.

**RHETORICAL WORK** [1].—Orations.

## JUNIOR YEAR.

## FIRST TERM.

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

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

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

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

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

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

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

- SCANDINAVIAN** [4].—M. Smith: Norwegian Grammar. I. M. Platou: Norsk Eksempel—Samling; blackboard and oral exercises.
- GERMAN A.** [4].—German Fiction; history of the same.
- ANALYTICAL CHEMISTRY** [4].—Laboratory work, eight hours a week.
- PHYSICS** [4].—Laboratory work eight hours a week.
- PHYSIOLOGY AND HISTOLOGY** [4].—Lectures and laboratory work; open only to those who have had Zoology or Botany.
- MYCOLOGY** [4].—A comparative and systematic study of fungi, using Saccardo and De Bary as reference work. This work can be taken only by those who have had the full course in Botany.
- PHYSIOLOGICAL BOTANY** [4].—The physics and chemistry of the plant cell; study of protoplasm nuclear physiology, and a brief examination of bacteria methods and technique; physiology of nutrition.
- GREEK B.** [4].—(For literary and scientific students), Brooks' Introduction to Attic Greek.
- MINERALOGY.**—Lectures and laboratory work eight hours a week; an outline of crystallography, physical and descriptive Mineralogy; blowpipe analysis.
- FRENCH B.** [4].—With the Sophomores (begun).

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SECOND TERM.

- LOGIC** [4].—Deductive and Inductive. Fowler's Text-books; with lectures on the limits of formal logic, the interpretation of the laws of thought and the relation of deductive and inductive inference.
- PHYSICS** [4].—Light, Magnetism and Electricity.
- RHETORICAL WORK** [1].—One oration or two essays.

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

- MATHEMATICS** [4].—Differential Calculus; differentiation of algebraic and transcendental functions; development of functions; maxima and minima; treatment of tangents, sub-tangents, normals, sub-normals, asymptotes, direction and rate of curvature, evolutes, and envelopes. The text-book is based on the infinitesimal method, but the fluxionary method is given orally, and the system fully developed.
- HISTORY** [4].—Studies in the history of the United States; seminary method; investigation of selected subjects, and essays involving original work.
- SCANDINAVIAN** [4].—Jonas Lie: Lodsens og hans Hustru; blackboard and oral exercises.
- FRENCH A.** [4].—Muzarelli's Antonymes de la Langue Francaise; Lamartine's Histoire de Jeanne d' Arc; Crane's Tableaux de la Revolution Francaise; lectures on the literature of the 18th century.
- FRENCH B.** [4].—With the Sophomores.
- ANALYTICAL CHEMISTRY** [4].—Laboratory work eight hours a week.
- PHYSICS** [4].—Recitations and laboratory work.
- PHYSIOLOGICAL BOTANY** [4].—Physiology of nutrition; metabolism and growth.
- MINERALOGY** [4].—Lectures and laboratory work, eight hours a week; descriptive Mineralogy; qualitative and quantitative blow pipe analysis; assaying of gold and silver.
- PHYSIOLOGY AND HISTOLOGY** [4].—Can be taken only by those who have had the first term's work.
- ENGLISH** [4].—Shakspeare's As You Like It. General introduction to the comedies.
- GREEK** [4].—Brooks' Introduction to Attic Greek.

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THIRD TERM.

- PSYCHOLOGY** [4].—Dewey's Psychology; with lectures and assigned reading.
- ASTRONOMY** [4].—The text-book work is supplemented by lectures, especially upon the history of the science, and upon recent astronomical discoveries and theories.



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

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

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

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

**FRENCH B.** [4].—With the Sophomores.

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

**CHEMISTRY** [4].—Organic.

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

**PHYSIOLOGY AND HISTOLOGY** [4].—Work of first and second terms continued.

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

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

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

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

**GREEK A.** [4].—Lyric's *Lectures on Greek literature*.

**GREEK B.** [4].—*Anabasis* continued.

**DRAWING** [4].—Freehand; eight hours.

## SENIOR YEAR.

The studies for this year are the same for all courses; see pages 56 and 57.

## NOTES, N. B.

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

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

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

### DAILY ROUTINE.

As a general rule each student has sixteen exercises a week, beside rhetorical work, which comes but one day in the week.

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

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

### LECTURES TO NEW STUDENTS.

Members of the Freshmen class and students lately admitted are required to attend courses of lectures as follows: 1. On the relation of students to the university, delivered by the president during the first term. 2. On the use of the library, by the librarian during the first term. 3. On books and reading, by the professor of English during the second term. The lectures occur in alternate weeks.

### EXAMINATIONS.

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

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

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

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

### GRADUATION.

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

Any person may undergo, at suitable times, examination in any subject;

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

#### SPECIAL STUDENTS.

Persons of mature years and judgment may be admitted to pursue studies to be selected from the regular course of study. The subjects are arranged in groups. Special students must confine their work to one or two of the groups as tabulated below. **All applicants, as conditional to their admission as special students, shall pass an examination in so many of the subjects known as requisites for entrance to the regular course of study, as properly belong to, or are naturally introductory to the line or lines of study they have elected;** for instance, if they have elected mathematics, they shall be examined in entrance mathematics; if history, then entrance history; if science, then entrance science; if English studies, or a modern language, then entrance English; if Latin, then entrance Latin; if Greek, then entrance Latin or English.

The grouping of the subjects is as follows:

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

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

#### MILITARY SCIENCE AND TACTICS.

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

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

The organization consists of a battalion, composed of three companies of Infantry, and a battery of Artillery for the male students, also one company of female students. The course is to be compulsory during the Freshman year for all students who enter the collegiate course in the future, (unless specially excused by the faculty); all are expected to provide themselves

with uniforms. That for the male students will be manufactured by tailors in the city of Minneapolis and will cost complete about \$20.00. It consists of a blouse, trousers, vest and cap, modeled after the West Point Cadet uniforms, with flat buttons. A description of uniform worn by the female students is inserted to enable them to make up their uniforms before coming to the University.

The commissioned and non-commissioned officers will be selected at the beginning of each year, as far as practicable from the Senior and Junior classes.

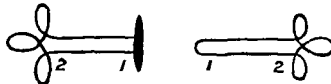
#### IMPORTANT.

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

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

#### LADIES' DRILL UNIFORM.

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



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

## SCHOOL OF MINING AND METALLURGY.

## FACULTY.

CYRUS NORTHROP, LL. D.,  
*President.*

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

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

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

*Professor of Mining Engineering.*

JOHN H. BARR, B. M. E.,  
*Assistant Professor of Mechanical Engineering.*

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

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

## ENTRANCE.

For more extended statement of the ground covered, see requirements for admission of scientific course, page 51.

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

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

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

**PHYSIOLOGY.**

**NATURAL PHILOSOPHY.**

**DRAWING.**—Two terms of Frechand or Mechanical Drawing.

**CHEMISTRY.**—The non-metallic elements.

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

**LATIN.**—As in the Classical Course.

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

## COURSE OF STUDY.

## FRESHMAN YEAR.

| I. TERM.  | II. TERM.   | III. TERM.  |
|---|---|---|
| Mathematics.<br>Drawing, Mechanical.<br>English.<br>German. | Mathematics.<br>Chemistry.<br>English.<br>German. | Drawing, Mechanical.<br>Chemistry.<br>English.<br>Surveying.<br>German. |

## SOPHOMORE YEAR.

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

## JUNIOR YEAR.

| I. TERM.   | II. TERM.   | III. TERM.  |
|--|---|---|
| Mineralogy.<br>Geology.<br>Chemistry.<br>Forge Work. | Mineralogy.<br>Geology.<br>Mechanics.<br>Machine Shop Practice. | Mineralogy.<br>Geology.<br>Mechanics.<br>Testing Materials. |

## SENIOR YEAR.

| I. TERM.  | II. TERM.   | III. TERM.   |
|---|---|--|
| Mining (lectures, etc.)<br>Geology (special work).<br>Machinery.<br>Assaying. | Ore Dressing and Metal-<br>lurgy.<br>Assaying.<br>Steam Engines and Motors<br>Hydraulics. | Mine Surveying and De-<br>signs.<br>Metallurgy.<br>Chemistry.<br>Thesis. |

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

the practical treatment of ores and the separation of metals, including crushing machinery, amalgamating apparatus and furnaces. Visits to mines, stamp mills, smelters, and blast furnaces, will form a part of the course.

#### DEGREES.

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

## THE COLLEGE OF MECHANIC ARTS.

## FACULTY.

CYRUS NORTHROP, LL. D.

*President.*

WILLIAM A. PIKE, S. B.

*Professor of Engineering and Director.*

CHRISTOPHER W. HALL, M. A.

*Professor of Geology and Mineralogy.*

JOHN F. DOWNEY, M. A., C. E.

*Professor of Mathematics.*

JAMES A. DODGE, PH. D.

*Professor of Chemistry.*

WILLIAM R. HOAG, C. E.

*Assistant Professor of Civil Engineering.*

JOHN H. BARR, M. S., M. M. E.

*Assistant Professor of Mechanical Engineering.*

FREDERICK S. JONES, A. B.

*Professor of Physics.*

HENRY T. ARDLEY.

*Principal of the School of Wood Carving, Design and Freehand Drawing.*

HARRY E. SMITH, M. E.

*Instructor in Mechanical Engineering and Wood-Working.*

ALBERT I. JONES.

*Instructor in Metal Working, &c.*

CHARLES H. WHIPPS.

*Engineer.*

In this college there are four regular courses of study, viz: Civil Engineering, Mechanical Engineering, Electrical Engineering and Architecture, leading to the corresponding baccalaureate degrees. Applicants are also admitted to pursue, under direction of the faculty, one or two distinct lines of study selected from the regular course. In the School of Practical Mechanics, a department of this college, special courses are arranged in shop-work, drawing, and mathematics, and in the care and management of engines and boilers. There is also a school of design, freehand drawing and wood carving.

The aim of the instruction given in the regular undergraduate courses of this college is to lay a broad and solid foundation in mathematics, mechanics, electricity, and drawing, so that, with the practice in field, shop, office, and laboratory work given to the students in the respective courses,





## THIRD TERM.

ENGLISH [4].—Same as for Scientific Course.

GERMAN [4].—Same as for Scientific Course.

OR

FRENCH [4].—Same as for Scientific Course.

DRAWING [4].—Eight hours. Mechanical: Shadelining, isometric cabinet projection and perspective.

SURVEYING [2].—Wentworth's text-book. Discussion of methods and instruments used in farm, public land and drainage surveys. Actual field and office practice in surveys illustrating class-room work, including determination of the Meridian.

RHETORICALS [1].—Same as for Scientific Course.

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

## CIVIL ENGINEERING COURSE.

## SOPHOMORE YEAR.

## FIRST TERM.

ANALYTICAL GEOMETRY [4].—With Juniors of the Scientific Course.

PHYSICS [4].—Ganot's text-book. Sound and heat.

FRENCH [4],

OR

GERMAN [4],

TOPOGRAPHY [10].—Lectures on different methods of Topographical Surveying. Johnson's text-book. Field practice in rectangular and plane-table systems; also transit method with use of gradienter and stadia rod and pacing method with use of prismatic compass, clinometer and aneroid barometer.

## SECOND TERM.

DIFFERENTIAL CALCULUS [4].—With Scientific Juniors.

PHYSICS [4].—Ganot's text-book, magnetism and electricity.

FRENCH [4],

OR

GERMAN [4],

MAPPING AND CARPENTRY [10].—Topographical signs with pen and brush. Reduction and platting of previous term's field notes. Round writing, shop practice in timber joints with applications to models of standard engineering structures.

RHETORICALS [1],

## THIRD TERM.

INTEGRAL CALCULUS [4].—With Scientific Juniors.

ASTRONOMY [4].—With Juniors.

FRENCH [4],

OR

GERMAN [4],

HIGHER SURVEYING [10].—Johnson's text-book. Theory of barometric levelling, solar compasses and attachments and planimeters, adjustment of field instruments, field practice in use of barometers, solar attachments and Sextant.

RHETORICALS [1],

## JUNIOR YEAR.

## FIRST TERM.

CURVES AND EARTHWORK [5].—Shunk's text-book. Discussion of different methods of calculating R. R. curves, turn-outs and cross-overs. Theory of section-leveling, cross-sectioning and calculation of earthwork.

**MECHANICS** [5].—(Statics and dynamics.) Church's text-book. Composition and resolution of forces and couples. Centre of gravity, statics of rigid bodies and flexible cords, rectilinear and curvilinear motion, impact, moment of inertia, dynamics of rigid bodies, work, energy and power.

**DESCRIPTIVE GEOMETRY** [10].—(Recitations and drawing.) Watson's text-book. General notation, problems relating to points, lines and planes. Surfaces of revolution and their tangent planes. Intersection and development of surfaces. Method of rotation. Original problems.

**FIELD WORK** [10].—Laying out the various curves analyzed in the class room. Staking out side-tracks, cross-overs, wyes, &c. Special problem.

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SECOND TERM.

**MECHANICS** [5].—(Strength of Materials.) Church's text-book. Friction, elementary stress and strain. Flexure. Elastic curves. Safe loads, shear in flexure. Continuous girders, non-prismatic beams of uniform strength. Long columns and trussed girders.

**ELECTIVE** [4],

**MINERALOGY** [4].

**RAILROAD STRUCTURES AND HYDROGRAPHY** [10].—Drawings and bills of material for standard R. R. structures. Lectures on Hydrographic, Surveying, Field practice in determining flow of rivers. Reduction of field notes and platting.

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THIRD TERM.

**MECHANICS** [5].—Church's text-book. Linear and masonry arches. Graphics of continuous girders. Fluid pressure in pipes, reservoirs and tanks. Reservoir and retaining walls. Flotation and immersion.

**TESTING MATERIALS** [10].—Compression, tension shearing, torsion and transverse tests of metallic and non-metallic materials used in construction, with observations of loads and distortions. Reports of methods and results, calculation of moduli and conclusions as to properties of the materials. Training of stress-strain diagrams, showing the results of the tests graphically.

**ELECTIVE** [4],

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

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SENIOR YEAR.

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FIRST TERM.

**GEODESY** [5].—Text-books. Johnson's Surveying. Merrimar's Figure of the Earth. Theory of geodetic and precise spirit levelling. Computation of geodetic positions. Lectures on base-line measurement and methods of observation and field records. Field practice in determination of local time by sextant and transit. Establishing astronomical latitude, longitude and azimuth. Measurement of secondary base-line.

**GEOLOGY** [4],

**MASONRY STRUCTURES** [5].—Text-book. Baker. Materials of construction. Stones, bricks, cements, &c. Foundations, dams, retaining walls, piers and abutments, culverts, arches.

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

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SECOND TERM.

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

**STEREOTOMY** [10].—Lectures on requirements of masonry construction as to pattern and templates as used in stone cutting. Drawing of and making patterns for various arches, including the arched culvert, the arch in a round tower and the skew arch.

**HYDRAULICS** [5].—Text-books. Box and Church. Flow of water through orifices, pipes, veins and channels. Lectures on collection, purification, storage and distribution of water for cities, towns and irrigation purpose. Also lectures on separate and combined systems of sewerage, house drainage and sewage disposal.

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

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**THIRD TERM.**

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

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

**ELECTIVE** [4].

**SPECIFICATIONS** [10].—Drawings, bills of material and specifications of designs, &c., above.

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**MECHANICAL ENGINEERING COURSE.**

**FRESHMAN YEAR.**

Same as course in Civil Engineering. See page 73.

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**SOPHOMORE YEAR.**

**FIRST TERM.**

**ANALYTICAL GEOMETRY** [4].—With Scientific Juniors.

**PHYSICS** [4].—Ganot's text-book. Sound and heat.

**FRENCH** [4].

OR  
**GERMAN** [4].

**CARPENTRY** [10].—Shop practice in use of tools preparatory to pattern making.

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**SECOND TERM.**

**DIFFERENTIAL CALCULUS** [4].—With Scientific Juniors.

**PHYSICS, MAGNETISM AND ELECTRICITY** [5].

**FRENCH** [4].

OR  
**GERMAN** [4].

**PATTERN MAKING** [10].—Methods and forms used in ordinary machinery moulding, including solid and split patterns, three part, core work and special expedients.

**RHETORICALS** [1].

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**THIRD TERM.**

**INTEGRAL CALCULUS** [4].—With Scientific Juniors.

**PHYSICS** [4].—Light.

**FRENCH** [4].

OR  
**GERMAN** [4].

**FOUNDRY WORK AND DRAWING** [10].—Moulding and casting from patterns made in previous term. The principal object of this course being to prepare the student for correct designing rather than to secure special manual facility.

**RHETORICALS** [1].

## JUNIOR YEAR.

## FIRST TERM.

**MECHANISM** [5].—Stahl and Wood's text-book with supplementary notes. Transmission of motion by gearing, belts, linkwork, cams, &c. Designs and modern methods of constructing teeth of wheels. Study of aggregate motions, quick returns, feed mechanism, &c.

**MECHANICS** [5].—Same as for Civil Engineering course.

**DESCRIPTIVE GEOMETRY** [10].

**FORGE WORK** [10].—Exercises, including upsetting, drawing out, forming, bending, welding, &c., &c., including the manipulation and tempering of steel for springs, machine tools, &c.

