

From Dr. S. C. Stanton '79

CATALOGUE.

ILLINOIS

Industrial University,

1874-75

CHAMPAIGN, ILL.

ILLINI STEAM PRINT,

ILLINOIS INDUSTRIAL UNIVERSITY.

CONTENTS.

Admission.....	22	Horticulture.....	45
Agriculture.....	44	Horticulture, School of.....	26
Agriculture, College of.....	24	Index.....	2
Agriculture, School of.....	24	Instructors and Assistants.....	4
Aims of the University.....	20	Labor.....	52
Appropriations, State.....	20	Latin.....	47
Architecture, School of.....	36	Library.....	20
Astronomy.....	44	Literature & Science, College of.....	39
Boarding, Gentleman's.....	51	Location of the University ...	18
Boarding, Ladies.....	51	Logic.....	48
Buildings and Grounds.....	18	Letters from Legislators.....	15
Calendar.....	54	Map of University Grounds..	61
Certificates.....	50	Mathematics.....	48
Chemistry.....	45	Mechanical Engineering, S. of.....	29
Civil Engineering, School of.....	32	Military Science, School of... ..	41
Commerce, School of.....	42	Mining Engineering, School of.....	35
Courses of Study, Appendix---	55	Miscellany.....	50
Departments of Study.....	44	Music.....	50
Domestic Science and Art, S. of.....	43	Natural History.....	46
Dormitories.....	51	Natural History, School of....	38
Dormitory Building.....	62	Natural Science, College of..	37
Drawing.....	50	Periodicals in the Library....	53
Drill Hall.....	19	Philosophy.....	48
Engineering, College of.....	27	Physics.....	48
English.....	46	Property and Funds.....	20
Examinations.....	50	Schools & Colleges of the Univ. 21	
Expenses.....	54	Social Science.....	43
Faculty.....	3	Students' Names, Gentleman..	5
Freedom in Choice of Studies	21	Students' Names, Ladies.....	11
French.....	47	Students, Total Number.....	13
German.....	47	Superintendents' Certificates..	51
Greek.....	47	Trustees, Board of.....	2
Graduates.....	14	University Building, New....	17
History.....	47	University Uniforms.....	52
History of the University.....	17		

CATALOGUE AND CIRCULAR.

ILLINOIS

INDUSTRIAL UNIVERSITY,

LEARNING AND LABOR.

1875.

CHAMPAIGN, ILL.

ILLINI STEAM PRINT, ILL. IND. UNIVERSITY.

BOARD OF TRUSTEES.

UNDER LAW OF MAY 7, 1873.

Ex Officio.

HIS EXCELLENCY, GOVERNOR JOHN L. BEVERIDGE.
HON. D. B. GILHAM, PRESIDENT STATE AGRICULTURAL BOARD.

Term expires 1877.

ALEXANDER BLACKBURN, MACOMB.
R. B. MASON, CHICAGO.
J. P. SLADE, BELLEVILLE.

Term expires 1879.

J. J. BYRD, CAIRO.
J. H. PICKRELL, HARRISTOWN.
D. D. SABIN, BELVIDERE.

Term expires 1881.

A. M. BROWN, VILLA RIDGE.
EMERY COBB, KANKAKEE.
D. GARDNER, CHAMPAIGN.

OFFICERS OF THE BOARD.

EMORY COBB, ESQ., PRESIDENT.
PROF. T. J. BURRILL, ESQ., CORRESPONDING SECRETARY.
PROF. E. SNYDER, RECORDING SECRETARY.
JOHN W. BUNN, ESQ., TREASURER.

EXECUTIVE COMMITTEE.

EMORY COBB, PRESIDENT.
D. GARDNER.
J. H. PICKRELL.

S. W. SHATTUCK, BUSINESS AGENT.

OFFICERS AND INSTRUCTORS.

FACULTY

HON. JOHN M. GREGORY,
REGENT AND PROFESSOR OF PHILOSOPHY AND HISTORY.

STILLMAN W. ROBINSON,
PROFESSOR OF MECHANICAL ENGINEERING.

THOMAS J. BURRILL,
PROFESSOR OF BOTANY AND HORTICULTURE.

COL. SAMUEL W. SHATTUCK,
PROFESSOR OF MATHEMATICS.

COL. EDWARD SNYDER,
PROFESSOR OF MODERN LANGUAGES AND MILITARY SCIENCE.

DON CARLOS TAFT,
PROFESSOR OF GEOLOGY AND ZOOLOGY.

J. BURKITT WEBB,
PROFESSOR OF CIVIL ENGINEERING.

JOSEPH C. PICKARD,
PROFESSOR OF ENGLISH LANGUAGE AND LITERATURE.

DR. MANLY MILES,*
PROFESSOR OF AGRICULTURE.

N. CLIFFORD RICKER,
ASSISTANT PROFESSOR IN ARCHITECTURE.

HENRY A. WEBER,
PROFESSOR *pro tem.* OF CHEMISTRY.

JAMES D. CRAWFORD,
INSTRUCTOR IN ANCIENT LANGUAGES AND LIBRARIAN.

DR. FREDERICK W. PRENTICE,
LECTURER IN VETERINARY SCIENCE.

* Under appointment.

INSTRUCTORS AND ASSISTANTS.

MISS CHARLOTTE E. PATCHIN,
INSTRUCTOR IN FREE-HAND DRAWING.

MISS LOU. C. ALLEN,
INSTRUCTOR IN DOMESTIC SCIENCE.

CHARLES W. SILVER,
INSTRUCTOR IN AGRICULTURAL CHEMISTRY.

ALEXANDER C. SWARTZ,
ASSISTANT IN ARCHITECTURE AND MATHEMATICS.

JAMES KENIS,
INSTRUCTOR IN CLAY MODELLING AND ARCHITECTURAL
ORNAMENTATIONS.

IRA O. BAKER,
ASSISTANT IN CIVIL ENGINEERING AND PHYSICS.

MISS JENNIE C. BRYANT,
INSTRUCTOR IN ELOCUTION.

ELNA A. ROBINSON,
ASSISTANT IN MECH. ENG. AND FOREMAN OF MACHINE SHOP.

GEORGE R. SHAWHAN,
ASSISTANT IN MATHEMATICS.

MELVILLE A. SCOVELL,
ARTHUR E. BARNES,
JOHN M. STAYMAN,
ASSISTANTS IN CHEMICAL LABORATORY.

FERNANDO A. PARSONS,
ASSISTANT IN BOOKKEEPING.

EDWIN L. LAWRENCE,
HEAD FARMER.

B. F. JOHNSON,
SUPERINTENDENT OF EXPERIMENTS.

RICHARD H. HANNAH,
FLORIST.

VANTILE W. CODINGTON,
FOREMAN OF CARPENTER SHOP.

LIST OF STUDENTS.

EXPLANATION.

The figures after the names indicate 1st, 2d, 3d, and 4th year students. The course of studies are indicated as follows: Mil., Military; Ag'l., Agricultural; Hor., Horticultural; M. E., Mechanical Engineering; C. E., Civil Engineering; Min. E., Mining Engineering; Arch., Architecture; Nat. His., Natural History; Chem., Chemistry; L. & S., Literature and Science; Com., Commercial.

RESIDENT GRADUATES.

ELLS, WM. C.....C. E.....Champaign,
 GABRIEL, GREGORYHor.....Armenia, Asia Minor.
 PHILLIPS, PARLY AGRIPPA....Ag'l.....Damascus.
 WHARTON, JACOB N.....Min. E.....Bement.
 SMITH, CHAS. AGUSTUS.....M. E.....Mount Vernon, Ind.

UNDER-GRADUATES.

GENTLEMEN.