## SECOND TERM.

**MECHANICS** [5].—Same as for Civil Engineering.

**KINEMATICS** [5].—Text-books. Kennedy's Mechanics of Machinery. Halsey's valve motions. Recitations, lectures and drawing, continuation of course in mechanism. Graphical methods, valve motions, velocity and acceleration diagrams, &c.

**MINERALOGY** [4].

**WISE AND MACHINE WORK** [10].—Exercises in the use of hand and machine tools with application to actual construction as a guide to future designing.

## THIRD TERM.

**MECHANICS** [5].—Same as for Civil Engineering.

**TESTING MATERIALS** [10].—Same as for Civil Engineering.

**ELECTIVE** [4].

**MACHINE WORK** [10].—Continuation of previous term's work, with more extended drill in actual shop practice.

## SENIOR YEAR.

## FIRST TERM.

**THERMO-DYNAMICS** [5].—Text-books. Holmes' Steam Engine and Wood's Thermo-dynamics. Lectures, nature of heat, methods of measurement, effect on fluids. Perfect heat engines, maximum efficiency. De Pamboun's theory, its relation to recent investigations. Indicators, fuel combustion, generation of steam, condensers, wastes and losses in heat engines and methods of preventing, graphics of heat engines.

**GEOLOGY** [4]

OR  
**ASTRONOMY** [4].

**MACHINERY** [5].—Text-book. Unwin's Machine Design. Principles of mechanics applied to the design of machinery. Strength and dimensions of parts considered in detail.

**MACHINE DETAILS** [10].—Full detail drawings and tracings of machinery from original or existing designs.

## SECOND TERM.

**STEAM ENGINE AND MOTORS** [5].—Text-book. Whitham's Steam Engine Design. Lectures. Principles of mechanics and thermo-dynamics applied to the design and construction of steam engines, turbines and other motors.

**EXPERIMENTAL MECHANICS** [10].—Calibration of instruments of precision used in mechanical tests, with preparation of tables and curves of corrections and determination of constants. Measurement of power given out by motors

or absorbed by machinery. Efficiency of mechanism, boilers, &c., capacity and duty tests, and methods of scientific and commercial trials.

**ELECTIVE** [4].

**THESIS** [10].—The time of one subject is devoted to Thesis work which consists either of an original design fully worked out or of a careful and complete investigation of some existing design or structure.

THIRD TERM.

**DESIGNS, ETC** [10].—Complete designs of machinery or structures, as engines, boilers, special machines, chimneys, floors, &c.

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

**ELECTIVE** [4].

**SPECIFICATIONS** [10].—Drawings and specifications for designs above.

**ELECTRICAL ENGINEERING COURSE.**

FRESHMAN YEAR.

Same as for civil engineering course. See page 73.

SOPHOMORE YEAR.

Same as for mechanical engineering course. See page 76.

JUNIOR YEAR.

FIRST TERM.

**MECHANISM** [5].—Same as for mechanical engineering.

**MECHANICS** [5].—Same as for civil engineering.

**CHEMISTRY** [10].—With scientific sophomores.

**ELEMENTARY ELECTRICAL MEASUREMENTS** [10].—Laboratory work; measurements of current strength, resistance and electro-motive force; determination of constants by voltametric and absolute methods.

SECOND TERM.

**MECHANICS** [5].—Same as for civil engineering.

**MAGNETIC MEASUREMENTS** [5].—Laboratory; determination of horizontal intensity and magnetism of iron; induction coefficient.

**MINERALOGY** [4].

**WISE AND MACHINE WORK** [10].—Same as for mechanical engineering.

THIRD TERM.

**MECHANICS** [5].—Same as for civil engineering.

**DYNAMO MACHINERY** [4].—Recitations; text book Thompson's.

**ELECTIVE** [4].

**ACCUMULATIONS AND BATTERIES** [10].—Laboratory work; electro-motive force and efficiency of various accumulations and batteries.

SENIOR YEAR.

FIRST TERM.

**THERMO DYNAMICS** [5].—Same as in mechanical engineering.

**ELECTRIC MOTORS** [5].—Recitations. Text-book.

**MARTIN & WETTLER'S MOTORS** [5].—Construction and efficiency.

**MACHINERY** [4].—Same as in mechanical engineering.

**DYNAMOS AND MOTORS** [10].—Laboratory work. Characteristic curves and efficiency of different types.

SECOND TERM.

**STEAM ENGINE**, [5].—Same as in mechanical engineering.

**EXPERIMENTAL MECHANICS** [5].—Same as in mechanical engineering.

**ELECTIVE** [4].

**ELECTRIC LAMP AND PHOTOMETRY AND THESIS** [10].—Laboratory work.

Determination of horizontal and space distribution. Variations in resistance.

Relation between candle power and potential. Thesis work the same in plan as in mechanical engineering.

THIRD TERM.

**DESIGNS, ETC.** [10].—Same as in mechanical engineering.

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

**ELECTIVE** [4].

**SPECIFICATIONS, ETC.** [10].—Same as in mechanical engineering.

It is expected that during the coming year a course of lectures will be provided by the Law Department on "The legal rights and duties of the Engineer."

**ARCHITECTURE.**

This course coincides with that in Civil Engineering, except as follows:

1. In the first and second terms of the Sophomore year Carpentry is substituted for Topography and Mapping.

2. In the third term of the Sophomore year Frechand Drawing is substituted for Higher Surveying.

3. In the first term of the Junior year Perspective is substituted for Curves, &c., and Sketching from Buildings for Field Work.

4. In the third term of the Junior year History and Orders of Architecture is substituted for R. R. Work.

**NOTES.**

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

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

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

**GRADUATION.**

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

### CERTIFICATE.

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

### EQUIPMENT.

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

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

### THE BUILDING.

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

### MECHANICAL LABORATORY.

A room, 24x46 feet, is fitted up for a mechanical laboratory. It is supplied with power, and contains a 50,000 pounds testing machine, manufactured by Tinius Olson, of Philadelphia, which can be adapted for compressive, tensile, transverse, torsion, and shearing tests. Other pieces of apparatus have been designed by the department to be used in connection with the testing machine in making tests of full-sized beams, up to 25 feet in length. An instrument for use in connection with tensile tests, is capable of accurately measuring extension to one ten-thousandth of an inch. There is a cement tester, a dynamometer for measuring transmitted power, an oil testing machine, standard scales; also a pair of very accurate and highly finished test gauges, registering pressure up to 300 pounds, presented by the Ashcroft Manufacturing Co.; a test pump for pressure gauges; a pump for



testing boilers, and a mercury column for testing steam gauges and other apparatus for making mechanical tests; a dynamometer for determining the power of lathe tools, and a ten-horse power steam engine designed and built by students for experimental purposes. A Blake steam pump has recently been added to the equipment of this laboratory for use in hydraulic investigations. A friction break, calorimeter, pyrometer, revolution counter, tanks, steam engine indicators, gauges, thermometers, and other instruments required for complete steam engine and boiler tests, are provided for the use of students in experimental work.

#### DRAWING ROOMS.

The general drawing room, 25x49 feet, is furnished with drawing tables for the use of classes in geometrical and freehand drawing. There are also cases and cabinets for holding drawings and drawing boards. A considerable collection of prints, drawings and models, including a full set of Schroeder's models for descriptive geometry for lessons and illustrations, has been made. Two engineering drawing rooms, each 24x44 feet, contain tables, cases, etc., for students in civil and mechanical engineering, architecture and other advanced work.

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

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

#### WORK SHOPS.

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

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

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

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

**THE ENGINE ROOM.**—The engine and boiler room, 20x24 feet, is provided with an automatic cut-off engine of modern type, capable of developing thirty-five horse power. A steel boiler of ample size furnished with a feed pump and heater supplies steam.

In this room is also a hundred-light Edison dynamo, with amperemeter, regulator and pressure indicator.

**THE MACHINE SHOP.**—The machine and vice shop, 25x50 feet, contains speed lathe, ten engine lathes of various sizes, a planer, shaper, universal milling machine, vertical drill press, emery tool grinder, grinding attachment to lathe, benches with ten vises, surface plates, a set of Betts' standard gauges, taps, dies, reamers, drills, chucks and other hand tools and accessories for practice in machine, tool and vise work. A portion of this room has been partitioned off for a tool room. It contains the milling machine and a tool lathe, and is furnished with cases and racks for small tools and instruments which are issued to students by the "check system" in use in modern shops.

**THE WOOD-WORKING SHOP.**—The shop for pattern making and general wood work, 24x48 feet, contains twenty benches with vises and tools, ten lathes and lathe tools, a circular saw, a jig saw, hand saw, planer, boring machine, grindstone and other tools for use in the courses of carpentry and pattern making.

**THE FORGE SHOP.**—The forge shop, 31 feet square, is provided with a portable hand forge, ten stationary forges with anvils and sets of tools, a blower, exhaust fan, hand drill press, drills, taps, dies, sledges, swages, a grindstone, and the other tools generally used in blacksmithing.

**THE FOUNDRY.**—The foundry, 20x30 feet, contains an 18-inch cupola, brass furnace, core oven, moulding tools, benches, ladles, crucibles, and all of the tools and materials ordinarily needed in moulding and casting iron, brass or white metal.

### METHODS OF INSTRUCTION.

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

### APPARATUS.

This college possesses the following apparatus:

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

For Civil Engineering.—A complete equipment of the best field and office instruments, including transits, levels, plane tables, solar compasses, level and telemeter rods, tapes, chains, protractors, plainmeters, calculating machines, &c. Also models, drawings and blue prints of arches, trusses and details of construction in iron, wood and stone.

### METHODS OF INSTRUCTION.

In the courses of the School of Practical Mechanics the instruction in shop work is given by means of carefully prepared exercises. These exercises are planned wholly with the object of instructing the student in the use of tools, leaving out the idea of construction, except in so far as it may not interfere with instruction. The 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.

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

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

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

### FEES.

Students in the regular engineering courses, taking shop work, pay \$3.00 per term.

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

## THE SCHOOL OF PRACTICAL MECHANICS.

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

The work of this school is classified as follows:

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

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

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

### ADMISSION.

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

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

B Division,—Arithmetic as far as square root and compound numbers. English Grammar and Composition as for A Division.

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#### A. DIVISION — FIRST YEAR.

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

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#### SECOND YEAR.

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

## B. DIVISION.

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

## CERTIFICATES.

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

## FEES.

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

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

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

## SCHOOL OF DESIGN, FREEHAND DRAWING AND WOOD CARVING.

• HENRY T. ARDLEY, *Principal.*

Applicants for this special course, except students of the University required to take Freehand Drawing, will pass an examination in the freehand sketching of lines at various angles, circular, elliptical and spiral forms, and such plain elementary drawing as will prove the applicant prepared to commence the drawing of simple objects in outline, prior to the study of light and shade, and freehand perspective.

This elementary knowledge of drawing is also required of all applicants desiring to take a course of study in Ornamental Design.

In the course of Ornamental Design, instruction is first given in the elementary principles of original composition, in their relation to natural growth, as applied to decorative art, with the intention of fostering originality of thought and individuality of expression. Students learn from the beginning to produce their own designs in both natural and conventional form, and when they are thoroughly conversant with the principle of natural growth, and when simple forms can be rendered with grace and

feeling, the study of historic ornament in relation to different art periods will be introduced, embracing the Egyptian, Greek, Roman, Byzantine, Gothic, Renaissance, etc., with their practical application to the construction of original ornament.

A two years course in Wood Carving and Design is here outlined, and intended for those who desire to fit themselves for practical, useful and original work.

#### FIRST YEAR.

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

#### SECOND YEAR.

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

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

Fees in this Department are Five Dollars per year, to be paid in advance to the Registrar of the University.

## THE COLLEGE OF AGRICULTURE.

## THE FACULTY.

CYRUS NORTHROP, LL. D.  
*President.*

WILLIAM W. FOLWELL, LL. D.  
*Professor of Political Science.*

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

MARIA L. SANFORD.  
*Professor of Rhetoric and Elocution.*

WILLIAM A. PIKE, C. E.  
*Professor of Engineering and Physics.*

JOHN F. DOWNNEY, M. A., C. E.  
*Professor of Mathematics and Astronomy.*

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

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*Professor of Theory and Practice of Agriculture*

GEORGE EDWIN MACLEAN, PH. D.  
*Professor of the English Language and Literature.*

HENRY F. NACHTRIEB, B. S.  
*Assistant Professor of Biology.*

HARRY PRATT JUDSON, M. A.  
*Professor of History.*

OLOF SCHWARTZKOPFF, V. M. D.  
*Professor of Veterinary Science.*

## THE COLLEGE OF AGRICULTURE

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

## REQUIREMENTS FOR ADMISSION.

Candidates for admission to the Freshman class are required to show attainment equal to those represented by the certificate of graduation from

the School of Agriculture, and graduates of the School of Agriculture are admitted on certificate.

### SCOPE OF INSTRUCTION.

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

### COURSE OF INSTRUCTION.

N. B. The instruction in this college will be given at the University, except the fall term of the Freshman year, the spring term of the Junior year and the fall term of the Senior year, which will be given at the University Farm and Experiment Station at St. Anthony Park.

#### FRESHMAN YEAR.

##### FIRST TERM.

**AGRICULTURE** [5].—Feeding, management and breeding of animals; practice in feeding experiments.

**HORTICULTURE.**

**SOLID GEOMETRY** [5].—Olney's text-book, including the exercises.

**HIGHER ALGEBRA** [5].—Simple equations, proportion, progression, variation, quadratic equations, simultaneous equations of the second degree, inequalities, binomial theorem, indeterminate co-efficients and higher equations. The work of this term will be taken at the University Farm and Experiment Station at St. Anthony Park.

##### SECOND TERM.

**CHEMISTRY** [4].—Lectures, recitations and laboratory work; chemistry of the metals (begun).

**MATHEMATICS** [4].—Logarithms and Plane and Spherical Trigonometry with numerous applications.

**ENGLISH** [4].—

OR  
**GERMAN** [4].—

OR  
**LATIN** [4].—

OR  
**FRENCH** [4].—

OR  
**RHETORICALS** [1].—Elocution.

**MILITARY DRILL** [3].

For syllabus of work covered by these subjects, see scientific Freshman on page 58.

##### THIRD TERM.

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

**SURVEYING** [2].—Four hours a week.

**DRAWING** [3].—Freehand, six hours a week.

**ENGLISH** [4].—

OR  
**GERMAN** [4].—

OR  
**FRENCH** [4].—

**MILITARY DRILL** [3].

**RHETORICALS** [1].—Compositions.

For syllabus of work covered by these subjects, see Freshman scientific course, page 58.



## SOPHOMORE YEAR.

## FIRST TERM.

- BOTANY** [4].—Morphology of the fungi and higher cryptogams.  
**CHEMISTRY** [4].—Lectures, recitations, and laboratory work—study of metallic elements completed; brief study of organic compounds.  
**RHETORIC** [4].—Genung's text-book; study and criticism of authors; essays.  
**MATHEMATICS** [4].—Analytical geometry.  
 OR  
**FRENCH** [4].—  
 OR  
**GERMAN** [4].—  
 OR  
**LATIN** [4].—
- } For syllabus of work covered by these subjects see Sophomore scientific course page 59.

## SECOND TERM.

- BOTANY** [4].—Anatomy and systematic study of higher cryptogams and flowering plants.  
**CHEMISTRY** [4].—Qualitative analysis.  
**HISTORY** [5].—Institutions of the middle ages in Europe. Lectures and assigned reading. The study of events is made subordinate to the study of institutions especially such as have had an influence on modern life. The work of this term is directly preparatory to that of the next.  
**MATHEMATICS** [4].—Differential calculus.  
 OR  
**ENGLISH** [4].—  
 OR  
**FRENCH** [4].—  
 OR  
**GERMAN** [4].—  
 OR  
**LATIN** [4].—
- } For syllabus of work covered by these subjects see Sophomore scientific course page 59.
- RHETORICALS** [1].—Elocution.

## THIRD TERM.

- ZOOLOGY** [4].—With the Freshman class.  
**PHYSICS** [4].—With the Literary Sophomores.  
**HISTORY** [4].—Institutions of England in the Middle ages. Topical research and lectures. The main study is directed toward the evolution of the English Constitution.  
**MATHEMATICS** [4].—Integral calculus.  
 OR  
**ENGLISH** [4].—  
 OR  
**FRENCH** [4].—  
 OR  
**GERMAN** [4].—  
 OR  
**LATIN** [4].—
- } For syllabus of work covered by these subjects see Sophomore scientific course, page 59.
- RHETORICALS** [1].—Orations.

## JUNIOR YEAR.

## FIRST TERM.

- PHYSIOLOGICAL BOTANY** [4].—The physics and chemistry of the plant cell, study of protoplasm, nuclear physiology and a brief examination of bacteria methods and technique; physiology of nutrition.  
**ENGLISH LITERATURE** [4].—History of Elizabethan Literature with syllabus of 18th century literature, alternating the next year with the history of the 18th century literature and syllabus of Elizabethan Literature.  
**RHETORICALS** [1].—One oration or two essays.

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

**ELECTIVES.**—For syllabus of work covered by these subjects see Junior scientific course, page 60.

**MYCOLOGY** [4].

**CHEMISTRY** [4].

**PHYSIOLOGY** [4].

**MINERALOGY** [4].

**HISTORY** [4].

**GERMAN** [4].

**FRENCH** [4].

**SCANDINAVIAN** [4].

SECOND TERM.

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

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

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

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

**ELECTIVES.**—For syllabus of the work covered by these subjects see Junior scientific course page 60.

**CHEMISTRY** [4].

**PHYSIOLOGY AND HISTOLOGY** [4].

**MINERALOGY** [4].

**HISTORY** [4].

**LOGIC**

**ENGLISH** [4].

**GERMAN** [4].

**FRENCH** [4].

**SCANDINAVIAN** [4].

THIRD TERM.

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

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

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

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

OR

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

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

SENIOR YEAR.

FIRST TERM.

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

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

**HORTICULTURE** [4].—Nursery and greenhouse work; fruit and vegetable culture.

**FORESTRY.**—Landscape gardening and ornamental planting; drawing of plans; inspection of grounds and parks in cities.

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

OR

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

OR

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

**DISSERTATIONS.**

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

OR

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

SECOND TERM.

**RHETORICALS** [1].—Required of all.

Sixteen exercises a week, chosen from the following list:

**ELECTIVES.**—For syllabus of work covered by these subjects see Senior year, page 57.

**ANIMAL MORPHOLOGY** [4].

**GEOLOGY** [4].

**POLITICAL SCIENCE** [4].

**HISTORY** [4].

**FRENCH** [4].

**ETHICS** [4].

**MATHEMATICS** [4].

**ENGLISH** [4].

**GERMAN** [4].

**LATIN** [4].

THIRD TERM.

**ELECTIVES.**—For syllabus of work covered by these subjects, see Senior year on page 57. Sixteen exercises a week, chosen from the following list:

**ANIMAL MORPHOLOGY** [4].

**GEOLOGY** [4].

**POLITICAL SCIENCE** [4].

**HISTORY** [4].

**GERMAN** [4].

**FRENCH** [4].

**SCANDINAVIAN** [4].

**ENGLISH LITERATURE** [2 or 3].

**PHILOSOPHY OF RELIGION** [2].

**COMPARATIVE PHILOLOGY** [2].

**PEDAGOGICS** [1].

**SHAKSPERE** [1].

**SANITARY SCIENCE** [1].

**POLITICAL PHILOSOPHY** [2].

FACILITIES FOR INSTRUCTION.

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

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

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

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

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

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

#### THE UNIVERSITY FARM.

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

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

#### OBJECTS OF THE FARM.

The farm is designed to accomplish the following purposes:

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

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

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

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

#### GRADUATION.

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

## THE SCHOOL OF AGRICULTURE.

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

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

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

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

### ADVANTAGES AND LOCATION.

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

### AIM.

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

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

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

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

#### THE COURSE.

The course proper will extend through two years, in addition to this, a preparatory year of instruction is offered to those needing it. Each year will consist of two terms of twelve weeks each.

#### ADMISSION.

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

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

#### PREPARATORY YEAR.

| FIRST TERM.  | SECOND TERM.  |
|--|---|
| <b>BOTANY.</b><br><b>ANIMAL PHYSIOLOGY.</b><br><b>PENMANSHIP.</b><br><b>ARITHMETIC.</b><br><b>MANUAL TRAINING.</b><br><b>LANGUAGE (Composition).</b> | <b>BOTANY.</b><br><b>AGRICULTURE.</b><br><b>FARM ACCOUNTS.</b><br><b>ARITHMETIC.</b><br><b>MANUAL TRAINING.</b> |

#### JUNIOR YEAR.

| FIRST TERM.  | SECOND TERM.  |
|--|---|
| <b>BREEDING.</b><br><b>DAIRYING.</b><br><b>FRUIT CULTURE.</b><br><b>VETERINARY—Pathology and Therapeutics.</b><br><b>PHYSICAL GEOGRAPHY.</b><br><b>ALGEBRA (Optional).</b> | <b>BREEDING.</b><br><b>DAIRYING.</b><br><b>GRASSES AND GRAINS.</b><br><b>VEGETABLE GARDENING.</b><br><b>ZOOLOGY AND ENTOMOLOGY.</b><br><b>AGRICULTURAL CHEMISTRY.</b><br><b>ALGEBRA (Optional).</b> |

## SENIOR YEAR.

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

SPECIAL STUDENTS may enter any class for which they are prepared and may take any study in the course which they may elect. If such students do not complete the full course, they can yet receive certificates for the work done.

**The coming year will open Oct. 21, 1890, and close April 10, 1891.**

## CONNECTION WITH THE AGRICULTURAL COLLEGE.

The school will articulate with the College of Agriculture, in which these subjects will be continued to meet the demands of the smaller class in agriculture, lecturers, professors, physicians, and statesmen.

## EQUIPMENT.

Facilities will be afforded at this school for all that the course requires in a work shop, laboratory of Chemistry and Philosophy, and Biology, plant houses for Botany and Horticulture, dissecting rooms for Physiology, and all the apparatus and facilities of the Experiment Station. The plan of the school includes a well appointed museum and a choice library.

## VETERINARY SCIENCE.

In this department instruction is given in the principles of animal anatomy, physiology, pathology, and therapeutics. The lectures will be illustrated by means of skeletons, models, and by living subjects.

Sick animals from the surrounding neighborhood are brought to the veterinary hospital for treatment, which fact is taken advantage of to instruct the students how to examine sick animals, diagnose diseases and care for sick animals.

## HORTICULTURE.

Instruction is given in this department in the cultivation of small fruits, the construction and management of greenhouses, hot beds and cold frames, market gardening and farm gardens; marketing, propagation of plants by seeds, grafting, budding, cuttings, layers and offsets, care and management of nurseries; forestry, floriculture and landscape gardening.

Students are encouraged to work in the gardens, greenhouses and nurseries and every opportunity is used to make the work practical and illustrative of the principles taught in the lecture room.

### BOTANY

Is taught in connection with Horticulture, and is illustrated by the products of the farm, the garden, the nursery and the greenhouse.

It is intended to make the instruction in this department thorough and practical and to have it bear with directness upon the every day problems of the farm and garden.

### PENMANSHIP AND ACCOUNTS.

Students are taught a plain, rapid business hand. The work in accounts is thoroughly practical, students to a great extent furnishing their own data and making their their own calculations. They are drilled in the use of the several books and the common business forms.

Special attention is given to folding and filing papers, to business correspondence, habits and methods; the work is so plain and practical that no student need have difficulty in learning to keep accurately the accounts of any ordinary business.

### THE FARM HOME.

Two beautiful and commodious buildings have been erected for the comfort of students. The culinary department is managed by an experienced matron, and the entire house is under the supervision of the principal. The buildings are warmed by steam, and the sleeping rooms are each furnished with a bedstead, mattress, dressing bureau and table. Students will furnish their own pillows, bedding and towels.

The Experiment Farm, on which the school is situated, includes two hundred and fifty acres, of which fifteen acres are set apart for the use of the school. Trains on the St. P., M. & M. Ry. stop at St. Anthony Park, one mile distant. Baggage will be transported from the station free.

### TEXT BOOKS AND TOOLS

Will be furnished at a small rental sufficient to cover the necessary wear. Students wishing to do so, may own their books by paying cost prices.

### EXPENSE.

The cost to the students is no more than the actual cost of maintaining the table and caring for the house. This does not exceed three dollars per week. A month's board is assessed in advance for the purchase of provisions at cash prices. At the end of the month the exact cost will be calculated and the proper deduction made from the next assessment.

### LABOR.

This school is conducted upon the principle that character makes all labor honorable. As much, therefore, of the labor at the home and on the farm as can be distributed among the students will be given to them at fair rates of compensation.



## GRADUATION.

Students will be entitled to the certificate of the University upon the following conditions:

First.—The completion of the prescribed course with an honorable standing in order, thoroughness and intelligence in subjects studied.

Second.—A practical experience in field work either at the State Farm or elsewhere as shall appear in reports received from responsible sources.

This certificate will admit students into any one of the special lines of study provided in the College of Agriculture.

For further information, and in making applications for admission, address, W. W. Pendergast, Principal, St. Anthony Park, Ramsey County, Minnesota.

## STUDENTS' SOCIETIES.

**STUDENTS' RELIEF SOCIETY:**—A society for mutual benefit in caring for the sick, furnishes opportunities for gaining valuable information of the rules of hygiene, insures prompt and efficient care to any who may be sick or injured, and cultivates a spirit of friendship and sympathy.

**STUDENTS' DEBATING SOCIETY:**—A society for the purpose of improvement in elocution and debate and for obtaining instruction in the form of lectures, gives excellent opportunities for entertainment and culture. The following lectures were given under the auspices of this society: Nov. 13, Prof. W. W. Pendergast, "Mound Builders;" Nov. 22, Supt. O. C. Gregg, "Methods for Prairie Farming;" Dec. 4, Prof. H. W. Brewster, "Cremation;" Dec. 11, Prof. J. F. Downey, "Travels in Scotland;" Dec. 18, Prof. H. T. Ardley, "Travels Around the World;" Jan. 1, Prof. W. W. Pendergast, "Indian Massacre;" Jan. 8, Dr. G. E. McLean, "Home Life in the Fatherland;" Jan. 13, Dr. Otto Lugger, "Travels in South America;" Jan. 15, Pres't Northrop, "Benjamin Franklin;" Jan. 22, C. L. Smith, "Battle of Chickamauga;" Jan. 29, Prof. N. W. McLain, "Bee Culture;" Feb. 5, Dr. W. W. Folwell, "The Grand Convention;" Feb. 12, Prof. H. P. Judson, "Tomorrow;" Feb. 19, Rev. H. J. Chandler, "Our Country;" Feb. 26, Prof. C. W. Benton, "The Holy Land;" March 5, Dr. Everett Fish, "Relation of Matter and Force;" March 13, Dr. J. R. Walker, "The Chippewa Indians;" March 19, Thomas Hodgson, "The Civil War;" April 2, Supt. O. C. Gregg, "Practical Education."

## DEPARTMENT OF VETERINARY MEDICINE.

## THE FACULTY.

CYRUS NORTHROP, LL.D.,  
*President.*

OLOF SCHWARTZKOPFF, V.M.D.,  
*Professor of Veterinary Medicine and Sanitary Science.*

J. CLARK STEWART, A.B., M.D.,  
*Professor of Histology, Pathology, and Bacteriology.*

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

*Instructor in Veterinary Anatomy.*

RICHARD O. BEARD, M.D.,  
*Professor of Physiology.*

C. J. BELL, A.M.,  
*Professor of Chemistry.*

HENRY F. NACHTRIEB, B.S.,  
*Professor of Animal Biology.*

CONWAY McMILLAN, M.A.,  
*Professor of Botany.*

H. M. BRACKEN, M.D.,  
*Professor of Materia Medica.*

*Farrier and Instructor in practical Horse-shoeing.*

| FIRST YEAR.   | SECOND YEAR.   | THIRD YEAR.   |
|---|--|---|
| Anatomy of domestic animals, Part I.<br>Histology and Practical Microscopy.<br>Botany.<br>Zoology.<br>Physiology.<br>Hygiene. | Anatomy of domestic animals, Part II.<br>General Pathology.<br>Materia Medica.<br>Equine Pathology<br>Bovine Pathology<br>Percine "<br>Canine "<br>Physical Diagnosis, Urinalysis.<br>Theoretical and Practical Horse-Shoeing.<br>Clinics. | Clinics: Equine, Bovine, Canine, and Porcine.<br>Veterinary Surgery and Operative Surgery.<br>Obstetrics.<br>Pathological Anatomy and Microscopical Pathology.<br>Veterinary Police—(Meat and Milk Inspection) and Sanitary Medicine.<br>History of Veterinary Medicine.<br>Veterinary Jurisprudence. |

Any person who has completed the two years' course in the School of Agriculture may be admitted to the department of veterinary science; all

other candidates will be required to prove by examination that they have an equivalent degree of culture.

#### TERMS.

The department will open October 1st, on the same day as the medical department of the University, and will continue in session six months. The work of the first year will be taken in a large degree with the medical department, at the Medical College.

#### FEES.

An entrance fee of ten dollars is charged to all students in the department, and a fee of fifteen dollars is required to be paid for the lectures of the medical department the first year.

#### DEGREES.

The degree of doctor of veterinary medicine will be conferred on students who complete the full course of study.

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### DEPARTMENT OF VETERINARY MEDICINE.

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#### JUNIORS, 4.

Buckentin, Carl,  
Cotton, Charles E.,  
Mea, Thomas F.,  
Walls, Alexander C.,

Morris.  
Prescott, Wis.  
Minneapolis.  
St. Paul.

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These names were omitted from their proper place in the list of students by mistake.

## THE AGRICULTURAL EXPERIMENT STATION.

## THE CORPS OF EXPERIMENTATION.

NELSON WYLIE MCLAIN, LL. B.,  
*Director*

WILLET M. HAYS, B. S. A.,  
*Assistant in Agriculture.*

SAMUEL B. GREEN, B. S.,  
*Horticulturist.*

OTTO LUGGER, PH. D.,  
*Entomologist and Botanist.*

DAVID N. HARPER, PH. B.,  
*Chemist.*

OLOF SCHWARTZKOPFF, V. M. D.,  
*Veterinarian.*

DANIEL W. SPRAGUE,  
*Accountant and Recorder.*

E. H. S. DARTT,  
*Superintendent of Owatonna Forest Tree Station.*

## HISTORICAL.

The Legislature of Minnesota, at its session in 1885, passed the following act:

"Section 1. It shall be the duty of the Board of Regents, of the University of Minnesota, as soon as practicable after the passage of this act, to establish at said University an Agricultural Experiment Station for the purpose of promoting agriculture in its various branches, by scientific investigations, and experiments; which station shall be under the control and supervision of the said Board of Regents."

The Agricultural Experiment Station is the Experiment Farm of the College of Agriculture of the University of Minnesota. All the income from the sales of the lands granted to the several states by the Act of Congress of 1862, was specifically devoted to the purposes of *instruction*; and with this object in view, the Experimental Farm was purchased, and equipped for the purpose of giving practical instruction in all the departments of agriculture, and this work has been successfully carried on for three years past.

For several years, the friends of advanced agriculture have engaged in a concerted movement to secure the establishment in the several states of "Agricultural Experiment Stations," where the chief object should be to

promote scientific and practical investigations upon all subjects affecting the agricultural interests of the country. As the result of these efforts, the Congress of the United States passed an act, approved March 2, 1887, popularly known as the "Hatch Bill," making an annual appropriation for agricultural investigation.

It will be noted that the Act of Congress of 1862 was designed to promote Agricultural *Education*, while that of 1887 provides for Agricultural *Investigation*.

In compliance with the acts of State and National legislation, the Board of Regents has recognized and equipped the Experiment Station on the University Farm, using so much of the land, buildings, stock and machinery of said farm as may be needed for this purpose, and devoting the balance to instruction and illustration. An additional building for the Experiment Station was erected in 1888, which contains the offices of the station, laboratories for the departments of chemistry, biology, and veterinary, a library, and a museum.

During the past year three bulletins have been issued by the Director, containing valuable information, and the results of the year's experiments, copies of which can be had on application.

## THE GRADUATE DEPARTMENT.

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This department affords an extension of the work of the College of Science, Literature and the Arts, and of the College of Mechanic Arts. It meets the threefold purpose of extending general culture, for which Masters' degrees are offered in three lines; of encouraging the mastery of a specialty, for which the degree of Doctor of Philosophy is given; of providing for those who desire a more thorough acquaintance with particular subjects than is offered in undergraduate work, but who are not candidates for degrees.

### REGISTRATION.

Those who wish to take any of these courses must present their diplomas or other credentials to the Registrar, and register for whatever work they may wish to take. There are no fees required in this department.

### THE MASTER'S DEGREE.

I. COLLEGE OF SCIENCE, LITERATURE AND THE ARTS. The degree of Master 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 for degrees 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 colleges or universities will exhibit their diplomas on filing their applications. After the approval of the application by the faculty of the college, no changes or departures will be permitted.

III. The following studies are offered to candidates.

| DIVISIONS. | GROUPS.  | LINES.   |
|------------|--|--|
| A.         | $\left\{ \begin{array}{l} a. \text{ Modern} \\ \text{Philology.} \end{array} \right.$      | $\left\{ \begin{array}{l} 1. \text{ English.} \\ 2. \text{ French.} \\ 3. \text{ German.} \\ 4. \text{ Scandinavian Languages.} \end{array} \right.$ |
|            | $\left\{ \begin{array}{l} b. \text{ Classical} \\ \text{Philology.} \end{array} \right.$   | $\left\{ \begin{array}{l} 1. \text{ Greek.} \\ 2. \text{ Latin.} \end{array} \right.$  |
|            | $\left\{ \begin{array}{l} c. \text{ Comparative} \\ \text{Philology.} \end{array} \right.$ |  |

| DIVISION. | GROUPS.                 | LINES.   |
|-----------|-------------------------|--|
| B.        | a. Biological Sciences. | <ul style="list-style-type: none"> <li>1. Botany.</li> <li>2. Zoology.</li> <li>3. Physiology.</li> <li>4. Palæontology.</li> </ul>  |
|           | b. Physical Sciences.   | <ul style="list-style-type: none"> <li>1. Lithological Geology.</li> <li>2. Chemistry.</li> <li>3. Physics.</li> <li>4. Mineralogy.</li> </ul>   |
|           | c. Mathematics.         | <ul style="list-style-type: none"> <li>1. Co-ordinate Geometry.</li> <li>2. Calculus.</li> <li>3. Quaternions.</li> <li>4. Astronomy.</li> </ul>   |
| C.        | a. History.             | <ul style="list-style-type: none"> <li>1. Mediæval Institutions.</li> <li>2. Institutions of England.</li> <li>3. Institutions of the United States.</li> <li>4. Modern European Politics.</li> <li>5. The Philosophy of History.</li> </ul> |
|           | b. Political Science.   | <ul style="list-style-type: none"> <li>1. Political Economy.</li> <li>2. National Economy.</li> <li>3. International Law.</li> </ul>   |
|           | c. Physiology.          | <ul style="list-style-type: none"> <li>1. Logic.</li> <li>2. Psychology.</li> <li>3. Natural Theology.</li> <li>4. History of Philosophy.</li> </ul>   |

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 Masters' degrees:

FOR MASTER OF ARTS.