NAMES.	COURSE.	P. O. ADDRESS.
ABBOTT, THEODORE SPERRY ...2	Min. E.....	Union Grove.
ADAMS, CLARENCE G.....4	Ag'l.....	Champaign.
ADAMS, CHARLES FRANCIS.....2	Ag'l.....	Urbana.
ALLEN, CHARLES WESLEY.....2	Ag'l.....	Harristown.
ALLEN, JAMES ADOLPHUS.....2	C. E.....	Creston.
ALLEN, RALPH.....3	Ag'l.....	Delevan.
ANDERSON, JACOB W.....1	M. E. & Arch..	Ladoga, Ind.
ATHERTON, BYRON J.....1	M. E.....	Villa Ridge.
BAKER, CARROLL.....2	Ag'l.....	Tuscola.
BAKER EDWARD J.....1	Ag'l.....	Savoy.
BAKER, HORATIO FELLOWS....3	C. E.....	Mattoon.
BALLARD, FRANK EDWARD ...1	Arch.....	Chicago.
BALLARD, CHARLES K.....1	Arch.....	Chicago.
BALLOU, EDWARD LULL.....4	M. E.....	Sherwood, Wis.
BARNARD, DAVID E.....4	Ag'l.....	Manteno.

BARNES, ARTHUR E.....	4	Chem.....	Champaign.
BARNES, ARTHUR M.....	2	Ag'l.....	Champaign.
BARRY, CHARLES HART.....	2	L. & S. & Mil.	Alton.
BARRY, FRANK L.....	1	L. & S. & Mil.	St. Louis, Mo.
BARTHOLOW, JOHN H.....	2	Nat. His....	Urbana.
BENNETT, LYNN CURTIS.....	1	Ag'l.....	Pontiac.
BEST, WESLEY ERASMUS.....	1	Com.....	Litchfield.
BLACKALL, CLARENCE H.....	2	Arch. & Mil.	Chicago.
BOHN, JACOB.....	2	Chem.....	Monticello.
BOURLAND, RUDOLPHUS R.....	3	C. E.....	Peoria.
BOURNE, HENRY P.....	1	C. E.....	Woodstock.
BRACKEN, HENRY DELOSS.....	2	C. E. & Mil.	Elgin.
BRANNEN, DENNIS JAMES.....	1	Com.....	Savoy.
BRIDGE, WALLACE E.....	1	Ag'l & Mil.	La Moille.
BROSS, LOUIS HENRY.....	1	Chem.....	Cairo.
BROWN, ALEXANDER BARNETT.....	1	M. E.....	Villa Ridge.
BROWN, DILLON S.....	4	Ag'l.....	Genoa.
BROWN, RALPH L.....	4	L. & S.....	Marengo.
BRUSH, CHARLES E.....	2	Arch.....	Carbondale.
BUCKINGHAM, WILLIAM.....	2	M. E. & Mil.	Chicago.
BULLARD, FRANK.....	1	Chem.....	Mechanicsburg.
BULLARD, SAMUEL A.....	3	Arch.....	Mechanicsburg.
BUMSTEAD, JAMES E.....	2	L. & S.....	Marengo.
BURR, ELLIS MURTON.....	1	M. E.....	Woodstock.
BUTTERFIELD, LEROY T.....	2	C. E. & Mil.	Marengo.
BYRD, OLIVER WILSON.....	2	Ag'l.....	Ladoga, Ind.
CAMPBELL, JOHN M.....	1	M. E.....	Chicago.
CAMPBELL, JAMES WM.....	3	L. & S.....	Philo.
CAMPBELL, RANDOLPH.....	1	Ag'l.....	Milledgeville.
CARR, JAMES W.....	2	L. & S.....	Fenton Centre.
CHANDLER, WILLIAM BAYARD.....	3	L. & S.....	Bourbon.
CHEEVER, GEORGE H.....	3	C. E. & Mil	Champaign.
CHESTER, HOMER WALDO.....	1	Ag'l.....	Champaign.
CHILDS, JOEL GOODEL.....	2	L. & S. & Mil	Buda.
CHRISTIE, GEO. P.....	1	L. & S. & Mil	Monmouth.
CLARK, CHARLES WRIGHT.....	3	C. E.....	Champaign.
CLARK, JOHN C.....	3	L. & S.....	Elraston.
CLARK, EDWARD L.....	1	Chem.....	Cobden.
CLAY, JOHN RIDGWAY.....	2	M. E.....	Cobden.
COBURN, RALPH PORTER.....	1	M. E.....	Lyndon.
CODINGTON, VANTILE WM....	4	Arch.....	Menomonee, Wis.
COFFMAN, NOAH B.....	1	L. & S.....	Urbana.
COFLIN, FRANK SHERMAN.....	1	L. & S.....	Taylorville.
COLE, EDWARD EVERETT.....	1	L. & S.....	Chester.
COLVIN, ALBERT.....	2	L. & S.....	Mt. Palatine.
CONN, ² FRANK S.....	1	Chem.....	Urbana.
CONROY, JAMES.....	1	L. & S.....	Terre Haute.
CORBUS, FRANK G.....	1	L. & S.....	Mendota.
COWER, RICHARD HENRY.....	3	L. & S.....	Champaign.
CULVER, LUCIAN M.....	1	Com.....	Henry.
COX, JOHN FRANKLIN.....	2	Ag'l.....	Mattoon.

DIGHTON, JOHN N.....	2	L. & S.....	Monticello.
DEAN, EZRA CARTER.....	1	L. & S.....	La Moille.
DEAN, FRANCIS A.....	1	Com.....	Buckley.
DOBSON, F. PIERCE.....	4	C. E. & Mil.	Minonk.
DRAKE, JAMES FREDERICK....	3	L. & S.....	Belvidere.
DUBOIS, BRADFORD H.....	1	C. E.....	N. Y. City.
DUNLAP, BURLEIGH ARTHUR...	4	C. E.....	Savoy.
DUNLAP, HENRY.....	4	L. & S.....	Champaign.
DUNLAP, LOUIS.....	1	Ag'l.....	Savoy.
DUNNING, ALBERT L.....	3	Chem & Mil	Jefferson.
EARL, FRANK S.....	2	Nat. His....	Cobden.
EATON, ERNEST.....	4	Ag'l.....	Philo.
EDSON, CHARLES BALLOU....	1	Com & Mil.	Galva.
ELLIOTT, CHARLES GLEASOM..	2	C. E.....	Tonica.
EVERHART, WINFIELD SCOTT..	4	L. S.....	Neoga.
FAULKNER, JAMES.....	4	Hort & Mil.	Clement.
FAULKNER, RICHARD D.....	2	Ag'l.....	Clement.
FENITY, FRANK D.....	1	L. & S.....	Kane.
FESSENDEN, ARTHUR L.....	2	M. E.....	Xenia, Ohio.
FISHER, GEORGE W.....	1	Com.....	Litchfield.
FLANSBURG, CLAUDE.....	1	L. & S. & Mil	Galva.
FLEMING, GEORGE WILSON....	1	M. E.....	Tolono.
FRANCIS, FREDERICK.....	1	M. E.....	Kewanee.
FRASIER, NORMAN D.....	1	M. E.....	Chicago.
FREEMAN EDWARD O.....	1	L. & S.....	Cobden.
FRIZZELL, ELIJAH D.....	1	Ag'l.....	La Moille.
GAFFNER, THEOPHILUS.....	1	Chem & Mil	Highland.
GARROD, JAMES A.....	1	Arch.....	Champaign.
GARST, JULIUS.....	2	Ag'l.....	Champaign.
GIBSON, CHARLES BROCKWAY..	2	Chem & Mil	Springfield, Vt.
GILKERSON, HIRAM.....	2	Ag'l & Mil.	Ney.
GILKERSON, JOHN.....	2	L. & S.....	Ney.
GILL, JOHN D.....	3	L & S & Mil	Antwerp, N. Y.
GILLETTE, STEPHEN LOREN...	2	L & S & Mil	Aurora.
GORE, SIMEON T.....	3	Arch.....	Ashley.
GOULD, HARRY C.....	1	C. E.....	Henry.
GREGORY, ALFRED T.....	1	L. & S.....	Champaign.
GRIDLEY, GEORGE N.....	4	Ag'l.....	Half Day.
GUNDER, JAMES HENRY.....	1	C. E.....	Fairmount.
GUNDER, JASPER NEWTON....	3	Chem.....	Fairmount.
HACKET, MERRILL JOHN.....	1	Hort.....	Tuscola.
HALLETT, D. FRANK.....	2	L. & S.....	Mt. Carroll.
HANNAH, RICHARD HENRY....	3	Hort.....	Rossville.
HANNAH, SAMUEL.....	2	L. & S.....	Rossville.
HARRELL, FRANCIS MARION...	1	L. & S.....	Cairo.
HARTSHORN, WILLIAM HENRY..	1	L. & S.....	Buckley.
HASKELL, BURNETTE GREGG...	1	Min. E.....	San Francisco, Cal.
HAYS, LOUIS S.....	1	Com.....	Chicago.
HENDREN, WILLIAM.....	1	M. E.....	Batesville, Ark.

HIETT, GEORGE WASHINGTON	2	Ag'l	Sugar Grove, Ind.
HODGES, GEORGE IRVIN	3	Com	Champaign.
HOLLENBECK, HORACE O	2	L & S & Mil	Clark's Hill, Ind.
HOWARD, EDWARD M	3	Chem	Champaign.
HOWES, SHEPHERD BATES	1	Ag'l	Peotone.
HUFF, BENJAMIN FRANKLIN	1	L. & S	Newman.
HULL, EVELYN THOMAS	2	Hort	Alton.
JAMES, PELIG MINER	1	L. & S	Mendota.
JEWETT, CLARENCE C	1	L. & S	Sterling.
JOHNSTON, JAMES C	1	L. & S	Fairhill.
JOLLEY, ALBERT REMBRANDT	2	L & S & Mil	Cerro Gordo.
JONES, HENRY R	1	Ag'l	Athens.
JONES, JAMES F	2	L. & S	Chester.
KAYS, EMERY	1	L. & S	Oxbow.
KELLY, GILBERT C	1	Arch	Maroa.
KENNEDY, ALBERT GILMOUR	2	C. E.	Eau Claire, Wis.
KENOWER, GEORGE FREDERIC	4	L. & S	Clement.
KIDDER, EDWARD M	2	L. & S	Eau Claire, Wis.
KINCADE, RICHARD YATES	1	Ag'l	Athens.
KINGSBURY, CHARLES SUMNER	3	C. E.	Medway. Mass.
KITCHELL, WILLIAM W	2	L & S & Mil	Olney.
KNAPP, WILBERT	2	M. E.	Gilman.
KNIBLOE, WALTER E	3	Nat. His.	Gilman
KNIGHT, PHILIP CHRISTOPHER	1	C. E.	La Moille.
LEE, EDDY ORLANDO	2	L. & S	Mt. Carroll.
LEFLAR, JOHN EMERSON	4	L. & S	Batavia.
LEWELLIN, JOSEPH C	2	Arch	Sterling.
LEWIS, EDWARD V	2	Ag'l & Mil	Chatham.
LEWIS, JOHN C	1	L. & S	Roseville.
LINARD, CHARLES WESLEY	2	L. & S	Dayton, Ohio.
LINDLEY, AUSTIN M	1	Chem	Urbana.
LLOYDE, FRANK HAYDEN	1	L & S & Mil	Urbana.
LYFORD, CHARLES C	4	Ag'l	Roscoe.
MACKAY, DANIEL	3	L. & S	Mt. Carroll.
MACKAY, HENRY	3	L. & S	Mt. Carroll.
MACKAY, WILLIAM ALEX	3	L & S & Mil	Oakville.
MAHAN, HENRY WESTON	3	L & S & Mil	Champaign.
MAKEMSON, SAMUEL CLINTON	2	L. & S	Wilmot, Ind.
MANN, FRANK IRVING	4	L & S & Mil	Gilman.
MANN, HOWARD ADIN	3	Nat. His.	Champaign.
MANN, JAMES R	3	L & S & Mil	Gilman.
MARTIN, PARKS M	2	L. & S	Ladoga, Ind.
MATNEWS, NEWMAN HAMLIN	3	M. E.	Champaign.
MCCAULEY, JOHN CHARLES	4	L. & S	Defiance, Ohio.
McFALL, JAMES ALLISON	3	Chem	Mattoon.
McINTOSH, GEO. L	1	Ag'l	Macomb.
McLANE, JAMES A	1	Arch	Waukegan.
McNABB, WILLIAM O	2	Arch	Decatur.
McPHERSON, JOHN W Jr	1	C. E.	Rockford.
MILTON, FRANKLIN SILAS	1	C. E.	Jerseyville.

MOFFETT, JOHN.....	1	L. & S.....	Derinva.
MOORE, AARON HENRY.....	3	L. & S.....	Louisville.
MOORE, JOHN FREMONT.....	2	Arch.....	Davenport.
MORAVA, WENSEL.....	1	M. E.....	Chicago.
MULLER, JOHN.....	4	L. & S.....	Wurtemberg, Ger.
NEWTON, GEO. WHITE.....	1	M. E.....	Castleton.
NOBLE, LOUIS REEDER.....	3	M E & Mil	Mattoon.
OLIVER, WILL FORREST.....	3	L & S & Mil	Ladoga, Ind.
ORMSBY, WILLIAM L.....	2	L. & S.....	Springfield.
PAGE, CALVIN SAMUEL.....	4	L. & S.....	Champaign.
PAGE, ANDREW ORVILLE.....	1	Ag'l.....	Champaign.
PAIGE, JAMES ALBERT.....	3	C. E.....	Brush Valley, Pa.
PALMER, FRANK MITCHELL.....	4	C. E & Mil	Clinton.
PARKS, JAMES HARVEY.....	4	C. E & Mil	Orion.
PARSONS, FERNANDO ALSTON.....	4	L. & S.....	Waterloo, Iowa.
PATCH, EMORY.....	4	M. E.....	Janesville, Wis.
PATCHEN, JOHN W.....	1	Com.....	W. Bloomfield, N. Y.
PAYSON, EDWARD.....	2	M. E.....	Chicago.
PAYSON, JOSEPH.....	1	Com.....	Chicago.
PHILIPS, RICHARD.....	2	Com.....	Rantoul.
PICKRELL, ARTHUR A.....	1	Ag'l.....	Mechanicsburg.
PICKRELL, WATSON.....	4	Ag'l.....	Mechanicsbnrg.
PIERCE, ELON A.....	3	Ag'l.....	Belmond.
PIERPONT, WATSON TAYLOR.....	2	L. & S.....	Rockford.
POLLOCK, JAMES LYON.....	1	L. & S.....	Mt. Vernon.
POLLOCK, WILLIAM CLARENCE.....	4	L. & S.....	Mt. Vernon.
PORTERFIELD, EMMET.....	2	Ag'l.....	Sydney.
PORTERFIELD, GEORGE K.....	1	L & S & Mil	Mendota.
PRESCOTT, WILLIAM HENRY.....	2	C. E & Mil.	Rockford, Mich.
REED, JOHN FRANKLIN.....	1	L. & S.	Bradford.
REED, FRANK MORTIMER.....	2	L. & S.....	Rockford.
RICE, GEORGE CLARK.....	2	L. & S.....	Fithian.
RICHARDS, CHARLES L.....	1	Ag'l.....	Woodstock.
RICHARDSON, CHARLES.....	1	Ag'l.....	Cobden.
RHODES, JAMES FREDERIC.....	3	L & S & Mil	Dwight.
ROBERTS, ISAIAH LEWIS.....	1	Chem.....	Olustee Fla.
ROBERTSON, HENRY WRIGHT.....	1	L. & S.....	Compromise.
ROBINSON, ELNA ALPHONSO.....	4	M. E.....	Champaign.
ROOP, CHRISTIAN Y.....	2	Chem & Mil	La Grange, Ind.
ROSS, JOSEPH LAINS.....	1	Ag'l.....	Macomb.
ROWE, EDWARD AUTHUR.....	1	Com.....	Indianapolis, Ind.
RUDY, WILLIAM DOLE O.....	1	Chem & Mil	Mattoon.
RUSSELL, CHARLES MORTON.....	1	Chem.....	Urbana.
RUSSELL, S. J.....	3	C. E.....	Elmwood.
SABIN, IRWIN C.....	1	Chem.....	Champaign.
SACKETT, HOMER M.....	1	M. E.....	Decatur.
SARGENT, I. C.....	1	L. & S.....	Rockford.
SAWYER, HAMLIN W.....	1	L. & S.....	Godfrey.
SAWYER, JOHN NEW YORK.....	1	L. & S.....	Godfrey.
SCHARDON, LOUIS FRANCIS.....	2	Ag'l.....	Hillsboro.