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

FOR MASTER OF SCIENCE.

1. Two distinct lines from the groups in Division B.
2. Any two other distinct lines of study selected from the table in III., above.
3. A thesis on a scientific subject.

FOR MASTER OF LITERATURE.

1. German and Romance Languages.
2. Any two other distinct lines of study selected from the table 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 alone.

VIII. A residence at the university is not required of candidates for the Master's degree, but instruction will be given to such candidates as are resident and desire it, by the professor in charge of the studies pursued.

IX. All examinations shall be held at the University.

## SECOND DEGREES IN THE COLLEGE OF MECHANIC ARTS.

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 a 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 table in III. above.
3. A design in civil engineering.
3. 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 table 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 table in III. above.
3. A design in architecture.
4. A thesis on a subject in architecture.

## DEGREE OF DOCTOR OF PHILOSOPHY.

The Degree of Doctor of Philosophy will be conferred on bachelors of this or any other reputable college or university within not less than three years after graduation therefrom, under the following conditions:

1. The candidate shall elect some one of the *Groups* of study from the table in III. and within that group some special field, such as shall be approved by the faculty.
2. He shall pass a minute examination on the special field selected, and shall show such acquaintance with other studies of the group as the faculty may require.
3. He shall present a thesis on some subject connected with his special field of work; which thesis shall be the result of original investigation by the candidate, and shall be a contribution to knowledge.
4. Each candidate for this degree shall devote the time of at least two years to preparation for his examination, such study being his principal occupation for that period; provided, however, that if such study shall not be his principal occupation, then the time of preparation shall be extended as the faculty may think proper.
5. The candidate shall be in actual residence at the University and shall pursue his studies therein at least one year, and that the year next preceding his final examination.
6. At the beginning of said year next preceding his final examination, the candidate shall pass a preliminary examination on the work for his degree that he has done up to that time.



7. A fair copy of the thesis shall be placed in the hands of a committee of the faculty on or before the first day of April next preceding the final examination. No candidate shall be admitted to said final examination unless his thesis shall be approved by the committee. If the degree thereafter be conferred, at least one hundred printed copies of the thesis shall be deposited with the President of the University.
8. The final examination for this degree shall be held on or about the third Thursday in May, as the President of the University may decide.
9. Each examination for the degree of doctor of philosophy shall be held in the presence of the general faculty, and shall be conducted as said faculty may direct. A quorum for such examination shall be five.
10. Besides the final examination, the candidate shall be required to make a public defense of his thesis, at such time and place as the general faculty may determine.

#### GRADUATE WORK NOT LEADING TO A DEGREE.

Bachelors of this or any other reputable college or university, not desiring to take a degree, are allowed, subject to all the regulations governing the candidates for degrees, to pursue the studies of the graduate courses, and to be examined in them, and a certificate of attainment will be given if desired.

For the year 1890-91, the following subjects will be offered :

##### I. MATHEMATICS.

1. An advanced course in Co-ordinate Geometry.
2. An advanced course in Differential Calculus.
3. An advanced course in Integral Calculus.

The following subjects are offered to those who do not elect them in their under-graduate course :

1. Analytical Geometry.
2. Differential Calculus.
3. Integral Calculus.
4. Quaternions.

##### II. ASTRONOMY.—A course in Practical Astronomy.

III. CHEMISTRY.—Graduate students desiring to add to their knowledge of chemistry, will find here good facilities for laboratory practice; and they will be enabled to take up such practice at almost any point, either by themselves or with classes organized in the same work. The aim of the department will be to meet the wishes, on the one hand, of individual graduate or special students pursuing the more practical branches, as assaying, toxicology, etc., and on the other hand, of those who seek a better familiarity with the general and theoretical portions of the science. Graduate students will be invited to attend the lectures on theoretical chemistry, with the Senior class, in which these lectures are regularly given.

##### IV. GREEK A.—Greek Poetry, embracing the Epic, Lyric and Dramatic, with critical reading of authors, or Greek Philosophy, with critical reading of authors.

GREEK B.—Greek Oratory—Demosthenes' and Aeschines' "On the Crown," or "Jebbs' Attic Orators from Antiphon to Isaeus," with selected readings.

V. GERMAN.—Alternative courses.

1. *a.* Niebelungenlied.  
*b.* History of German Literature during the Twelfth and Thirteenth Centuries.
2. *a.* Lessing's Laocoon and Dramaturgy.  
*b.* History of German Literature from 1749 to 1832.

VI. ROMANCE LANGUAGES.—

1. Philological; especially with reference to the French element in English; the Norman dialect of Old French as it appears in the Laws of William the Conqueror; the Anglo-Norman poet Wace's Roman de Rou, Chanson de Roland; the later French of Rosseau and Montaigne.
2. A systematic study of some special topic, as: the Philosophy of the Nineteenth Century; the literature of the Eighteenth Century.

VII. HISTORY.—

1. Representative Government in England and the United States.
2. The History and Philosophy of Education.
3. School Law.

VIII. GEOLOGY AND MINERALOGY.—The granitic rocks of Central Minnesota, with such preliminary mineralogical work as may be found necessary.

IX. ENGLISH.—"Seminaries" devoted to the Philosophy of English literature, or study of Gothic in its relation to the English language.

X. LATIN.—

1. Roman Law. Institutes of Justinian.
2. Roman Philosophy,—Cicero.

XI. ECONOMICS AND POLITICAL SCIENCE.—The work of graduate students in this department is conducted on the "seminary" plan of foreign universities. The particular subjects of investigation are selected by individuals or groups, upon consultation with the professor.

## THE DEPARTMENT OF LAW.

## THE FACULTY.

CYRUS NORTROP, LL.D.,  
*President.*

HON. WM. S. PATTEE, M.A.,  
*Dean and Professor of the Law of Contracts.*

PROF. W. W. FOLWELL,  
*Lecturer on International Law.*

HON. GORDON E. COLE, LL.B.  
*Lecturer on Corporations.*

FRANK B. KELLOGG, ESQ.,  
*Lecturer on Equity Jurisprudence and Procedure.*

CHARLES A. WILLARD, LL.B.  
*Lecturer on the Law of Bailments.*

JUDGE JAMES O. PIERCE,  
*Lecturer on Constitutional and Statutory Law and the  
Law of Domestic Relations.*

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

HON. GEORGE B. YOUNG, LL.B.  
*Lecturer on the Conflict of Laws.*

HON. H. F. STEVENS,  
*Lecturer on the Law of Real Property.*

HON. C. D. O'BRIEN,  
*Lecturer on Criminal Law and Procedure.*

SELDEN BACON LL.B.,  
*Lecturer on Civil Procedure, including Evidence.*

HON. W. D. CORNISH,  
*Lecturer on Life and Fire Insurance.*

CHAS. B. ELLIOTT, PH. D.,  
*Lecturer on Wills and Administration.*

CHARLES H. BOARDMAN, M.D.,  
*Professor of Medical Jurisprudence.*

CHARLES W. BUNN, LL.B.  
*Lecturer on Suretyship and Mortgages, Practice in United States Court.*

T. DWIGHT MERWIN,  
*Lecturer on Patent Law.*

"There is little, if any, dispute now as to the relative merit of education by means of law schools, and that to be got by mere practical training or apprenticeship as an attorney's clerk. Without disparagement of mere practical advantage, the verdict of the best informed is in favor of the schools.

"The benefits which they offer are easily suggested, and are of the most superior kind. They afford the student an acquaintance with general principles, difficult, if

not impossible to be otherwise obtained: they serve to remove difficulties which are inherent in scientific and technical phraseology, and they as a necessary consequence furnish the student with the means for clear conception and accurate and precise expression. They familiarize him with leading cases, and the application of them to discussion. They give him the valuable habit of attention, teach him familiar maxims, and offer him the priceless opportunities which result from contact and generous emulation. They lead him readily to survey the law as a science, and imbue him with the principles of ethics as its true foundation. Disputing, reasoning, reading, and discoursing, become his constant exercises: he improves remarkably as he becomes acquainted with them, and obtains progress otherwise beyond his reach."—*Report of the Committee on Legal Education to the American Bar Association, August 21st, 1879, at Saratoga, N.Y.*

### ORIGIN.

Provision was made in the charter of the University for the establishment, at the proper time, of a College of Law; and in the early part of 1888 the Regents, believing the proper time had come, established the department by electing a Dean, and providing a full corps of lecturers. The College opened on September 11, 1888, and its membership during the school year reached the number of sixty-seven. The lectures and instruction, during the first year of the School's existence were given in rooms provided in the main building; which proved altogether inadequate to accommodate the numbers in attendance.

### NEW LAW BUILDING.

The popularity of the Department convinced the Regents that other and larger accommodations must be provided, and in the spring of 1889 plans were prepared for a new building especially for the Law School.

During the summer the building was erected, finished, and furnished, so that the Department took possession of the same in October of that year.

The Law Building is a beautiful structure, and furnishes the school with first-class accommodations in all particulars.

It was constructed for the sole use of the Law School. It was designed, completed and furnished with sole reference to the needs of such an institution. It is constructed of red brick and brown sandstone, and located in a grove of native trees within 200 feet of the main University building.

Upon the first floor is a large lecture room, constructed upon the plan of an amphitheatre, copiously lighted, thoroughly ventilated, and furnished with comfortable chairs, arranged with special reference to taking notes with ease and convenience.

Upon the same floor there is a society room, devoted to the Literary Association of the Department, and also a recitation room for text-book work.

Upon the second floor there is a large and thoroughly ventilated library room, a court room, a lecture room, and the offices of the Dean.

The building is heated throughout by steam generated by a plant located at some distance therefrom, supplied with gas, water, and all the modern conveniences necessary to make the building complete and sufficiently equipped for the work it was designed to accomplish.

**ADMISSION.**

Any person of good moral character will be allowed to matriculate in this department. If, however, the person applying for admission intends to be a candidate for a degree at the end of his course, he must not be less than eighteen years of age.

There is no list of studies prescribed which the candidate must pass in order to be admitted. Each candidate must satisfy the faculty that he has such a general education as will enable him to pursue the study of law with advantage, and justify his entering upon the practice of law when his legal studies are completed. Persons who are deficient in English grammar, composition, U. S. history, and other branches usually taught in common schools, will not be admitted. Special attention should be given to the English language, grammar, composition, and literature, history of the United States, of England, and of Rome. In addition, candidates will find a knowledge of Latin very useful, and students who are fitting themselves to pursue the study of law are earnestly recommended to study that language.

Examinations for admission to the College of Science, Literature and Arts will be held, beginning Tuesday, September 2. Candidates for admission to the Law Department should present themselves in the general office (room 21) in the main university building, at 8 o'clock on that day, and register their names. They should take an examination in as many of the subjects for admission to the Freshman class in the College of Science, Literature and Arts, as they feel themselves prepared for.

The results of these examinations will be reported to the faculty of the College of Law, and the names of the successful candidates will be announced.

Candidates who are graduates of high schools, academies or colleges, or similar institutions, will exhibit their diplomas, and file with the registrar, on making their application, a list of studies they have pursued, and the grade, standing, or degree of attainment they have obtained in each, duly signed by the principal or other officer. These certificates of standing, if accepted by the faculty, will exempt the candidate from examination, in whole or in part, as may be decided by the faculty, in each particular case.

**REGISTRATION.**

After having satisfied the faculty of his educational attainments, the candidate will, on paying his tuition fee to the registrar of the University, receive a registration card or ticket, which will admit him to the lecture room.

**TUITION.**

## FOR MINNESOTA STUDENTS.

|                        |         |
|------------------------|---------|
| Matriculation fee..... | \$10 00 |
| Annual fee.....        | 30 00   |

## FOR NON-RESIDENT STUDENTS.

|                                 |         |
|---------------------------------|---------|
| Matriculation fee.....          | \$20 00 |
| Annual fee.....                 | 35 00   |
| Diploma fee, for all alike..... | 10 00   |

## COURSE OF STUDY.

The course of study extends over a period of two years, and comprises the following subjects:

## FIRST YEAR (JUNIOR).

CONTRACTS.  
 TORTS.  
 CRIMINAL LAW AND PROCEDURE.  
 REAL PROPERTY.  
 EQUITY JURISPRUDENCE AND PROCEDURE.  
 DOMESTIC RELATIONS.  
 SURETYSHIP AND MORTGAGE.  
 PARTNERSHIP.  
 COMMON LAW AND CODE PLEADING.  
 EVIDENCE.

## SECOND YEAR (SENIOR).

CONTRACTS.  
 CORPORATIONS.  
 FIRE AND LIFE INSURANCE.  
 WILLS AND ADMINISTRATION.  
 LAW OF TAXATION.  
 INTERNATIONAL LAW.  
 CONFLICT OF LAWS.  
 ADMIRALTY LAW.  
 MEDICAL JURISPRUDENCE.  
 JURISDICTION AND PRACTICE OF UNITED STATES COURTS.

The course on contracts extends through both the junior and senior years, and embraces, among other topics, bills, notes and commercial law generally; contract liabilities of infants, incapables, and married women; agency; bailments; bankruptcy and insolvency. These specific topics will be considered during the two years, at such times and in connection with the treatment of such general subjects, as shall be most advantageous, and convenient for students and instructors.

## METHOD OF INSTRUCTION.

The method of instruction is not confined to either lectures or recitations, but such a combination of both is adopted as is best calculated to interest the student and secure for him a thorough, accurate, and comprehensive knowledge of the principles and rules of law. And in addition thereto such a use of the reports is made as will familiarize the student with the leading cases upon the various subjects in which he receives instruction.

## LIBRARY.

The Bar Association of Minneapolis has an excellent Law Library, located within easy reach of the University, the free use of which has been secured for all members of the Law Department. The State Library also, at St. Paul, is easily accessible and will be open to their free use each day in the week except Sunday.

The Department has a good working library in the new building, comprising those Reports most frequently cited in the text books used. It is open to the students both day and evening; and the facilities for investigating legal topics through text-books, digests and reports, are already good, and new additions to the Department collection are being constantly made.

The Bar Association Library at Minneapolis furnishes all the facilities for consultation of authorities that the students require. It contains all the Reports, State and National, which the student would have occasion to examine; and also the English text-books and Reports, which are so necessary for the student in his study of the fundamental principles of the Law.

This library is open to those who wish to use it, both forenoon and afternoon. The lectures and recitations are given at 2 o'clock P. M., in order to give the student the entire forenoon for study.

### BOOKS.

Students will be expected to furnish themselves with such text-books as the faculty shall adopt for use in the recitation room. In all cases they will be such books as will be found necessary in the student's practice.

In addition to these, should any of the students desire to have at hand other standard works upon the subjects taught, a judicious selection could be made from the following list, and the faculty will be glad to aid them in making such a selection:

*Contracts*—Parsons, Anson, Metcalf, Pollock, Bishop.

*Bailments*—Schouler, Edwards, Story.

*Sales*—Benjamin, Blackburn.

*Domestic Relations*—Schouler or Reeves on Domestic Relations; Schouler on Husband and Wife; Bishop on Marriage and Divorce; Bishop on Married Women; Cord on Married Women; Macdonnell on Master and Servant; Simpson on Infants.

*Corporations*—Angell and Ames, Field, Morawetz, Taylor; Dillon on Municipal Corporations; Thompson on Liability of Stockholders.

*Bills and Notes*—Byles, Chalmers, Parsons; Daniels on Negotiable Instruments; Edwards on Bills and Notes; Bigelow's Leading Cases; Ames' Leading Cases.

*Torts*—Cooley, Bigelow, Addison; Wharton on Negligence.

*Evidence*—Greenleaf on Evidence; Best's Principles of Evidence; Stephen's Digest of Law of Evidence; Wharton or Starkie on Evidence; Rogers on Expert Testimony; Roscoe's Criminal Evidence.

*Real Property*—Williams, Washburn, Tiedman, Boone, Willard.

*Partnership*—Lindley, Parsons, Bates, Pollock.

*Wills and Administration of Estates*—Redfield on Wills; Jarman on Wills (Randolph & Talcott's or Bigelow's edition); Hawkins on Construction of Wills; Schouler on Wills; Williams on Executors.

*Common Carriers*—Hutchinson on Carriers; Thompson on Passenger Carriers; Redfield or Pierce on Railways.

*Equity*—Pomeroy's or Storey's Equity Jurisprudence; Snell's, Bispham's or Adams' Equity.

*Criminal Law*—Harris, Bishop, Wharton, May, Washburn; Stephen's Digest of the Criminal Law; Stephen's History of the Criminal Law.

*Pleading*—Gould, Stephens, Chitty, Hurd; Bliss on Code Pleading; Story's Equity Pleading; Pomeroy on Remedial Rights.

*Agency*—Evans, Storey, Wharton.

*Damages*—Sutherland, Sedgwick.

*Mortgages*—Jones, Thomas.