SCOVELL, MELVILLE A.....	4	Chem	Rantoul.
SCRIBNER, ARTEMUS COFFIN...	3	Ag'l.....	Bradford.
SCUDDER, CLARENCE O.....	4	L. & S....	Creston.
SEARLES, CLARK NELSON.....	1	Ag'l.....	Osborn.
SEYMOUR, JOHN JAMES.....	2	C E & Mil	Seymour.
SHAWHAN, GEORGE ROBERT...	3	L. & S....	Sidney.
SIM, COLER LINDLEY.....	2	Chem & Mil	Urbana.
SIM, EDWARD E.....	1	Chem	Urbana.
SIZER, DANIEL A.....	2	M E & Mil	Mahomet.
SMITH, WILLIAM THOMAS.....	1	Ag'l.....	Loami.
SNYDER, FRANK AGUSTUS.....	1	L. & S....	Galva.
SPARKS, HOSEA B.....	1	L & S & Mil	Alton.
SPENCE, FRANKLIN.....	2	L. & S....	Hamilton.
SPENCE, WILLIAM WRIGHT....	1	L. & S....	Hamilton.
SPITLER, JONAS BEAVER.....	4	Chem.....	Brunersburg.
SPRADLING, WILLIAM F.....	1	L. & S....	Sheridan.
STALEY, CALVIN C.....	2	L. & S....	Champaign.
STANARD, ORA BYRD.....	1	Chem.....	Sublette.
STANTON, SAMUEL CECIL	3	N. H. & Mil	London, Eng.
STAYMAN, JOHN MATHER.....	2	M. E.....	Champaign.
STEPHENS, ALBERT A.....	1	Ag'l	Pesotum.
STEWART, ARTHUR ROBINSON...	1	Ag'l.....	Champaign.
STEWART, CHARLES EVANS....	3	C E & Mil.	"
STEWART, ROBERT E.....	1	Ag'l.....	Urbana.
STICKLE, WILLIAM HENRY....	1	Ag'l.....	Macomb.
STODDARD, IRA J.....	2	C E & Mil..	Pebela, Iowa.
STOOKEY, DANIEL WESLEY ...	3	M E.....	Harristown.
STULL, LOUIS	2	L & S.....	Marengo.
STULL, WILLIAM.	3	L & S.....	"
SUTTON, JOHN THOMPSON.....	2	L & S.....	Champaign.
THOMAS, STEPHEN MERRIMAN.	2	L & S.....	Mt. Carroll.
TOWER, GEORGE D.....	1	L & S.....	Mendota.
TOWER, GEORGE W.....	1	Ag'l.....	Sycamore.
TRUMAN, JOHN F.....	1	Ag'l.....	Urbana.
TYNDALE, HECTOR HILGARD...	4	L & S & Mil.	Springfield.
UTT, ALBERT A.....	1	Ag'l.....	Virden.
WADE, JAMES B.....	2	L & S & Mil	Jerseyville.
WADE, THOMAS A.....	3	L & S & Mil	"
WALKER, FRANK E.....	1	Ag'l & Mil	La Moille.
WALKER, RALPH MANNING....	2	M E.....	Monroe City, Mo.
WAKEFIELD, CHARLES C.....	2	Ag'l.....	Monroe City, Mo.
WARD, ROSCOE E.....	1	L & S.....	Terre Haute,
WARD, WALTER P.....	2	L & S.....	" "
WARNER, LYMAN FENN.....	4	C E.....	Rockford.
WARRINGTON, GEORGE.....	2	M E.....	Chicago.
WEBBER, WILLIAM P.....	1	L & S.....	Ludlow.
WEED, MAHLON OGDEN.....	1	Chem.....	Belvidere.
WENGER, CHARLES POPE.....	1	L & S.....	Gilman.
WELLS, GEORGE F.....	1	L & S.....	St. Louis, Mo.

WHEELER, ALONZO S.....	1	Ag'l	Hudson.
WHITHAM, ROBERT F.....	3	C E & Mil.	Fairfax, Iowa.
WHITE, W. WOODS.....	1	C E & Mil.	Atlanta, Ga.
WHITLOCK, JOHN F.....	2	L & S.....	Dwight.
WILLIAMS, WALTER L.....	1	Ag'l	Argenta.
WILLIAMS, THOMAS T.....	3	L & S.....	Sterling.
WILLIAMS, W. S.....		L & S.....	
WILD, GEORGE ALFRED.....	3	C E & Mil.	Marengo.
WILSON, CHARLES M.....	2	M E.....	Mackinaw.
WOOD, FREDERIC LANSING.....	3	L & S & Mil	Chicago.
WORRELL, ROBERT EDWIN....	3	L & S.....	Bowensburg.
WRIGHT, FRANK E.....	3	L & S & Mil	Arcola.
WRIGHT, MYRON JEROME.....	2	L & S.....	Woodstock.
ZELLER, GEORGE ANTHONY....	2	Chem.....	Spring Bay.
ZIESING, AUGUST.....	1	C E & Mil..	Peru.
ZIMMERMAN, HENRY W.....	1	C E.....	Peru.

LADIES.

ABBOTT, HATTIE.....	1	L. & S....	Bradford.
ADAMS, NETTIE.....	3	L. & S....	Urbana.
ANDERSON, LAURA.....	4	L. & S....	Champaign.
ARNOLD, SARAH.....	2	L. & S....	"
AYERS, LETTIE.....	3	L. & S....	Urbana.
BARBER, HATTIE S.....	2	L. & S....	Champaign.
BERGEN, LAVINA.....	2	L. & S....	Lilly.
BERNSTEIN, JOANNA.....	2	L. & S....	Champaign.
BYER, AMELIA.....	1	L. & S....	Urbana.
BOGARDUS, EVA.....	2	L. & S....	Champaign.
BROSHAR, CORNELIA.....	3	L. & S....	"
BROWN, FANNY	1	L. & S....	"
BURGESS, ADA A.....	2	L. & S....	Tonica.
BUSEY, CATHARINE.....	1	L. & S....	Champaign.
BUTTS, GUSSIE E.....	1	L. & S....	Union.
CAMPBELL, AMANDA.....	4	L. & S....	Philo.
CARLEY, ISOTTA.....	2	L. & S....	Champaign.
CARPENTER, EMMA AGNES....	2	L. & S....	"
CLARK SUSIE.....	1	L. & S....	Union.
COFFMAN, ADA O.....	2	L. & S....	Urbana.
COLE, NELLIE M.....	1	L. & S....	Philo.
COLUMBIA, EMMA E.....	2	L. & S....	Champaign.
COLUMBIA, FRANCIS MAE....	4	L. & S....	"
CONN, EMMA ANNA.....	2	L. & S....	"
CULVER, NETTIE.....	1	L. & S....	Henry.
CUSHMAN, GRACE.....	1	L. & S....	Urbana.

DAVIES, ALICE J.....	1	L. & S....	Urbana.
DAVIS, NANCY J.....	2	L. & S....	Monticello.
DEARDORF, SARAH.....	2	L. & S....	Cobden.
DOBSON, SUSIE A.....	2	L. & S....	Minonk.
DODSON, KATE.....	2	L. & S....	Champaign.
DRURY, HATTIE.....	1	L. & S....	"
DUNLAP, MAGGIE.....	3	L. & S....	"
EATON, ADA.....	2	L. & S....	Philo.
ELLIOTT, ELSIE.....	1	L. & S....	Tonica.
ESTEP, IDA.....	1	L. & S....	Rantoul.
ESTEP, JESSIE.....	1	L. & S....	"
FALLS, IDA BELL.....	2	L. & S....	Champaign.
FOOS, FLORENCE	2	L. & S....	"
FOWLER, ELSIE.....	1	L. & S....	Bradford.
GISH, MAGGIE.....	2	L. & S....	Covington, Ind.
GREGORY, HELEN B.	2	L. & S....	Champaign.
GREGORY, CARRIE.....	3	L. & S....	Rochelle.
HALL, ELLA.....	3	L. & S....	Urbana.
HAMMOND, EMILY.....	1	L. & S....	Rantoul.
HOLTON, MATTIE G.....	4	L. & S....	Champaign.
HULLINGER, KATE.....	4	Nat. His...	Rock Falls.
JOHNSON, ETTA ANNA.....	2	L. & S....	Champaign.
KARIHER, KATE.....	4	L. & S....	Champaign.
KELLOGG, FLORA L.....	4	L. & S....	Woodsville, Ohio.
KIMBERLIN, NETTIE.....	1	L. & S....	Louisiana, Mo.
LARNED, MARY SOFRONA.....	3	L. & S....	Champaign.
LEE, ALICE.....	4	L. & S....	"
MAHAN JENNIE C.....	2	L. & S....	Champaign.
MANSFIELD, MARIA.....	3	L. & S....	Mansfield.
MAXWELL, EMILY.....	2	L. & S....	Champaign.
MCWILLIAMS, EMMA M.	1	L. & S....	Bourbon.
PAGE, BELLE.....	1	L. & S....	Champaign.
PAGE, EMMA.....	1	L. & S....	"
PAGE, MARY	1	Arch.....	"
PAGE, MARTHA ELLEN.....	2	L. & S....	"
PATCHEN, HATTIE.....	1	L. & S....	Carlinville.
PIATT, EMMA C.....	2	L. & S....	Monticello.
PIERCE, CORA E.....	1	L. & S....	Belmond, Iowa.
PIERCE, EFFIE F.....	1	L. & S....	Belmond, Iowa.
PIERCE, FANNY.....	4	L. & S....	Champaign.
RICHARDSON, LAURA.....	1	L. & S....	Cobden.
RUGG, FANNIE L.....	1	L. S. & Com....	Bloomington.
RUSSEL, ANNIE S.....	1	L. & S....	Champaign.

SCOGGINS, SARAH.....	1	L. & S....	Champaign.
SKINNER, ELLA V.....	2	L. & S....	"
SMITH, AVIS E.....	2	L. & S....	Union.
SOMERS, MOLLIE.....	1	L. & S....	Urbana.
SPENCE, JENNIE.....	1	Chem.....	Hamilton.
SPRUELL, S. C.....	1	L. & S....	Urbana.
STEELE, MARY CARTER.....	4	L. & S....	Urbana.
STEWART, MAGGIE E.....	4	L. & S....	Champaign.
STEWART, MAGGIE L.....	3	L. & S....	"
STRONG, SARAH B.....	1	L. & S....	"
SWITZER, GERTRUDE	2	Com.....	"
THOMAS, ELIZABETH R.....	3	L. & S....	Champaign.
VICTOR, CARRIE.....	3	L. & S....	Champaign.
WALLACE, EMMA.....	2	L. & S....	Champaign.
WEBB, JOSEPHINE.....	1	Com.....	Covington, Ind.
WHITCOMB, MARY.....	3	L. & S....	Urbana.
WHITED, ROSE.....	2	L. & S....	Belmond, Iowa.
WILLIAMS, ABBIE E.....	1	L. & S....	Sterling.
WOOD, JENNIE L.....	1	L. & S....	Minonk.

RECAPITULATION.

UNDERGRADUATES—Gentlemen.....	280
“ Ladies.....	89
RESIDENT GRADUATES—Gentlemen.....	5
	374

COURSES PURSUED.

Agriculture	52
Horticulture	5
Mechanical Engineering	33
Civil Engineering.....	33
Architecture.....	15
Natural Science.....	6
Chemical.....	27
Commercial	25
Military.....	56
Literature and Science.....	188
	374

GRADUATES.—CLASS '72.

BURWASH, M. B.	Champaign,	<i>Farming.</i>
DAVIS, J. J.	Freeport,	"
DREWRY, H. N.	Mason,	<i>Medicine.</i>
FLAGG, A. M.	Rochelle,	<i>Law.</i>
HATCH, M. F.	Bliven's Mills,	<i>Farming.</i>
HILL, E. L.	Effingham,	"
LYMAM, G. H.	Cairo,	<i>Engineering.</i>
MATHEWS, J. N.	Mason,	<i>Medicine.</i>
PARKER, C. E.	Urbana,	<i>Farming.</i>
REISS, W. A.	St. Louis, Mo.	<i>Engineering.</i>
REYNOLDS, S. A.	Rockford,	<i>Law.</i>
RICKARD, T. E.	Springfield,	<i>Farming.</i>
RICKER, N. C.	Champaign,	<i>Teaching.</i>
ROLFE, C. W.	Aurora,	"
SILVER, HOWARD.	Urbana,	<i>Farming.</i>
SILVER, C. W.	"	<i>Teaching.</i>
TEEPLE, JARID.	Woodstock,	<i>Lake Survey.</i>
WHARTON, J. N.	Champaign,	<i>Mechanic.</i>
WHITCOMB, A.	Urbana,	<i>Medicine.</i>
WOOD, R. O.	Woodstock,	<i>Farming.</i>

CLASS '73.

GRAHAM, C. P.	Champaign,	<i>Ministry.</i>
HATCH, F. L.	Bliven's Mills.	<i>Farming.</i>
HAYS, C. I.	Bridgeport,	<i>Teaching.</i>
HENNESSY, A. L.	LaSalle,	"
HOOK, S. H.	Urbana,	<i>Farming.</i>
OCKERSON, J. A.	Elmwood,	<i>U. S. Lake Survey.</i>
PHILLIPS, P. A.	Damascus,	<i>Farming.</i>
PLATT, ERANKLIN C.	Rockford,	<i>Law.</i>
PORTERFIELD, E. N.	Sidney,	<i>Farming.</i>
ROBBINS, H. E.	Wenona,	<i>Mechanic.</i>
SWARTZ, A. C.	Champaign,	<i>Teaching.</i>
WILLIAMS, L. E.	Montrose, Iowa,	<i>Farming.</i>

CLASS '74.

BAKER, I. O.	Urbana.	<i>Teaching.</i>
CAMPBELL, J. P.	Georgetown.	"
DREWRY, E. S.	Mason.	<i>Farming.</i>
EATON, HERBERT.	Philo.	"
ELLS, W. C.	Champaign.	<i>Engineering.</i>
ESTEP, H. C.	Rantoul.	"
FOSTER, C. W.	Champaign.	<i>Law.</i>
GENNADIUS, P.	Athens, Greece.	<i>Farming.</i>
JEFFERS, C. P.	Lyndon.	<i>Merchant.</i>
MORROW, A. T.	Detroit, Mich.	<i>U. S. Lake Survey.</i>
PIERCE, J. S.	Champaign,	<i>Law.</i>
PICKRELL, WM.	Mechanicsburg.	<i>Farming.</i>
REYNOLDS, H. S.	Urbana.	"
STOREY, C.	San Diego, Cal.	"
SMITH, C. A.	Champaign.	<i>Mechanic.</i>
WHARRY, W. W.	Sycamore.	<i>Law.</i>
WATTS, WM.	Graham.	<i>Farming.</i>
CHEEVER, ALICE.	Champaign.	<i>Teaching.</i>
POTTER, ADELIA.	Urbana.	