*Insurance*—May on Insurance; Wood on Fire Insurance; Bliss on Fire Insurance; Arnold on Marine Insurance.

*Shipping and Admiralty*—Abbott, Conkling, Desty.

*Easements*—Goddard, Washburn.

*Taxation*—Cooley, Burroughs, Desty.

*Medical Jurisprudence*—Ewell, Wharton and Stille, Beck.

*Constitutional History*—Hallam's Constitutional History of England (1485-1760); May's Constitutional History of England (1760-1870); Yonge's Constitutional History of England (1760-1860); Stubb's Constitutional History of England; Bagehot's English Constitution; Gheist's English Constitutional History; Curtis's History of the Constitution of the United States; Bancroft's History of the United States; Von Holst's Constitutional History of the United States.

*Constitutional and State Law*—Pomeroy's Introduction to the Constitutional Law of the United States; Von Holst's Constitutional Law of the United States; Cooley's Principles of Constitutional Law; Cooley's Constitutional Limitations; Story's Commentaries on the Constitution of the United States; Sedgwick on Constitutional and Statutory Law; Jameson's Constitutional Conventions; Bishops Written Law; Maxwell on the Interpretation of Statutes; Farrar's Manual of the Constitution of the United States; Stearn's Concordance to the Constitution of the United States.

*Jurisprudence*—Holland's Elements of Jurisprudence; Austin's Lectures on Jurisprudence; Lorimer's Principles of Jurisprudence; Amos on the Science of Law.

*International Law*—Wheaton's Elements of International Law; Hallis International Law; Davis' International Law; Story's Conflict of Laws.

*Roman Law*—Morey's Outlines on Roman Law; Hadley's Introduction to Roman Law; Mackenzie's Roman Law; Moyle's Justinian; Roby's Introduction to the Digest; Muirhead's Roman Law.

### COURSE.

The department is located within easy reach of both the Federal and State courts. At St. Paul the United States courts are in session several months in the year, which, with the Supreme court of the State, together with the District and Municipal courts of both cities, will furnish all the opportunities for witnessing the actual practice of law, that the student will have either time or desire to improve.

### MOOT COURT.

A Moot Court was organized at the beginning of the first term and continued during the year. As fast as the student becomes acquainted with the primary rights of persons, cases are prepared for his consideration, wherein he may apply the principles of law with which he has become familiar.

There is now established a system of Moot Courts, corresponding to the Justice, the District, and the Supreme Courts of Minnesota, wherein the student may become familiar with the practice and the rules of the courts respectively.

It is the aim of the department to acquaint the student with the practice as well as the theory of the law, and to this end, the subjects of pleading, evidence, rules of practice adopted by our State Courts, methods of securing provisional remedies, appeals from one court to another, the writs of habeas corpus, certiorari, and others of frequent use, conveyancing,



drawing contracts, and other like practices which comprise the daily work of the general practitioner, will, during the Senior year, receive especial and careful attention.

Some member of the faculty will preside over each of these courts, associating with him such members of the class as he shall from time to time select. Briefs will be prepared, and all other steps taken, so far as possible, which practice requires in the actual conduct of cases.

#### EVENING CLASSES.

Evening classes are formed for those who are unable to attend during the day. Persons who enter the evening department go over the same subjects, and are entitled to their diplomas if on final examination they show themselves possessed of the requisite qualifications.

They are subject to the same rules and have all the advantages of Moot Courts and other general exercises that the students of the day class enjoy.

But owing to the scanty time the evening students, as a general rule, have for reading, the course of study will extend through three years instead of two. If, however, any student can command the time sufficient to do the requisite reading, and can in two years complete the course, passing a satisfactory final examination, he will be entitled to his diploma and degree at the end of that time.

#### THE LECTURERS.

All the lecturers in the department are lawyers actively engaged in the practice of their profession. They come to the class room direct from the bar, bringing with them fresh experiences and the spirit of actual contests. They all possess a high ideal of what a lawyer should be and do, and the student who enters here is expected to come with the fixed purpose of attaining a high degree of excellency in his legal requirements, and to respond in earnestness and fidelity to the faithful efforts of his instructors in his behalf.

#### LITERARY SOCIETY.

The students of the Department, Juniors and Seniors, have joined in organizing a literary society for the purpose of general improvement, and for cultivation in the practice of extemporaneous speaking. They hold weekly meetings, and derive great benefit from their exercises.

#### UNIVERSITY DEPARTMENTS.

Students of this department will be admitted, under proper regulations, to exercises in the other departments or colleges of the University, without extra charge, and so far as does not interfere with their law studies, they are urged to avail themselves of this opportunity to attend lectures and recitations in the other departments. The following subjects are suggested as being particularly suitable: International Law, Constitutional History and Political Science.

## DEGREES.

The degree of Bachelor of Laws will be conferred upon all students who pursue the full course in this department, and pass an approved examination. The degree will also be conferred upon those, who, having attended another law school for a period of one year, shall also attend for one year in this department, and pass a like examination.

## ADMISSION TO THE BAR.

The Legislature of Minnesota in the early part of the year 1889, recognized the Legal Department of the University of Minnesota, in the following enactment, whereby students graduating therefrom are entitled to admission to the bar without further examination:

AN ACT to amend sections one and two of chapter eighty-eight of the General Statutes of one thousand eight hundred and seventy-eight, relating to the admission of persons to practice law in the courts of this state.

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

SECTION 1. That section one of chapter eighty-eight of the General Statutes of one thousand eight hundred and seventy-eight be amended so as to read as follows:

SECTION 1. Any person of the age of twenty-one years, of good moral character, who possesses the requisite qualifications of learning and ability, and who has read law in the office of a regularly admitted attorney and counselor at least two years, is entitled to admission to practice law in all the courts of this state.

SECTION 2. That section two of said chapter be amended so as to read as follows:

SECTION 2. For the purpose of admission he shall apply to the supreme court or any district court when in session, and shall show first, that he is of the age of twenty-one years, which proof may be made by his own affidavit; second, that he is a person of good moral character, and has read law in the office of a regularly admitted attorney and counselor for at least two years, which may be shown by certificate or other evidence satisfactory to the court; provided, that any person who was reading law as above required on the first day of July, A.D., 1888, may apply for admission at any time after July 1, 1889, without further proof as to time of such reading: *provided further, that any person having received a diploma from the law department of the University of Minnesota, shall, upon presenting the same to the court, within two years from date thereof, be admitted, as provided in this chapter, to practice in this state without further examination as to his learning, ability and time of reading.*

SECTION 3. This act shall take effect and be in force from and after its passage. Approved April 24, 1889.

## THE UNIVERSITY LIBRARY.

The library and reading room occupy rooms 18, 20, 22, 24 to 28 in the first story of the main building.

The library is open to everybody from 8:00 a.m. to 6:00 p.m. every day in the University year except Sundays and holidays. During the vacation the library is open on Wednesday and Saturday evenings at 7:30 o'clock for the issue and receipt of books borrowed. Members of the University are allowed to borrow books for home reading, to be kept seventeen days, but works marked in the catalogue with a \* (called "starred books"), comprising books of reference, illustrated books, and rare and costly books,

cannot be removed. These books, as well as others, may be read and consulted in the reading room.

The bound volumes number more than 25,000.

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

#### CALENDAR, 1890.

September 2, Tuesday, 9 a.m.—Examination for entrance, and enrollment, in law building.

September 9, Tuesday, 2 p. m.—First lectures of the course.

December 23, Tuesday—Holiday vacation begins.

January 6, 1891, Tuesday, 2 p. m.—Lectures resumed.

May 26, Tuesday—Senior examinations for degrees.

June 4—Commencement.

For further particulars write to the President, Cyrus Northrop, Minneapolis, or to the Dean, W. S. Pattee, and all information necessary for the student will be furnished promptly.

The Dean will be pleased to correspond with any who are thinking of pursuing a course of legal study, and he will gladly aid any student in selecting the proper books to pursue.

Letters addressed to him at Minneapolis, Minnesota, will receive prompt attention.

#### EXPENSES.

These depend largely upon the tastes and habits of the individual. Students find no difficulty in obtaining board among the people of the city.

Good board can be obtained for \$4 per week. Students board in clubs at less expense.

#### STUDENTS.

During the present year there have registered in the Department of Law 134 students. A good number of them are graduates of higher institutions of learning.

## THE DEPARTMENT OF MEDICINE.

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CYRUS NORTHROP, LL. D., - - - - - President.

PERRY H. MILLARD, M. D., - - - - - Dean.

This Department is composed of the following named Colleges, to-wit:  
The College of Medicine and Surgery, the College of Homœopathic Medicine and Surgery, and the College of Dentistry.

### THE COLLEGE YEAR.

The third course of instruction will commence Monday evening, October 6th, 1890, and continue eight months. There will be no lectures on Thanksgiving Day. The holiday vacation begins December 20th and closes January 5th.

### COURSE.

To meet the requirements of the constantly increasing expansion of Medical Science, this department has been organized, with a view of affording the student of Medicine or Dentistry a thorough course of medical and Dental instruction. It is with satisfaction that the announcement is made that the Legislature has wisely provided the necessary means for the establishment of the various colleges comprising this department, upon a basis that will enable the Regents to maintain a most competent corps of instructors. It is gratifying to know that the profession of the Northwest appreciates our efforts in establishing a high grade school. Of the one hundred and thirty-one matriculates, one hundred and twenty-five were in actual attendance during the session. Matriculates not able to pass the entrance examination, do not appear in the "roster of students," and their matriculation fee is returned.

Laboratory work and clinical instruction will be a leading feature of this department. A thorough course of instruction will be required in Histology, Pathology, Bacteriology, Qualitative Analysis, Urinalysis, and Toxicology. The work in the various Laboratories will be under the direct supervision of the didactic professors, and not left to assistants.

Where practicable, students are requested to take four course of lectures. The schedule is so arranged that a four year course can be taken to advantage.

The curriculum in the Department of Medicine covers a period of three years, each year of which represents a course of lectures of eight months

duration. Students from other colleges may be admitted, however, to the second year of lectures in the college which corresponds to their previous course of study, by furnishing evidence, (1), of their possession of the specified preliminary education or its alternatives; (2), of the prosecution of their medical or dental studies for one year, and (3), of attendance upon one full course of lectures in some recognized college of medicine or dentistry. Admission may similarly be gained to the senior year by furnishing evidence, (1), of the necessary preliminary qualifications; (2), of the continuance of their professional studies for two years, and (3), of attendance upon two full courses of instruction in some recognized medical or dental college; and finally, by sustaining satisfactory examinations, or giving evidence of having already successfully passed examinations in the studies of the first and second years.

The students of all the colleges grouped under this department of the University will attend lectures in common upon Anatomy, Physiology, Chemistry and Histology, and must pass satisfactory examinations in all of these studies before they complete the course or enter for the general examinations in either college. They will attend lectures in common upon such other branches as the faculty under which their studies are pursued may determine.

No college that graduates students upon two courses of lectures is recognized by this department. Students of colleges not recognized, desiring admission to the junior or senior courses, will be required to comply with the rules governing the entrance examinations, and if the applicant desires admission to the senior year, he or she will be required to undergo an examination upon the studies of the first and second years.

The students of the College of Veterinary Medicine and Surgery attend lectures on Anatomy, Physiology, Chemistry and Histology, in this department.

#### SPECIAL INSTRUCTION.

Students or practitioners of medicine can pursue a course of instruction in one or more branches by the payment of a fee of fifteen dollars. These students are classed as "special students," and are not issued the regular certificate of attendance at lectures.

#### OPENING LECTURES.

Dr. Millard, the Dean of the Department, will deliver the opening lecture before the students of the College of Medicine and Surgery, at 8:00 P. M., Monday evening, October 6th.

Dr. Brazie, Secretary of the College of Homeopathic Medicine and Surgery, will deliver the opening lecture before the students of this College at 8:00 P. M., Monday evening, October 6th.

Dr. Bailey, Secretary of the College of Dentistry, will deliver the opening lecture before the students of this College at 3:00 P. M., Tuesday afternoon, October 7th.

The opening lectures will be delivered at the Medical College building.

By reference to the calendar, it will be observed that the courses of instruction in this department is extended, and closes the first Thursday in June of each year. It has been found quite impracticable to afford the student a thorough course of instruction in the short period of six months.

#### LOCATION.

The University proper is located in East Minneapolis, corner of University and Fourteenth avenues S. E., but lectures will be delivered and the laboratory work conducted at the buildings formerly occupied by the Minnesota Hospital College, corner Sixth Street and Ninth avenue south, near which point students should secure lodgings. The clinical instruction will be given at the various dispensaries and hospitals in both Minneapolis and St. Paul. Special arrangements will be made with the railroads for the transportation of students to the weekly clinic to be held at St. Paul, thus affording students the advantages of material for instruction from two large cities. The faculty is well represented upon the staff of all the large hospitals in these two cities, and special arrangements will be completed for giving clinical instruction.

#### EQUIPMENT.

The University is well equipped for laboratory work. The general museum comprises the collections of the Geological and Natural History Surveys of the State, and containing upwards of twelve thousand specimens, will be at the disposal of students for purposes of examination and study. Laboratory work will be a special feature of this department.

The library of the University contains upwards of twenty-five thousand volumes, and is open daily for the use of students of all departments.

Several thousand dollars are being spent in the purchase of additional apparatus, charts, manikins, etc.

#### ENROLLMENT.

Students will enroll with the Registrar at the Medical College building, commencing Monday, October 6th. Previous to this date they may enroll at the main University building. After enrollment the student will report to the committee conducting the entrance examination. Students unable to pass this examination will have their enrollment fees returned to them. Those passing the preliminary entrance examination, will report to the Secretaries of the various colleges for classification. Seats are assigned in order of enrollment.

#### ENTRANCE EXAMINATIONS.

The entrance examinations will commence at 9 A. M. Tuesday, Oct. 7th, at the medical college building.

This examination will be conducted by a committee consisting of the Dean, assisted by the secretaries of the college of Homeopathic Medicine and Surgery, and the College of Dentistry.

### QUALIFICATIONS.

Applicants for admission to the College of Medicine and Surgery, the College of Homeopathic Medicine and Surgery, or the College of Dentistry, will be required to prove their fitness to enter these colleges:

1. By writing legibly and correctly an English composition of not less than two hundred words.

2. By evincing reasonable familiarity with Latin Grammar or passing an examination in either French, German, or one of the Scandinavian languages.

3. By passing an examination upon either the elements of Algebra, Plane Geometry, or Botany.

4. By passing an examination in Elementary Physics.

It is provided, however, that students, matriculates or graduates of reputable colleges of Science, Literature and Arts, or graduates of High Schools of the first grade, shall be exempt from the provisions of this examination. Applicants are given one year to make up a condition in the entrance examination.

### PROFESSIONAL EXAMINATIONS.

These examinations are held the last two weeks of the regular session. An examination is held the first week of the session for students conditioned in former examinations and for new students desiring advanced classifications.

The standing of students are determined by term "quizzes" and final written examinations. The standing of students are made known at the end of the session. Frequent class examinations, or "quizzes," will be conducted by each professor, and are considered an important feature of the course. Attendants upon at least four-fifths of the lectures under each chair is requisite in order to entitle the student to enter for final examination, or to a certificate of attendance.

### GRADUATION.

Candidates for graduation, and for the degrees conferred by the University upon graduates of the colleges in this department, must possess the following qualifications: (1), They must be upwards of twenty-one years of age; (2), they must be of good moral character; (3), they must have spent three full years in the study of medicine or dentistry; (4), they must have attended three full courses of lectures, the last of which, at least, must have been in this University, and the two former in this or some other recognized university or college of medicine or dentistry, and (5), they must have sustained satisfactory examinations in the various branches of study, in accordance with the rules of the general faculty.

### DEGREES.

In the Department of Medicine, the following degrees will be granted by the University:

To graduates of the College of Medicine and Surgery, the degree of Doctor of Medicine (M. D.).

To graduates of the College of Homœopathic Medicine and Surgery, the degree of Doctor of Medicine (M.D.).

To graduates of the College of Dentistry, the degree of Doctor of Dental Surgery (D.D.S.).

Graduates of the College of Dentistry can obtain the degree of Doctor of Medicine by attending one full course of lectures in either of the allied colleges, and by passing the final examinations required therein. Similarly graduates of the College of Medicine and Surgery, or of the College of Homœopathy, can obtain the degree of Doctor of Dental Surgery by attending one full course of lectures in the College of Dentistry, and by passing the final examinations in that college.

#### FEES.

Students of the various colleges of the department will be uniformly charged as follows:

Matriculation fee, payable annually, for students who are actual residents of Minnesota, \$10.00; for all others, \$25.00.

Lecture courses, annually, for students of Minnesota, \$25.00; for all others, \$35.00.

Material for dissection, \$10.00 per part; bodies are divided into four parts for dissection.

Histological and Pathological laboratory courses, not to exceed \$5 for both courses.

Freshman course in Qualitative Analysis, \$10.00.

Junior course in Toxicology and Urinalysis, \$5.00.

Graduation fee, \$10.00.

Graduates of the College of Science, Literature and the Arts, of the University, are not required to pay the annual fee of \$25.00, it being the policy of the Board of Regents to encourage our own graduates to enter our own professional schools.