LETTERS FROM LEGISLATORS.

To J. M. GREGORY. *Dear Sir:* In our visit to the Illinois Industrial University we were struck with surprise at the unexpected extent and grandeur of the institution, and at the amount and value of the means of instruction—the Library, Cabinets, and apparatus—already gathered there— We were especially gratified with the sound and practical character of the instruction given in the several departments, and with the evidence afforded by the work of students in the Shops, in the Chemical and Physical Laboratories, and in the several Draughting rooms, of the excellence of the education they are receiving.

We wished heartily that all the citizens of our State could come and see for themselves the magnificence of the University which the care of Congress, and of the state legislature, has founded for the young men and women of Illinois; and especially for the promotion of the great industrial interests of our state. We would earnestly suggest to you and the Trustees, the importance of a more thorough and extensive advertisement of the University to the people, and particularly to the young men and women of the State. The public ought to know its real character and value. If they understood it and could once visit, and see it for themselves, we believe your numbers would speedily be increased to the full capacity of the splendid, and spacious buildings of the University. Wishing to see this bounty of Congress and of the State enjoyed by as many as possible, and the usefulness of the University in that way, largely increased for the benefit of our great industries and of the industrial classes, we tender you our good wishes for the still greater prosperity of our State Industrial University.

W. B. HUNDLEY,	} <i>Com.</i> <i>of the</i> <i>Senate.</i>	A. E. STEWART,	} <i>Com.</i> <i>of the</i> <i>House.</i>
JEFFERSON RAINEY		A. J. THOMPSON,	
CHAS. D. HODGES,		JNO. HISE,	
H. A. MILLS,		J. T. BROWNING	
J. C. SHELDON,		JOHN GORDON,	
C. B. STEELE,		A. B. BARRETT,	
S. M. ETTER,	<i>Supt. Pub.</i> <i>Instruction.</i>	GEO. BENSON,	
		W. M. PHILLIPS,	
		ISAAC RICE,	

HOUSE OF REPRESENTATIVES, }
SPRINGFIELD, ILL. March 23d, 1875. }

DEAR DR. GREGORY:—To-day I most cheerfully signed a statement commending to the public the Industrial University over which you have the honor to preside. Having visited the Institution and examined its practical workings, I am prepared to endorse much more, and in much stronger language than as set up in said statement, well knowing that the facts fully bear me out in so doing. Combining the useful with the beautiful, your Institution moves forward on a scale so

grand as to challenge the admiration of every thoughtful mind. Politicians may wrangle, military heroes overturn nations, poets sing and philosophers theorize; but yours, Dear Doctor, is the noblest work of all; sending forth, to bless the world, an army of noble intelligent young men and young women, educated mentally, morally, and physically, each qualified to enter upon the duties pertaining to the highest type of citizenship.

No part of my legislative experience affords me half the real pleasure of the day spent at your Institution. I should be delighted to grasp the hand and make the personal acquaintance of each one of your pupils that I might bid him or her a hearty cheer on the grand work before them. Were it not for troubling you, I should ask to be remembered to each one of those noble young men and still nobler young women who compose the household of your Institution. I have a son twenty, and a daughter fifteen years of age, I hope may be permitted to join them at no distant day.

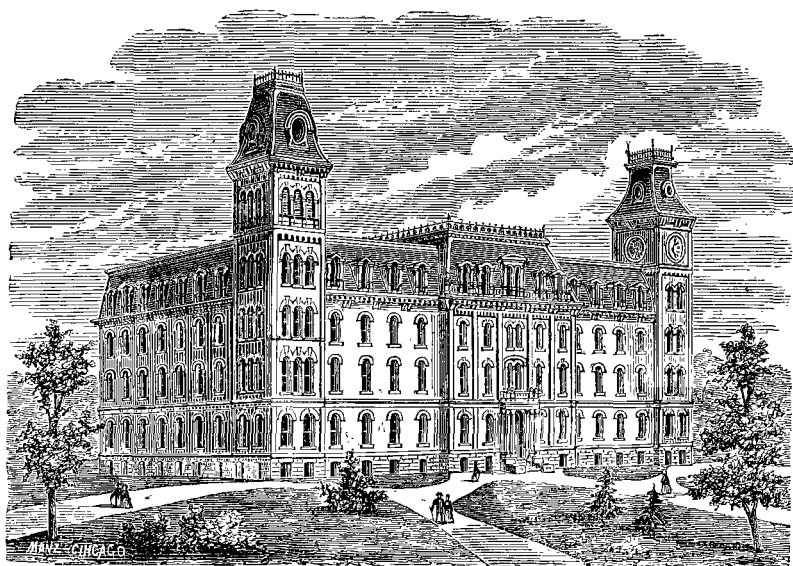
Wishing you a continuation of success in your chosen life work,

I am, Dear Doctor, Very Respectfully, Your Obedient Servant,

A. B. BARRETT.

I have been shown the above letter by Mr. Barrett, and have asked him as a personal favor to allow me to very heartily say "amen" to every one of his statements.

A. E. STEWART,



Main University Building.

ILLINOIS INDUSTRIAL UNIVERSITY.

HISTORY.

The University was founded by a grant of public lands made by Congress for the establishment of colleges of Agriculture, and the Mechanic Arts. It was chartered by the State, in February, 1867, and was formally inaugurated March, 11th, 1868. It is both State and National in character, having received its endowment from Congress, and its equipment from the State, with large donations amounting to more than \$400,000 from Champaign County. In the autumn of 1871 the University was opened for the instruction of female students, and now it offers its advantages to all classes of society, without regard to sex, sect, or condition.

LOCATION.

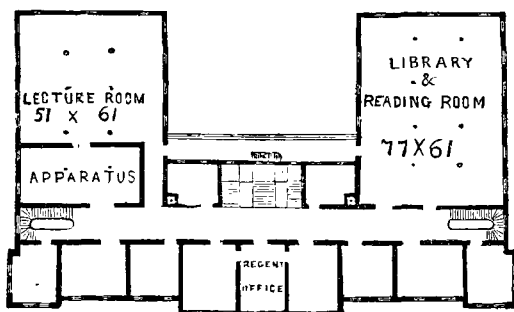
The University is situated in the City of Urbana, adjoining the limits of the City of Champaign, in Champaign County, Illinois. It is one hundred and twenty-eight miles from Chicago on the Illinois Central Railroad. The Indianapolis, Bloomington and Western Railway passes near the grounds. The county is one of the most beautiful prairie regions in the West. The two contiguous cities, constituting really only one community, have together a population of nearly 10,000, well supplied with churches and schools, and affording boarding facilities for a large body of students.

BUILDINGS AND GROUNDS.

The domain occupied by the University (see map of grounds, page 3 of cover) embraces about 623 acres including stock farm, experimental farm, orchards, gardens, nurseries, forest plantations, arboretum, botanic garden, ornamental grounds, and military parade ground.

The old University Building, now occupied partly by chemical laboratory, contains some eighty dormitories for students. It is 125 feet in length, and five stories in height, with a wing of 40 by 80 feet, four stories in height. The building was donated by the county. (See cut on last cover page.)