#### FEES FOR THREE YEARS.

##### FIRST YEAR:

|                           |         |
|---------------------------|---------|
| Matriculation.....        | \$10.00 |
| Annual dues.....          | 25.00   |
| Dissecting.....           | 10.00   |
| Qualitative Analysis..... | 10.00   |
| Histology.....            | 3.00    |
|                           | <hr/>   |
|                           | \$58.00 |

##### SECOND YEAR:

|                                 |         |
|---------------------------------|---------|
| Matriculation.....              | \$10.00 |
| Annual dues.....                | 25.00   |
| Dissecting.....                 | 10.00   |
| Urinalysis and Toxicology.....  | 5.00    |
| Pathology and Bacteriology..... | 2.00    |
|                                 | <hr/>   |
|                                 | \$52.00 |



## THIRD YEAR:

|                       |          |
|-----------------------|----------|
| Matriculation.....    | \$10.00  |
| Annual dues.....      | 25.00    |
| Diploma.....          | 10.00    |
|                       | \$45.00  |
| Total for Course..... | \$155.00 |

## FEES FOR NON-RESIDENTS.

|                    |         |
|--------------------|---------|
| Matriculation..... | \$25.00 |
| Annual dues.....   | 35.00   |

## CALENDAR.

1890.

- October 6.—Monday, enrollment; 8:00 P. M., lectures begin.  
 October 7.—Tuesday, 9:00 A. M., entrance examination.  
 October 8.—Regular lectures begin.  
 December 20.—Commencement of holiday vacation.

1891.

- January 5.—End of holiday vacation.  
 May 18.—Examinations begin.  
 May 30.—Examinations close.  
 June 4.—Commencement exercises.

## THE COLLEGE OF MEDICINE AND SURGERY.

## THE FACULTY.

- CYRUS NORTHROP, LL. D.,  
*President.*
- GEORGE A. HENDRICKS, M. S., M. D.,  
*Professor of Anatomy.*
- RICHARD O. BEARD, M. D.,  
*Professor of Physiology.*
- C. J. BELL, A. M.,  
*Professor of Chemistry.*
- H. M. BRACKEN, M. D., L. R. C. S. E.,  
*Professor of Materia Medica and Therapeutics.*
- ALBERT E. SENKLER, M. D.,  
*Professor of Theory and Practice of Medicine.*
- CHARLES H. HUNTER, A. M., M. D.,  
*Professor of Clinical Medicine.*
- EVERTON J. ABBOTT, A. B., M. D.,  
*Professor of Clinical Medicine.*
- CHARLES A. WHEATON, M. D.,  
*Professor of Principles and Practice of Surgery.*
- FREDERICK A DUNSMOOR, M. D.,  
*Professor of Clinical and Operative Surgery.*
- PERRY H. MILLARD, M. D.,  
*Dean and Professor of Clinical Surgery.*
- ALEX. J. STONE, LL. D., M. D.,  
*Professor of Diseases of Women.*
- AMOS W. ABBOTT, M. D.,  
*Clinical Professor of Diseases of Women.*
- PARKS RITCHIE, M. D.,  
*Professor of Obstetrics.*
- JOHN F. FULTON, PH. D., M. D.,  
*Professor of Ophthalmology, Otology and Hygiene.*
- FRANK ALLPORT, M. D.,  
*Clinical Professor of Ophthalmology and Otology.*
- C. EUGENE RIGGS, A. M., M. D.,  
*Professor of Nervous and Mental Diseases.*
- CHARLES H. BOARDMAN, M. D.,  
*Professor of Medical Jurisprudence.*
- JAMES H. DUNN, M. D.,  
*Professor of Diseases of the Genito-Urinary Organs.*
- CHAS. L. WELLS, A. M., M. D.,  
*Professor of Diseases of Children.*

JAMES E. MOORE, M. D.,  
*Professor of Orthopædic Surgery.*

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

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

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

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

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

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

A. MCLAREN, A. B., M. D.,  
*Adjunct Professor of Gynecology.*

W. A. JONES, M. D.,  
*Adjunct Professor of Diseases of the Nervous System.*

BURNSIDE FOSTER, M. D.,  
*Demonstrator of Anatomy.*

#### ANNOUNCEMENT.

Under the title of the College of Medicine and Surgery is represented the "old school" branch of this department of the University.

Its creation has been the signal for the discontinuance of the leading medical institutions of Minneapolis and St. Paul, whose faculties have thus sought to enlarge the opportunity for the establishment of a strictly high grade school. The event marks an era in the history of medical education in Minnesota.

The faculty of the new college, in presenting its third annual announcement to the profession and the public, desires to emphasize the high standard of its curriculum. It will conduct a three years' course of instruction which will largely follow the graded method. Matriculates must demonstrate their fitness for professional study by evincing their possession of a fair degree of preliminary education. Students must pass the fundamental or primary branches before entering for advanced or final examinations.

#### ADVANTAGES.

While maintaining these superior educational conditions, the college will afford its students correspondingly superior clinical advantages. It will place at the command of the student the clinical advantages of the larger Hospitals and Dispensories of the two cities.

#### MINNEAPOLIS.

The wards of St. Marys and the City Hospital are free to the students of this college. These facilities with the frequent opportunities of witnessing the operations and examinations of rare cases in the private hospitals under the management of professors of the college, provide a superabundance of indoor clinical material.

#### UNIVERSITY FREE DISPENSARY.

This dispensary is the outdoor department of the University Clinics.

Numerous rooms and the amphitheatres of the college building are used for the examination and treatment of patients. This service is under most successful management and daily a number of the graduating class examine and prescribe for patients. Students are also permitted to make minor operations. The records of the last year show upwards of thirty thousand professional visits of patients.

#### ST. PAUL.

In addition to the regular clinical instruction at Minneapolis, every Saturday is set apart for clinical instruction at St. Paul. The Senior class are required to attend these weekly clinics, and the schedule is so arranged that the Juniors can likewise avail themselves of these clinics. Saturday afternoons are set apart for a thorough course in bedside instruction. The class, divided into sections, are under the charge of the instructors of the various branches or the members of the visiting staff.

#### ST. JOSEPH'S HOSPITAL.

The authorities of St. Joseph's Hospital have generously constructed an amphitheater for the benefit of the students of the department, where the excellent course in clinical instruction will continue as in the past. This is the largest hospital in the Northwest, and affords most excellent surgical advantages. A large number of operations were made before the class in this amphitheatre during the last session of lectures. The number of occupied beds in this Hospital averages over one hundred.

#### CITY HOSPITAL.

The new building of this large structure is completed, and the new wing is in process of construction. Upwards of 1,500 patients were treated in the wards of this hospital the last year. In this hospital are encountered a very large number of cases of emergency surgery, so necessary in affording proper clinical instruction. Through the kindness of the Superintendent, Dr. Crocker, and the Board of Control, we are assured that our students will be afforded the amplest clinical advantages in the future. The new house staff of this hospital were recently appointed from among the graduates and students of this department.

#### UNIVERSITY FREE DISPENSARY.

This most worthy charity is supported by the Ladies' Aid Society, Mrs. H. C. Burbank, President. The staff consists entirely of the members of the Faculty of this Department. About 12,000 visits were made by patients the last year. It affords a rich field for clinical work in connection with the College of Medicine and Surgery.

#### HOSPITAL APPOINTMENTS.

A large number of the graduates and advanced students of this college secure appointments in the various hospitals of the two cities.

Laboratory work will be a leading feature of the course in this college. It will include practical demonstrations in physiology, histology, bacteriology, pathology, chemistry and urinalysis. In these exercises students

will personally participate and will thus be provided with an opportunity to perfect themselves in microscopy.

In addition to the regular didactic course, special lectures will be given upon topics of peculiar interest.

An ample supply of material will be provided for dissections and the demonstration of anatomy will be thoroughly conducted.

The faculty will spare no endeavor to put the college upon a plane with the foremost medical institutions of the country, and, in the realization of this purpose, it bespeaks the support of the medical profession of the north-west.

**COURSE OF INSTRUCTION.**

| I. YEAR.   | II. YEAR.  | III. YEAR.  |
|--|--|---|
| Anatomy.<br>Chemistry.<br>Histology.<br>Physiology.<br>Materia Medica.<br>Laboratory Work. | <i>Continuation of first year studies.</i>   | <i>Continuation of 2d year studies (without those of first.)</i>  |
|  | Pathology.<br>Medical Jurisprudence.<br>Theory and Practice.<br>Clinical Medicine.<br>Obstetrics.<br>Diseases of Children.<br>Physical Diagnosis.<br>Hygiene.<br>Surgery.<br>Clinical Surgery.<br>Gynecology,<br>Clinical Instruction. | Therapeutics.<br>Neurology.<br>Ophthalmology.<br>Dermatology.<br>Laryngology.<br>Clinical Instruction in all branches.<br>Electro-therapy.<br>Otology.<br>Genito-Urinary Diseases.<br>Orthopædia. |

**PROFESSIONAL EXAMINATIONS.**

The following regulations govern the professional examinations:

Examinations will be conducted at the end of the first, second, and third years' work. An examination will be held at the end of the first year upon the subjects of Anatomy, Chemistry, Physiology, and Histology; the examination in Anatomy will be mainly confined to Osteology and Syndes-mology; in Chemistry, the student will be expected to complete his work in General Chemistry and Qualitative Analysis; the final examination in His-tology will be held at the end of the first year. A final examination in An-atomy, Chemistry, Physiology, and Materia Medica, will be conducted at the end of the second year. The examination at the end of the third year, for those entering the graduating class, will be divided into eight sections:

1. An examination in Therapeutics, Medical Jurisprudence and Hygiene.
2. Practice of Medicine, Physical Diagnosis, and Diseases of Children.
3. Surgery, Orthopædia, and Genito-Urinary.
4. Diseases of the Nervous System, Dermatology.
5. Ophthalmology, Otology, and Laryngology.
6. Obstetrics.
7. Gynecology.
8. Bacteriology and Pathology.

**ANATOMY.**

The course in Anatomy is graded. First year students are expected to attend all lectures given in Anatomy. First year students are given a sep-

arate course of lectures on Osteology, Syndesmology and Myology. Examinations are held on these subjects at the close of the term.

The lectures on Descriptive, Topographical and Surgical Anatomy, are attended by first and second year students. Second year students recite upon these lectures and receive their final examination at the close of the term.

Dissecting is regarded as advanced work and is done only in the second year. The practical work in the laboratory is under the supervision of the professor of Anatomy, and personal direction of the Demonstrator. The laboratory work is supplemented with lectures and recitations.

TEXT BOOKS.—Grey, 11th Edition, Quain 10th Edition. Holden's Practical Anatomy.

COLLATERAL READING.—Darling & Ranney. Owen's Skeleton and Teeth, Flower's Osteology of mammals.

### ANATOMY.

FIRST YEAR.—Lectures and recitations in Osteology, Syndesmology and Myology; one course; two hours per week; 64 lectures.

FIRST YEAR.—Attendance upon lectures in Descriptive, Topographical and Surgical Anatomy; one course; two hours per week; 64 lectures.

SECOND YEAR.—Lectures and recitations in Descriptive, Topographical and Surgical Anatomy; one course; two hours per week; 64 lectures.

LABORATORY WORK.—Dissection of whole body; one course; afternoons or evenings (14 weeks).

### PHYSIOLOGY.

Students are required to study Physiology both in the first and second years. The course is partially graded. The students of both classes will hereafter attend the same series of lectures and recitations, but special teaching in advanced Physiology will be given to students of the second year. The classes will be separately examined at the close of the term. The subject will be taught by recitations and by lectures, illustrated by practical demonstrations.

TEXT BOOKS.—Foster and Yeo.

COLLATERAL READING.—Chapman, and Landois and Stirling.

### CHEMISTRY.

FIRST YEAR.—Lectures on Inorganic Chemistry, Laboratory, General Chemistry, and Qualitative Analysis.

SECOND YEAR.—Lectures on Medical Chemistry, Elements of Organic Chemistry, Toxicology and Analysis of the Urine, Laboratory Work.

TEXT BOOKS RECOMMENDED.—Remsen, Inorganic Chemistry; Tyson, Examination of the Urine; Reese's Toxicology; Taylor on Poisons.

### HISTOLOGY AND BACTERIOLOGY.

Lectures and laboratory work. The student will be taught to mount normal tissues and specimens containing bacteria. The course in normal Histology and Bacteriology will cover a period of not less than twelve weeks. If possible, the student will provide himself with a microscope.

TEXT BOOKS.—Pruden's Practical Histology, Shaefer's Essential Histology.

COLLATERAL READING.—Cornil and Ranvier.

PATHOLOGY.

Pathology will be taught by lectures, recitations, and demonstrations in the dead-house.

Lectures will be illustrated as far as practicable by fresh and museum preparations.

A thorough course in Pathological Histology will be given in the laboratory where the student will mount and preserve a series of sections illustrating tumors and the more important lesions of the viscera.

TEXT-BOOK.—Delafield & Prudden, "Hand-book of Pathological Anatomy and Histology," 1889.

MATERIA MEDICA AND THERAPEUTICS

Lectures, practical demonstrations in the laboratory, and recitations. Third year students will attend a special course of lectures on Therapeutics.

TEXT-BOOKS.—Brunton, Wood and Bartholow.

OBSTETRICS.

Lectures, illustrated by operations on the manakin, and recitations. During the senior year opportunities will be given members to attend cases of Obstetrics.

TEXT-BOOK.—Lusk.

COLLATERAL READING.—Playfair, Galabin, Charpentier.

SURGERY.

Lectures and recitations; also clinical instruction, and special courses in minor surgery, bandaging, and operative surgery.

TEXT-BOOKS.—Agnew, Wyeth and Bryant.

COLLATERAL READING.—Ashurst's International Encyclopædia, and Erichsen.

PRACTICE OF MEDICINE.

Lectures, recitations, and clinical instruction. Bedside instruction will be a special feature in the teaching of this branch.

TEXT-BOOK.—Hilton Fagge.

COLLATERAL READING.—Flint, Reynold's System, Loomis, Niemeyer, and Roberts.

DISEASES OF WOMEN.

Lectures, clinical instruction, and attendance upon operations. The opportunities of practical instruction in this branch will be very ample.

TEXT-BOOKS.—Thomas, Schroeder, Byford.

COLLATERAL READING.—Emmett, Hart, and Barbour.

EYE AND EAR.

Lectures, clinical instruction, and recitations.

TEXT-BOOKS.—Noyes. Nettleship (eye). Roosa (ear), and Williams.

COLLATERAL READING.—Juler, Stellweg, Soelberg Wells, and Politzer (ear).

## NERVOUS AND MENTAL DISEASES.

Lectures and clinical instruction. Special opportunities will be afforded students in differential diagnosis.

TEXT-BOOKS.—Edinger's Anatomy of the Central Nervous System, Gower's Nervous Diseases, Bramwell, (cord), Liebig and Rohe's Medical Electricity, Spitzka's Insanity.

COLLATERAL READING.—Bevan-Lewis or Clouston's Mental Diseases, Bastian's Paralyzes, Ferrier's Functions of the Brain, and Cerebral Localization; Nervous Diseases, Ranney, Hammond and Strumpell.

## GENITO-URINARY DISEASES.

Lectures and clinical instruction.

TEXT BOOKS.—Thompson's Diseases of the Urinary Organs.

COLLATERAL READING.—Vanburen and Keys, and Bumstead and Taylor.

## DISEASES OF CHILDREN.

Lectures, didactic and clinical in their character, will be given under this chair.

TEXT BOOKS.—J. Lewis Smith, Eustace Smith, Meigs and Pepper, and Goodhart.

## DISEASES OF THE SKIN.

Lectures and clinical instruction.

TEXT BOOK.—Dühring.

COLLATERAL READING.—Hyde and Van Haslingen.

## LARYNGOLOGY.

Lectures and the use of the Laryngoscope. Clinical instruction.

TEXT BOOK.—McKenzie.

COLLATERAL READING.—Bosworth.

## PHYSICAL DIAGNOSIS.

Lectures, class exercises, beside instruction.

TEXT BOOKS.—Hudson and Loomis.

COLLATERAL READING.—Bramwell (heart).

## ORTHOPÆDIC SURGERY.

Lectures and clinics.

TEXT BOOK.—Rum's (Practical Orthopædia).

COLLATERAL READING.—McNamara and Gibney.

## HYGIENE.

Lectures.

TEXT BOOK.—Parks.

COLLATERAL READING.—Richards on Preventive Medicine, Buck's Hygiene.

## MEDICAL JURISPRUDENCE.

Lectures.

TEXT BOOKS.—Reese and Tidy.

COLLATERAL READING.—Taylor's Principles and Practice of Medical Jurisprudence, Wharton and Stille.



NOTICE.—All correspondence relating to the College of Medicine and Surgery should be addressed to Perry H. Millard, Sixth Street and Ninth Avenue South, Minneapolis, Minn.

SCHEDULE OF LECTURES, 1890-91.