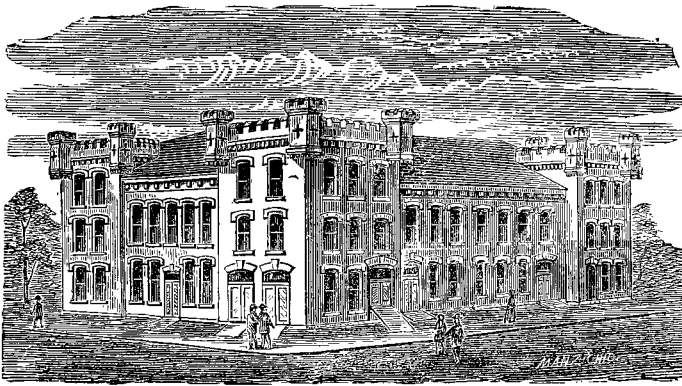
The New University Building, (see page 17,) is one of the most spacious and convenient to be found on this continent. It is 214 feet in length, with a depth on the wings of 122 feet. It is designed wholly for public use. The library wing is fire-proof, and contains five large halls devoted to the library and various cabinets and museums. The chapel wing affords a large physical laboratory and lecture-room, and spacious draughting-rooms. In the main part are thirty class rooms of good size, cloak and wash-rooms for both sexes, store rooms, and several large halls for students' literary societies.



PLAN OF NEW BUILDING—2ND FLOOR.

The chapel wing affords a large physical laboratory and lecture-room, and spacious draughting-rooms. In the main part are thirty class rooms of good size, cloak and wash-rooms for both sexes, store rooms, and several large halls for students' literary societies.

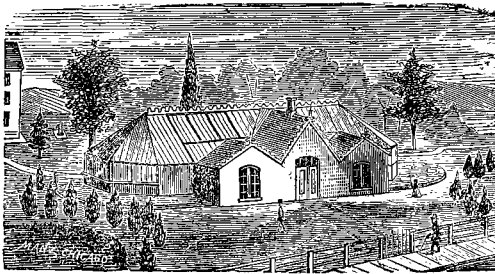
The Mechanical Building and Drill Hall is of brick, 128 feet in length by 88 feet in width. It contains a boiler, forge and tank room; a machine shop, furnished for practical use, with a steam engine, lathes and other machinery; a pattern and finishing shop; shops for carpentry and cabinet work, furnished with woodworking machinery; paint, printing and draughting rooms, and rooms for models, storage, etc. In the second story is the large Drill Hall, 120 by 80 feet, sufficient for the evolutions of a company of infantry, or a section of a battery of field artillery. One of the towers contains an armorer's shop and military model room, an artillery room and a band room.



MECHANICAL BUILDING AND DRILL HALL.

The Green-House is 70 feet by 36, and contains potting, seed and furnace rooms. There is another green-house 12 feet by 35.

The University has two large and valuable barns belonging to the stock and experimental farms, and three dwelling houses for the superintendents.

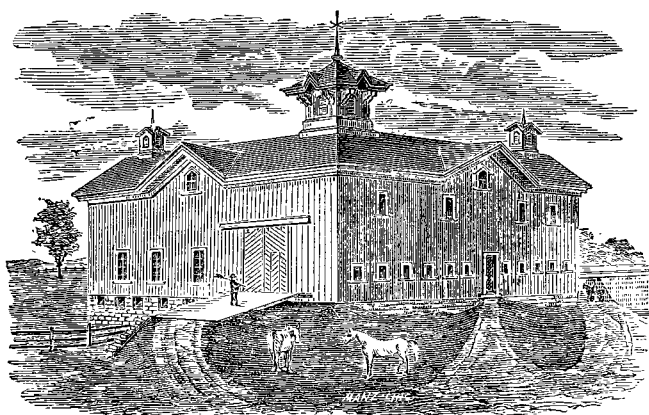


GREEN-HOUSE.

The Barn on the Stock Farm has north and west fronts of 80 feet each. Each limb, or ell, is 40 feet wide. It is of the kind known as a side-hill barn.

In the basement is a root cellar, a cook room, furnished with a steam boiler to steam food, and a small engine to furnish power for grinding, threshing and cutting, a set of hog pens, another set of pens or yard under the shed, which extends along both sides of the barn in the angle, a set of bull stalls for the several breeds, and a series of stalls for fine breeding cows, with calf pens in the rear. The first floor has horse stalls, a series of box stalls for breeding mares, grain bins, and a harness room.

For descriptions of the Mechanical Shops and Drill Hall, see Schools of Mechanical Engineering and Military Science.



STOCK FARM BARN.

PROPERTY AND FUNDS.

Besides the lands and buildings already described, which are, with furniture, library, etc., valued at \$400,000, the University owns 25,000 acres of well selected lands in Minnesota and Nebraska. It has also endowment funds invested in state and county bonds amounting to \$319,000, besides other property and avails, valued at \$33,000. The state has appropriated \$25,000 to the Agricultural Department for barns, tools, stock, etc.; \$20,000 to the Horticultural Department for green-house, barns, drainage, tools, trees, etc.; \$25,000 for Mechanical and Military Building, Machinery, etc.; \$127,000 toward the erection of the Main Building, and furnishing the same; \$10,500 to furnish the Chemical Laboratory; and \$20,000 for Library and Apparatus; \$4,000 for the apparatus of a physical laboratory, besides large amounts for agricultural experiments, etc.

LIBRARY.

The Library, which has been carefully selected with reference to the scientific studies required in the several practical courses, includes now nearly 10,000 volumes. The large Library Hall is fitted up as a Reading Room, and is open throughout the day for study, reading, and consultation of authorities. It is well provided with American, English, French, and German papers and periodicals, embracing some of the most important scientific and art publications. For a list of the periodicals regularly received, see Table of Contents, page 2 of cover.

AIMS OF THE UNIVERSITY.

"Its leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."—*Act of Congress, 1862, Sec. 4.*

"The trustees shall have the power to provide the requisite buildings, apparatus, and conveniences; to fix the rates of tuition: to appoint

such professors and instructors, and establish and provide for the management of such model farms, model art, and other departments and professorships, as may be required to teach, in the most thorough manner, such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies."—*Act of General Assembly, 1867, Sec. 7.*

In accordance with the two acts above quoted, and under which the University is organized, it holds as its principal aim to offer freely the most thorough instruction which its means will provide, in all the branches of learning useful in the industrial arts, or necessary to "the liberal and practical education of the industrial classes, in the several pursuits and professions in life," It includes in this all useful learning, — scientific and classical — all that belongs to sound and thorough scholarship.

FREEDOM IN CHOICE OF STUDIES.

Under the present laws of the State each student is required to study some of the branches relating to Agriculture and the Mechanic Arts.

The Trustees have accordingly made the following classification of studies, and require that each student shall take each term, one study at least from the first class. His second study must be of either the first or second class, and his remaining studies from either of the three classes.

CLASS I. Physics, Chemistry, Mineralogy, Physical Geography, Anatomy and Physiology, Botany, Zoology and Geology, Entomology, Algebra, Geometry, Trigonometry, Calculus, Drawing, Surveying and Engineering, Mining and Metallurgy, Mechanics, Architecture, Principles of Mechanism, Hydraulics, Thermodynamics, Strength of Materials, Prime Movers, Mill Work, Machine Drawing, Origin and Treatment of Soils, Culture, etc., of Plants, Breeding of Domestic Animals, Veterinary Science, Farm Products and Manufactures, Roads and Railroads, Book-Keeping, Construction and Use of Machinery, Modelling and Patterns, Bridges, etc., Astronomy, Military Science and Domestic Science.

CLASS II. English Language and Literature, German Language and Literature, French Language and Literature, General History, U. S. History, Ancient History, Mediæval History, Modern History, Constitutional History, History of Civilization, Logic, Political Economy, History of Agriculture, Constitutional Law, International Law, Rhetoric and Oratory.

CLASS III. Any study taught in the University not enumerated in the first and second classes.