FRESHMAN CLASS.

| Hour  | MON.                | TUES.                   | WED.                | THUR.                   | FRI.                    | SAT.     |
|-------|---------------------|-------------------------|---------------------|-------------------------|-------------------------|----------|
| 8:30  |                     | Anatomy.                |                     |                         |                         | Anatomy. |
| 9:30  | Anatomy.            | Physiology.             |                     |                         | Anatomy.                |          |
| 10:30 | Physiology.         |                         |                     |                         |                         |          |
| 11:30 | Chemistry.          |                         | Materia Medica.     | Chemistry.              | Materia Medica.         |          |
| 1-2   |                     | Histological Laboratory |                     | Histological Laboratory | Histological Laboratory |          |
| 2-3   | Chemical Laboratory | Histological Laboratory | Chemical Laboratory | Histological Laboratory | Histological Laboratory |          |
| 3-4   | Chemical Laboratory |                         | Chemical Laboratory |                         |                         |          |
| 4-5   | Chemical Laboratory |                         | Chemical Laboratory |                         |                         |          |

JUNIOR CLASS.

| Hour  | MON.                 | TUES.                          | WED.                 | THURS.                        | FRI.  | SAT. |
|-------|----------------------|--------------------------------|----------------------|-------------------------------|---|------|
| 8:30  | Surgery              |                                | Pathology            |                               | Med. Jurisp.<br>Surg. Oper.<br>After Jan. 1 |      |
| 9:30  | Anatomy              | Physiology                     | Chemistry            | Surgery                       | Anatomy                                     |      |
| 10:30 | Physiology           | Practice                       |                      | Practice                      | Physiology                                  |      |
| 11:30 | Materia Medica       | Chemistry<br>After<br>Jan. 1st | Obstetrics           |                               | Obstetrics                                  |      |
| 1-2   | Clinical Instruction | Clinical Instruction           | Clinical Instruction | Clinical Instruction          | Clinical Instruction                        |      |
| 2-3   |                      |                                |                      | Practice<br>After<br>Jan. 1st | Chem. Lab.                                  |      |
| 3-4   |                      |                                |                      |                               | Chem. Lab.                                  |      |
| 4-5   |                      |                                |                      |                               | Chem. Lab.                                  |      |
|       |                      |                                |                      |                               | Hygiene<br>After<br>Jan. 1st                |      |

## SENIOR CLASS.

| Hour  | MON.                              | TUES.  | WED.                                 | THUR.  | FRI.  | SAT.                 |
|-------|-----------------------------------|--|--------------------------------------|--|---|----------------------|
| 8:30  | Surgery.                          | Gynecology<br>Clinic.<br>Alternate<br>weeks. | Pathology.                           | Mental<br>and<br>Nervous.                          | Medical Jurisprudence.<br>Surgical<br>Operations<br>after Jan. 1. |                      |
| 9:30  | Pathological<br>Lab.              | Gynecology<br>Clinic.<br>Alternate<br>weeks. |                                      | Surgery.   |   | Clinic,<br>St. Paul. |
| 10:30 | Pathological<br>Lab.              | Practice.                                    |                                      | Practice.  |   | Clinic,<br>St. Paul. |
| 11:30 |                                   |  | Obstetrics.                          |  | Obstetrics.   | Clinic,<br>St. Paul. |
| 1-2   | Clinic,<br>Physical<br>Diagnosis. | Clinic,<br>Orthopædia                        | Clinic,<br>Surgical.                 | Clinic,<br>Medical.                                | Clinic,<br>Ophth'lmology<br>and<br>Otology.<br>Alt'nte w'ks       |                      |
| 2-3   | Gynecology.                       | Physical<br>Diagnosis.                       | Surgical<br>Anatomy<br>after Jan. 1. | Dermatolog-<br>y, Genito-<br>Urinary<br>last half. | Laryngol-<br>ogy.   | Clinic,<br>St. Paul. |
| 3-4   |                                   |  |                                      | Paedology<br>Practice,<br>last half.               |   | Clinic,<br>St. Paul. |
| 4-5   |                                   |  |                                      | Ophth'lmol-<br>ogy and<br>Otology.                 |   |                      |

COLLEGE OF HOMEOPATHIC MEDICINE AND  
SURGERY.

THE FACULTY.

- CYRUS NORTHROP, LL. D.  
*President.*
- WILLIAM E. LEONARD, A. B., M. D.,  
*Professor of Materia Medica and Therapeutics.*
- HENRY HUTCHINSON, M. D.,  
*Professor of Theory and Practice of Medicine.*
- GEORGE E. RICKER, A. B., M. D.,  
*Professor of Clinical Medicine and Dermatology.*
- ROBERT D. MATCHAN, M. D.  
*Professor of the Principles and Practice of Surgery.*
- WARREN S. BRIGGS, B. S., M. D.,  
*Professor of Clinical and Orthopaedic Surgery.*
- HENRY C. LEONARD, B. S., M. D.,  
*Professor of Obstetrics.*
- B. HARVEY OGDEN, A. M., M. D.,  
*Professor of Gynecology and Genito-Urinary Diseases.*
- ALBERT E. HIGBEE, M. D.,  
*Clinical Professor of Gynecology.*
- JOHN F. BEAUMONT, M. D.,  
*Professor of Ophthalmology.*
- HENRY W. BRAZIE, M. D., Sec'y Faculty,  
*Professor of Paedology.*
- EUGENE L. MANN, A. B., M. D.,  
*Professor of Physical Diagnosis and Laryngology.*
- D. A. STRICKLER, M. D.,  
*Professor of Otology and Rhinology.*
- HENRY C. ALDRICH, D. D. S., M. D.,  
*Adjunct Professor of Materia Medica and Therapeutics.*
- WILLIS HENRY HAVILAND, M. D.,  
*Professor on Mental and Nervous Diseases.*
- Lecturer on Skin and Venereal Diseases.
- GEO. A. HENDRICKS, M. S., M. D.,  
*Professor of Anatomy.*
- RICHARD O. BEARD, M. D.,  
*Professor of Physiology.*
- C. J. BELL, A. M.,  
*Professor of Chemistry.*
- CHARLES H. BOARDMAN, M. D.,  
*Professor of Medical Jurisprudence.*
- JOHN F. FULTON, M. D.,  
*Professor of Hygiene.*
- J. CLARK STEWART, B. S., M. D.,  
*Professor of Histology, Pathology and Bacteriology.*
- BURNSIDE FOSTER, M. D.,  
*Demonstrator of Anatomy.*

## ANNOUNCEMENT.

In the organization of this College the Board of Regents of the University of Minnesota has aimed to secure the united efforts of the homeopathic practitioners of the State in the establishment of a College broader in its scope and more complete in its teaching corps than that of any similar institution in the country.

The College of Homeopathic Medicine and Surgery confidently appeals, therefore, to the profession of the Northwest to second its efforts to educate thoroughly those students who wish to practice homeopathy.

Every practitioner fully appreciates the great advantage to be derived by the practical study of disease. The young physician who has depended upon his reading and attendance upon didactic lectures, to the exclusion of bed-side or clinical study, will find himself hampered and embarrassed at almost every step in his professional career. Practical points in practice are only acquired by slow degrees, and often at the expense of the patient's welfare or of professional reputation. Hence the importance of attending at least one course of lectures in a large city, where material for dissection and surgical demonstration is fresh and abundant, and where there are large hospitals and clinics constantly crowded with every variety of disease and surgical injury. The difference in the expense is but trifling, while the advantage in favor of a great metropolis is incalculable. Minneapolis and St. Paul are not only immense commercial centers, easily reached by a network of railroads extending to all points of the compass, but are great medical centers toward which the diseased, maimed, halt and blind wend their way in search of relief, thus filling the many hospitals with choice clinical material from all quarters of the great Northwest. This College is prepared to offer unrivalled advantages to students in this respect

The Twin Cities have been for twenty-five years—thanks to the men who have grown gray in the profession—a center of homeopathic patronage and interest. It has taken but a few years to build up in Minneapolis a hospital devoted to this system of practice which equals any in the northwest, while a similar institution in St. Paul, situated in the natural center for accidents, within two blocks of most of the railroads that enter the city, and surrounded by car shops and manufacturing industries, secures a large share of surgical cases.

Students will be admitted to both of these hospitals, as well as the city hospitals, and will visit patients at the bedside under the direction of the various professors, who are attending physicians at these institutions.

These advantages, with those furnished by the dispensaries of two large cities, will give unsurpassed opportunities for special study, and will make practical clinical work a feature of the college.

Hospital appointments will be open to graduates through competitive examination.

## DISPENSARY AND COLLEGE CLINICS.

The Dispensary, located near the College building, affords ample opportunity for the study of all forms of disease usually met with in office prac-

tice. Patients present themselves in large numbers (from 50 to 75) daily, and are assigned to particular departments according to the nature of their diseases. The classes are so divided and arranged as to afford every student ample opportunity to familiarize himself with the best methods of diagnosis and treatment of the various maladies, medical and surgical, with which the clinic abounds. Special attention is directed to the fact that these college clinics are conducted daily throughout the entire year, and students and practioners are cordially invited to attend them at all times.

COURSE OF INSTRUCTION.

| FIRST YEAR.  | SECOND YEAR.  | THIRD YEAR.   |
|--|---|---|
| Anatomy.<br>Physiology.<br>Chemistry.<br>Materia Medica.<br>Histology.<br>Laboratory Work. | Anatomy.<br>Physiology.<br>Chemistry and Toxicology<br>Materia Medica.<br>Theory and Practice.<br>Clinical Medicine.<br>Surg. and Clinical Surg.<br>Obstetrics.<br>Gynecology.<br>Ophthalmology.<br>Mental and Nerv. Diseases.<br>Pædology.<br>Physical Diagnosis.<br>Pathology.<br>Medical Jurisprudence.<br>Hygiene.<br>Clinical Instruction.<br>Genito-Urinary Diseases. | As the second year, without the first three studies, and in addition.<br>Otology and Rhinology.<br>Dermatology and Venereal Diseases.<br>Laryngology.<br>Orthopædia.<br>Genito-Urinary Diseases.<br>Electro-therapy.<br>Clinical Instruction. |

Quizes of the nature of a daily recitation will be given by each professor upon the subjects of the previous lecture.

Senior students will have opportunity to attend out-door patients, to assist in special and general surgical operations, and to attend at least one obstetrical case during their last course of lectures.

ANATOMY.

The course in Anatomy is graded. First year students are expected to attend all the lectures given in Anatomy. First year students are given a separate course in Osteology, Syndesmology, and Myology. Examinations are held on these subjects at the close of the term. The lectures on Descriptive, Topographical and Surgical Anatomy are attended by first and second year students. Second year students recite upon these lectures and receive their final examination at the close of the term. Dissecting is regarded as advanced work, and is done only in the second year. The practical work in the laboratory is under the supervision of the Professor of Anatomy and personal direction of the Demonstrator. The laboratory work is supplemented with lectures and recitations.

TEXT-BOOKS.—Grey 11th Edition. Quain 10th Edition. Holden's Practical Anatomy.

COLLATERAL READING.—Darling and Ranney, Owen's Skeleton and Teeth, Hane's Osteology of Mammals.

ANATOMY.

FIRST YEAR.—Lectures and recitations in Osteology, Syndesmology and Myology. One course; two hours per week; 64 lectures. Also attendance

upon lectures on Descriptive, Topographical and Surgical Anatomy; one course of two hours per week; 64 lectures.

SECOND YEAR.—Lectures and recitations in Descriptive, Topographical and Surgical Anatomy; one course of 64 lectures. Laboratory work—Dissection of whole body.

#### PHYSIOLOGY.

Students are required to study Physiology, both in the first and second years. The course is partially graded. The students of both classes will hereafter attend the same series of lectures and recitations, but special teaching in advanced Physiology will be given to students of the second year. The classes will be separately examined at the close of the term. The subject will be taught by recitations and by lectures illustrated by practical demonstrations.

TEXT-BOOK.—Foster and Yeo.

COLLATERAL READING.—Chapman and Landois and Sterling.

#### CHEMISTRY.

FIRST YEAR.—Lectures in Inorganic Chemistry. Laboratory—General Chemistry and Qualitative Analysis.

SECOND YEAR.—Lectures on Medical Chemistry. Elements of Organic Chemistry. Toxicology and Urinalysis. Laboratory work.

TEXT-BOOKS.—Remsen's Inorganic Chemistry. Tyson's examination of the Urine. Reese's Toxicology. Taylor on Poisons.

#### HISTOLOGY AND BACTERIOLOGY..

Lectures and laboratory work. The student will be taught to mount normal tissues and specimens containing bacteria. The course in Normal Histology and Bacteriology will cover a period of not less than twelve weeks. If possible, the student will provide himself with a microscope.

TEXT-BOOKS.—Pruden's Practical Histology, Shaefer's Essential Histology.

COLLATERAL READING.—Cornil and Ranvier.

#### PATHOLOGY.

Pathology and Morbid Anatomy will be taught by lectures, recitations, and work in the dead house. The technique of the autopsy will be carefully dwelt upon, so that each student can learn to make a correct post-mortem examination. Diseased processes will be illustrated by fresh alcoholic specimens, that theories of disease may be as much matters of demonstration as the nature of the subjects will admit.

TEXT-BOOKS.—Delafield and Prudden, Cornil and Ranvier, Orth.

#### MATERIA MEDICA AND THERAPEUTICS.

First-year students will have two lectures a week upon Pharmacology, Toxicology, and Physiological Materia Medica, and pass a final examination upon these branches at the end of the year.

The remaining years will be devoted to the study of the drugs of the Homeopathic Materia Medica, classified according to their scientific relations in the natural kingdoms, and their practical relations in applied medi-

ciné. One lecture a month will be devoted to the principles of Homeopathic Therapeutics as laid down in Hahnemann's writings, and in those of such teachers as Hering, Dunham, Farrington, etc.

The advantage of having two such teachers of this very important branch, instead of one, is apparent. It implies thoroughness on the part of the Professor, and time and opportunity on that of the pupil. Their views will not be conflicting, or confusing to the class, but will help to fit its members for practical, bedside work as physicians.

THE INSTITUTES OF HOMEOPATHY.

In addition to the above course this Department will also furnish the necessary lectures to elucidate this important subject.

TEXT BOOKS.—Farrington, Cowperthwaite, Guernsey's Key Notes, Hawke's Characteristics, Hahnemann's Organon.

REFERENCE BOOKS.—Hering's Condensed and Guiding Symptoms, Dunham, and Allen's Encyclopaedia.

THEORY AND PRACTICE OF MEDICINE.

Lectures on the Theory and Practice of Medicine will be delivered to students of the second and third year. The chief purpose of this chair will be to educate the student in systematic habits of investigating and treating disease.

TEXT BOOKS.—Raué's Pathology and Diagnosis, Ruddock's Text Book of Medicine and Surgery, Arndt's System of Medicine, Pepper's System of Medicine, Loomis' Practical Medicine, Bartholow's Practice, DaCosta's Diagnosis.

CLINICAL MEDICINE.

Abundant material for clinical instruction is furnished by the dispensary and hospital clinics. Outside dispensary work also furnishes each student of the graduating class with acute cases of disease which he can treat under the supervision of the professor of this department. In addition to physical examination and diagnosis the special aim will be to teach the practical application of homeopathic principles in therapeutics,

TEXT BOOKS.—Lilienthal's Therapeutics, Lippe's Repertory, Farrington's Clinical Materia Medica.

OBSTETRICS.

The teaching of this chair will embrace a practical presentation of the development of the embryo, the anatomy of the pelvis and the mechanism of labor and its complications. The homeopathic treatment of the disorders incident to the pregnant and puerperal states will be fully discussed.

TEXT BOOKS.—Guernsey, Leavitt, Playfair, Leishman, Cazeaux, and Savage on the Pelvic Organs.

DIDACTIC GYNÆCOLOGY AND GENITO-URINARY DISEASES.

A systematic course of lectures upon the physiology and pathology of the male and female generative organs, with the etiology, symptomatology and treatment of their diseases will be given. Clinical instruction and bedside attendance will be a special feature.

TEXT BOOKS.—On Gynæcology: Cowperthwaite Ludlam.

COLLATERAL READING.—Thomas, Emmett, Schroeder, Mann. On Genito-Urinary Diseases: Franklin, Berjeau, Otis and Keyes.

#### PRINCIPLES AND PRACTICE OF SURGERY,

A comprehensive course of lectures on General Surgery will be given. Surgical Pathology will be treated in a concise and comprehensive manner. Surgical operations and methods will be thoroughly demonstrated on the living and on the cadaver.

TEXT BOOKS.—Helmuth, Bryant, Erichsen, Packard and Holmes.

#### CLINICAL SURGERY.

The diagnosis, prognosis, and homeopathic treatment of surgical diseases will be practically taught. Surgical operations will be performed before the class. There will be two clinics and one lecture each week on surgical emergencies, minor surgery and orthopaedia.

TEXT BOOKS.—Gilchrist's Surgical Therapeutics, Ranney's Surgical Diagnosis, Smith's Operative Surgery.

REFERENCE BOOKS.—Helmuth, Franklin, Gross and Sayre.

#### OPHTHALMOLOGY.

The instruction in this branch will combine didactic and clinical teaching. Lectures on the anatomy, physiology and pathology of the regions involved will be thoroughly practical.

TEXT BOOKS.—Buffum and Norton.

REFERENCE BOOK.—Wells.

#### MENTAL AND NERVOUS DISEASES.

Lectures in this course will include the Anatomy and functions of the brain; regional diagnosis; Homeopathic and Electric treatment, illustrated by clinical cases.

TEXT BOOKS.—Strumpell, Gower's and Hart (nervous system). Gower's—(cord). Spitzka (Insanity). Leibig & Rohe (Practical Electricity).

#### PÆDOLOGY.

A thorough course will be given upon the general diseases of children and their homeopathic treatment, including their etiology, pathology and hygiene.

TEXT BOOKS.—Hall's Jahr, Duncan, Ruddock, Teste, Guernsey, Smith, Edmonds.

#### PHYSICAL DIAGNOSIS AND LARYNGOLOGY.

The practical teaching of Physical Diagnosis and the study of the diseases of the nose and throat and their treatment, with the uses of special diagnostic and therapeutic instruments, will be the aim of this department.

TEXT BOOKS.—On Physical Diagnosis: Flint's Auscultation and Percussion, Hudson, Guttman and Loomis. On Laryngology: Lennox Brown, Sajous, McKenzie, Bosworth.



## COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY. 137

### OTOLOGY AND RHINOLOGY

A series of practical lectures will be given on the anatomy, physiology and pathology of the ear, and treatment of its diseases; also of the nasal passages, and their relation to other affections.

TEXT BOOK.—Winslow and Houghton.

REFERENCE BOOK.—Roosa.

### SKIN AND VENEREAL DISEASES.

This subject will be taught by didactic lectures illustrated by cases from the dispensaries, particular stress being laid upon the teaching of pure homeopathy.

TEXT BOOKS.—Kippax, Lilienthal Jahr, Duhring, Fox, &c.

### HYGIENE.

Lectures.

TEXT BOOK.—Parks.

COLLATERAL READING.—Richard's Preventive Medicine, Buck's Hygiene.

### MEDICAL JURISPRUDENCE.

Lectures.

TEXT BOOK.—Reese and Tidy.

COLLATERAL READING.—Taylor's Principles and Practice of Medical Jurisprudence.

All communications pertaining to the College of Homeopathic Medicine and Surgery, should be addressed to the Secretary of the Homeopathic Faculty, H. W. Brazie, M. D., corner Ninth avenue south and Sixth street.

## SCHEDULE OF LECTURES, 1890-91.

### FRESHMAN CLASS.

| Hour  | MON.                | TUES.                   | WED.                | THUR.                   | FRI.                    | SAT.     |
|-------|---------------------|-------------------------|---------------------|-------------------------|-------------------------|----------|
| 8:30  | Materia Medica.     | Anatomy.                |                     |                         | Materia Medica.         | Anatomy. |
| 9:30  | Anatomy.            | Physiology.             |                     |                         | Anatomy.                |          |
| 10:30 | Physiology.         |                         |                     |                         | Physiology.             |          |
| 11:30 | Chemistry.          |                         |                     | Chemistry.              |                         |          |
| 1-2   |                     | Histological Laboratory |                     | Histological Laboratory | Histological Laboratory |          |
| 2-3   | Chemical Laboratory | Histological Laboratory | Chemical Laboratory | Histological Laboratory | Histological Laboratory |          |
| 3-4   | Chemical Laboratory |                         | Chemical Laboratory |                         |                         |          |
| 4-5   | Chemical Laboratory |                         | Chemical Laboratory |                         |                         |          |

## JUNIOR CLASS.

| Hour  | MON.                | TUES.                     | WED.               | THUR.                          | FRI.                    | SAT.              |
|-------|---------------------|---------------------------|--------------------|--------------------------------|-------------------------|-------------------|
| 8:30  | Materia Medica.     | Practice.                 | Pathology.         | Materia Medica.                | Medical Jurisprudence.  | Materia Medica.   |
| 9:30  | Anatomy.            | Physiology.               | Chemistry.         | Practice.                      | Anatomy.                | Clinic, St. Paul. |
| 10:30 | Physiology.         | Obstetrics.               | Pædology.          | Genito-Urinary and Gynecology. | Physiology.             | Clinic, St. Paul. |
| 11:30 | Obstetrics.         | Chemistry after Jan. 1st. | Children's Clinic. | Orthopædia                     |                         | Clinic, St. Paul. |
| 1:30  | Ophthalmology.      | Women's Clinic.           | Eye Clinic.        | Surgery.                       | Medical Clinic.         | Surgical Clinic.  |
| 2:30  | Surgery.            |                           |                    |                                | Chemical Laboratory     |                   |
| 3:30  | Mental and Nervous. |                           |                    |                                | Chemical Laboratory     |                   |
| 5-6   |                     |                           |                    |                                | Hygiene after Jan. 1st. |                   |

## SENIOR CLASS.

| Hour  | MON.                  | TUES.                           | WED.                           | THUR.                          | FRI.                   | SAT.              |
|-------|-----------------------|---------------------------------|--------------------------------|--------------------------------|------------------------|-------------------|
| 8:30  | Materia Medica.       | Practice.                       | Pathology.                     | Materia Medica.                | Medical Jurisprudence. | Materia Medica.   |
| 9:30  | Pathological Labor'ty | Skin and Venereal.              |                                | Practice.                      |                        | Clinic, St. Paul. |
| 10:30 | Pathological Labor'ty | Obstetrics.                     | Pædology.                      | Genito-Urinary and Gynecology. |                        | Clinic, St. Paul. |
| 11:30 | Obstetrics.           | Laryngology Physical Diagnosis. | Children's Clinic.             | Orthopædia                     | Otology and Rhinology. | Clinic, St. Paul. |
| 1:30  | Ophthalmology.        | Women's Clinic.                 | Eye Clinic.                    | Surgery.                       | Medical Clinic.        | Surgical Clinic.  |
| 2:30  | Surgery.              |                                 | Surgical Anatomy after Jan. 1. |                                |                        |                   |
| 3:30  | Mental and Nervous.   |                                 |                                |                                |                        |                   |

The chair of Oral Surgery and Pathology will be filled the coming year by W. Xavier Sudduth, M. D., D. D. S., late of Philadelphia. Dr. Sudduth will take up his residence permanently in Minneapolis and will devote his time to the interests of the College.

Dr. Sudduth has also received the appointment of Secretary, and his name should be read in the place of Dr. Bailey on page 117, and all communications concerning the College of Dentistry should be addressed to him instead of to Dr. Bailey, as stated on page 142, this Catalogue.

THE COLLEGE OF DENTISTRY.

FACULTY.

CYRUS NORTHROP, LL. D.  
*President.*

CHARLES M. BAILEY, D. M. D.  
*Professor of Prosthetic Dentistry.*

THOMAS E. WEEKS, D. D. S.  
*Professor of Operative Dentistry.*

EDWARD H. ANGLE, D. D. S.  
*Professor of Histology and Orthodontia.*

L. D. LEONARD,  
*Professor of Pathology and Oral Surgery.*

GEO. A. HENDRICKS, M. S., M. D.  
*Professor of Anatomy.*

RICHARD O. BEARD, M. D.  
*Professor of Physiology.*

C. J. BELL, A. M.  
*Professor of Chemistry.*

H. M. BRACKEN, M. D., L. C. R. S. E., OR  
WILLIAM E. LEONARD, A. B., M. D.,  
*Professor of Materia Medica and Therapeutics.*

W. J. BRADY, D. D. S.  
*Demonstrator and Instructor in Technics.*

COURSE OF INSTRUCTION.

The course of instruction is graded and is of three years' duration, comprising three terms of eight months each.

The studies for each year are as follows:

| FIRST YEAR.  | SECOND YEAR.  | THIRD YEAR.  |
|--|---|--|
| Anatomy.<br>Physiology.<br>Chemistry.<br>Materia Medica.<br>Histology. | Anatomy.<br>Physiology.<br>Materia Medica.<br>Dental Histology.<br>Prosthetic Dentistry.<br>Pathology.<br>Therapeutics.<br>Operative Dentistry.<br>Comp. Anatomy. | Prosthetic Dentistry.<br>Operative Dentistry.<br>Oral Surgery.<br>Orthodontia. |

Lectures will be attended and examinations taken upon Anatomy, Chemistry, Histology, and Materia Medica in common with the students of the College of Medicine and Surgery; or the latter study at the option of the

student, in the College of Homeopathic Medicine and Surgery. See pages 125 and 126 of this Catalogue.

#### OPERATIVE DENTISTRY.

This course consists, not only of the usual lectures and recitations, upon the instruments and materials used in filling teeth, and methods of practice; but a complete course of technics has been devised whereby the student may become fully conversant with the structure of the tooth, the shape, course, and position, of the pulp chamber and canals, thereby fitting him, by a process allied to dissection in the soft tissues, for his operations. Ample provision is made for the student to put into practice the instruction received, but in no case will a student be allowed to practice, until, by his proficiency in the course of technics he has satisfied the Professor of his fitness.

#### PATHOLOGY, THERAPEUTICS AND ORAL SURGERY.

This course will embrace lectures and recitations, with the usual quizzes; and, so far as practicable, clinics upon patients presenting themselves at the Infirmary, will be exhibited before the classes. The student will be taught the use of anæsthetics, their proper mode of exhibition, and opportunity will be afforded senior students to administer both Ether and Nitrous Oxide at the Infirmary.

#### DENTAL HISTOLOGY AND COMPARATIVE ANATOMY.

A thorough course in these studies will be given by lectures and recitations, illustrated by the exhibition before the class, of a large collection of specimens belonging to the museum of the University.

#### ORTHODONTIA.

The course on Orthodontia will be unusually thorough and complete. The first course will consist of a thorough consideration of the causes of Dental Irregularities, together with their treatment, illustrated by means of drawings, charts, and a large number of casts of practical cases, with a careful study of the history of appliances in general, with the special view of comprehending the latest valuable methods, and the principles peculiar to each. The second course will consist entirely of practical work in the construction of all kinds of regulating appliances, and their adjustment to the natural teeth. Each student will be required to treat at least one case from beginning to completion.

#### PROSTHETIC DENTISTRY.

Instruction in this department will consist of lectures, recitations and practical work. Dealing more particularly with mechanical processes, it will be the aim in this chair to teach the properties of the several materials in use, the processes employed in their manufacture, with their proper manipulation, and their adaptation for the purposes they serve in Dentistry.

An elementary course has been prepared by which the student of the first year is taught the use of tools and instruments of the Laboratory, taking impressions, mounting, flasking, and finishing sets on rubber, the making of dies and counters, swaging, soldering, etc., etc.

## CLINICAL INSTRUCTION.

Clinical instruction will embrace all practical subjects relating to dentistry.

The Infirmary and Laboratory will be under the direction of the Faculty, and students will be required to exhibit results of every variety of operation. Ample facilities and conveniences are provided, an abundance of clinical material is at hand, and an attendance upon clinics will be obligatory.

## EXAMINATIONS.

Examinations will be held at the end of each year, in the studies of that year, for advancement to the next grade.

Students who fail to pass at the regular examination in the spring, will be allowed an examination at the opening of the next winter's session, except in the case of candidates for graduation.

## INSTRUMENTS.

Students will be required to furnish their own tools and instruments for both Laboratory and Operating-Room, excepting extracting instruments, lathes, furnaces, and vulcanizers.

For general information regarding the College, and for requirements for entrance and graduation, see pages 116 to 121 of this catalogue.

## TEXT-BOOKS.

FIRST YEAR.—Gray's Anatomy; Foster's Physiology; Attfield's Chemistry; Brunton's Materia Medica; Guernsey's Key Notes; Bruden's Histology.

SECOND YEAR.—Tomes' Dental Anatomy; Parreidt's Compendium; Fil-lebrown's Operative Dentistry; Richardson's Mechanical Dentistry.

THIRD YEAR.—Flegg's Plastics; Garretson's Oral Surgery; Gudford's Orthodontia; Haskell's Manual; Essig's Metallurgy.

COLLATERAL READING.—Evan's Crown and Bridge Work; Kingsley's Oral Deformities; the American System of Dentistry.

## SCHEDULE OF LECTURES 1890-91.

## FRESHMAN YEAR.

| Hour  | MON.                   | TUES.                      | WED.                          | THUR.                      | FRI.                          | SAT.                                  |
|-------|------------------------|----------------------------|-------------------------------|----------------------------|-------------------------------|---------------------------------------|
| 8:30  |                        | Anatomy.                   |                               |                            | Homeop.<br>Materia<br>Medica. | Anatomy.                              |
| 9:30  | Anatomy.               | Physiology.                |                               |                            | Anatomy.                      |                                       |
| 10:30 | Physiology.            |                            |                               |                            | Physiology.                   |                                       |
| 11:30 | Chemistry.             |                            | Regular<br>Materia<br>Medica. | Chemistry.                 | Regular<br>Materia<br>Medica. | Chemistry,<br>up to Jan. 1.           |
| 1:30  |                        | Histological<br>Laboratory |                               | Histological<br>Laboratory | Histological<br>Laboratory    | Prosthetic<br>Dentistry,<br>Technics. |
| 2:30  | Chemical<br>Laboratory |                            | Chemical<br>Laboratory        |                            |                               |                                       |

## JUNIOR YEAR.

| Hour  | MON.                         | TUES.                    | WED.       | THUR.  | FRI.                          | SAT.                              |
|-------|------------------------------|--------------------------|------------|--|-------------------------------|-----------------------------------|
| 8:30  | Homeop. Materia Medica.      | Comparative Anatomy.     | Infirmary. | Homeop. Materia Medica.                                  |                               | Homeop. Materia Medica.           |
| 9:30  | Anatomy.                     | Physiology.              | Infirmary. | Infirmary.   | Anatomy.                      | Infirmary.                        |
| 10:30 | Physiology.                  | Pathology and Therapeut. | Infirmary. | Infirmary.   | Physiology.                   | Surgical Clinic, St. Paul, 10-12. |
| 11:30 | Regular Materia Medica.      |                          | Infirmary. | Infirmary.   | Clinic, Anaesthetics          |                                   |
| 1:30  | Surgical Clinic, Minneapolis | Laboratory               | Laboratory | Laboratory after Jan. 1 making of appliances Orthodontia | Operative Dentistry Technics. | Operative Dentistry Technics.     |
| 4:30  | Operative Dentistry.         |                          |            |  | Operative Dentistry.          |                                   |

## SENIOR YEAR.

| Hour          | MON.                         | TUES.      | WED.       | THUR.   | FRI.                 | SAT.                         |
|---------------|------------------------------|------------|------------|---|----------------------|------------------------------|
| 9:00 to 12:30 | Infirmary.                   | Infirmary. | Infirmary. | Infirmary.                                    | Infirmary.           | Infirmary.                   |
| 11:30         |                              | Oral Surg. |            |   | Clinic Anaesthetics  | Surgical Clinic at St. Paul. |
| 1:00          | Surgical Clinic, at Minneap. |            |            |   |                      |                              |
| 1:30          | Laboratory                   | Laboratory | Laboratory | After Jan. 1 making of appliances Orthodontia | Laboratory           | Laboratory                   |
| 4:30          |                              |            |            | Orthodontia 8 lectures                        | Operative Dentistry. |                              |

All communications pertaining to the College of Dentistry should be addressed to Chas. M. Bailey, Secy., 6th street 9th avenue, South Minneapolis, Minn.

## APPENDIX.

## PROGRAM FOR EXAMINATIONS, SEPTEMBER, 1890.

[The numbers placed after the subjects, where given, indicate the room in which the examination will be held. When no number is given, the examination will be held in the chapel, on the third floor of the main building.]

| Day.      | Hour.       | Subjects for admission to the Freshman Class.                    | For students conditioned in the work of first term Freshman and Sophomore years.* |
|-----------|-------------|--|---|
| TUESDAY,  | 8:00-10:30  | English Grammar.....   |   |
| SEPT.     | 10:45- 1:15 | Composition & Essay.   |   |
| 2.        | 2:30- 5:00  | Elementary Algebra...  |   |
| WEDNESDAY | 8:00-10:30  | Higher Algebra.....  | { Freshman Trigonometry.....38<br>{ Sophomore Physics.....39                      |
| SEPT.     | 10:45- 1:15 | U. S. History.....   | Freshman Livy.....49  |
| 3.        | 2:30- 5:00  | Plane Geometry.....  | Sophomore Rhetoric.....27   |
| THURSDAY, | 8:00-10:30  | Solid Geometry.....  | Sophomore French.....45   |
| SEPT.     | 10:45- 1:15 | Hist. of Greece & Rome   | { Freshman Greek.....36<br>{ Freshman English.....37                              |
| 4.        | 2:30- 5:00  | Natural Philosophy ...   | Sophomore English.....37  |
| FRIDAY,   | 8:00-10:30  | Physiology.....  | Sophomore Mathematics.....38  |
| SEPT.     | 10:45- 1:15 | { Greek.....36<br>{ German.....35                                | Sophomore Horace.....49   |
| 5.        | 2:30- 5:00  | Latin Grammar.....   | { Sophomore Greek.....36<br>{ Freshman German.....35                              |
| SATURDAY, | 8:00-10:30  | Cesar.....   | 49 Freshman Botany..... †   |
| SEPT.     | 10:45- 1:15 | Cicero.....  | 49 Sophomore Chemistry..... §   |
| 6.        | 2:30- 5:00  | { Virgil.....49<br>{ English.....37                              | { Sophomore Botany..... †<br>{ Sophomore Zoology..... †                           |
| MONDAY,   | 8:00-10:30  | Botany.....  | ‡   |
| SEPT.     | 10:45- 1:15 | Chemistry.....   | §   |
| 8.        | 2:30- 5:00  | { French.....45<br>{ Shakspeare.....37<br>{ Physical Geography ‡ |   |

Candidates for admission to the Freshman Class will get a statement of the result of their examinations Tuesday morning, Sept. 9th. These results will be made known through the University post office.

Students conditioned in the work of the *first term* not mentioned in the above schedule, will arrange with the professors to take their examinations some time during the week.

\*Examinations for the removal of conditions of the second term will be held at the end of the first term, and for the removal of conditions of the third term at the end of the second term. No other examinations for the removal of conditions will be offered during the year.

†In Pillsbury Hall.

§In Chemical and Physical Laboratory building.