The University being designed not for children, but young men and women who may claim to know something of their wants, powers and tastes, *entire freedom in choice of studies* is allowed to each student, subject only to such necessary conditions as the progress of the classes, the law, and the convenience in teaching require. It is not thought useful or right to urge every student, without regard to his capacity, taste or practical wants, to take entire some lengthened curriculum or "course of studies." Liberty everywhere has its risks and responsibilities as well as its benefits—in schools as well as in society: but it is yet to be proved that compulsory scholarship is necessarily better, riper and more certain than that which is free and self-inspired. Each student is exhorted to weigh carefully his own powers and needs, to counsel

freely with his teachers, to choose with serious and independent consideration the branches he may need to fit him for his chosen career, and then to pursue them with earnestness and perseverance, without faltering or fickleness.

It is necessarily required, 1st, That the student shall be thoroughly prepared to enter and keep pace with the classes in the chosen studies; and 2d, That they shall take these studies when they are being taught.

It is expected that each student shall have three distinct studies, affording three class exercises each day. But on special request, the Faculty may allow less or more, to meet the exigencies of his course.

No change in studies can be made after the beginning of a term without permission of the Faculty.

It is recognized that students will often need advice in the selection of studies and in the arrangement of a proper course. To meet this need the Faculty have carefully arranged several Courses of Studies which are expected to be followed by those who have no special reasons for diverging from them. See Courses, in Appendix.

Due care will be taken to prevent as far as possible all abuse of the liberty of choice. Students failing to pass satisfactory examinations in their chosen studies, will not be permitted to remain and take other studies without a vote of the Faculty.

ADMISSION.

Candidates for admission to the University must be at least fifteen years of age, of good moral character, and able to sustain a satisfactory examination in the following branches.

Candidates are requested to give heed to the following exhibit of the general scope of the examinations in the several branches.

ENGLISH GRAMMAR—Formation of words, parts of speech, declensions, conjugations, etc., analysis and syntax of sentences, and use of modifying words and connectives.

GEOGRAPHY—Form, size, motions and circular divisions of the earth; latitude, longitude and zones; the continents, grand divisions, countries and capitals of Europe and America, mountain systems and chief rivers and lakes of Europe and America; boundaries, capitals, chief towns, great railroads and canals of the States of the Union.

ARITHMETIC—Decimal system of notation and numeration; the four grand rules or operations, with clear explanations of processes, reasons and proofs; fractions, reduction, addition, subtraction, multiplication and division of fractions; operations in decimals, percentage, interest, ratio, proportions, involution and evolution.

ALGEBRA—Definitions, notation by letters and signs, simple operations, changes of signs, algebraic fractions, equations, transformations of equations, solution of problems, methods of elimination, calculus of radicals.

HISTORY OF THE UNITED STATES—Discovery and settlement of the several States; Indian and other wars; the early history of the west; the Revolutionary and later wars; adoption of Constitution; Presidents and new States.

NATURAL SCIENCE—As the law requires that no student shall be admitted who shall not pass a satisfactory examination in the studies of the common schools, and as the new school law prescribes that the "elements of the natural sciences" shall hereafter be taught in the com-

mon schools, candidates for admission to the Industrial University must be prepared in the elements of human physiology, in botany and in natural philosophy, in addition to the studies heretofore required.

Students entering after the beginning of the first term must also pass examinations in the studies already pursued by their classes.

 These examinations will be thorough and searching.

HOW TO ENTER THE UNIVERSITY.

In answer to the questions often received, the following *explicit directions* are given to those wishing to enter the University.

1. You must be over fifteen years of age, and of good moral habits. If unknown to the Faculty, you should bring a certificate of character.

2. You must possess a thorough knowledge of the common school branches, as given above, and of such other studies as you may find under the heading "Admission" in the College you wish to enter.

3. You should enter at the beginning of the year; but you *may* enter at any other time, if prepared to pass the additional examinations.

4. Students of much maturity and good native ability, who are deficient in one or two preparatory studies, may be allowed to enter, making up their deficiencies under a private tutor, at their own expense.

For the dates of Examinations, beginning of the year, Matriculation Fee, etc., etc., see Table of Contents, for "Calendar" and "Expenses."

COLLEGES AND SCHOOLS.

The University embraces the following Colleges and Schools. A School, it will be observed, is designed to provide a combined course of instruction made up of the branches of learning needful for some one profession. Schools naturally allied are grouped into a College.

I. THE COLLEGE OF AGRICULTURE.

School of Agriculture. School of Horticulture.

II. COLLEGE OF ENGINEERING.

S. of Mechanical Engineering. S. of Civil Engineering. S. of Mining Engineering. S. of Architecture.

III. THE COLLEGE OF NATURAL SCIENCE.

School of Chemistry. School of Natural History.

IV. THE COLLEGE OF LITERATURE AND SCIENCE.

S. of English and Modern Languages. S. of Ancient Languages and Literature.

V. OTHER SCHOOLS.

S. of Military Science. S. of Commerce. S. of Domestic Science and Art.

MUSIC, WOOD CARVING, PRINTING, TELEGRAPHING, PHOTOGRAPHY, and DESIGNING, are also taught, but not in regular courses.

In the appendix the student will find marked out the course of studies selected to fit him for his chosen pursuit. A completion of one of these courses, will be necessary to entitle him to graduate. A student desiring to pursue any branch of study farther than is provided for in the courses of the Schools, will find a statement of the extent of the course of instruction given in such branch under the heading "Departments."

COLLEGE OF AGRICULTURE.

FACULTY:

THE REGENT,
PROFESSOR BURRILL,
DOCTOR PRENTICE,

PROFESSOR TAFT,
PROFESSOR SHATTUCK,
INSTRUCTOR C. W. SILVER.

SCHOOLS.

SCHOOL OF AGRICULTURE,

SCHOOL OF HORTICULTURE.

CONTRIBUTIONS.

Many manufacturers have favored us with donations of implements. Appeal is made to friends everywhere for assistance in furnishing the fruit and tree plantations with the fullest possible stock, in furnishing also the green-houses and conservatories, and in the enlargement of the scientific collections in the Arboretum and Botanical Garden. The plants now in the houses and upon the grounds have been catalogued, and will be forwarded to parties wishing to exchange or contribute.

It requires a vast amount of money, time and skilled labor to make a large collection of useful agricultural and horticultural plants, yet the importance of such a collection at the University is recognized by all who are interested in these pursuits. New varieties of grains, vegetables, root crops, seeds, and live plants may easily be sent and will always be thankfully received.

COLLEGE OF AGRICULTURE.

OBJECT OF THE SCHOOL.

The aim of this school is to educate scientific agriculturists. The frequency with which this aim is misunderstood by the community at large, demands that it shall be fully explained. Many, who look upon agriculture as consisting merely in the manual work of plowing, planting, cultivating and harvesting, and in the care of stock, justly ridicule the idea of teaching these arts in a College. The practical farmer who

has spent his life in farm labors, laughs at the notion of sending his son to learn them from a set of scientific professors. But all of this implies a gross misunderstanding of the real object of agricultural science. It is not to teach *how* to plow, but the reason for plowing at all — to teach the composition and nature of soils, the philosophy of plowing, of manures, and the adaptations of the different soils to different crops and cultures. It is not simply to teach how to feed; but to show the composition, action and value of the several kinds of food, and the laws of feeding, fattening, and healthful growth. In short, it is the aim of the true Agricultural College to enable the student to understand thoroughly and profoundly, all that men can know about soils and seed, plants and animals, and the influences of light, heat and moisture on his fields, his crops, and his stock; so that he may both understand the reason of the processes he uses, and may intelligently work for the improvement of those processes. Not “book farming,” but a knowledge of the real nature of all true farming—of the great natural laws of the farm and of all its phenomena—this is the true aim of agricultural education. And when it is recollected that agriculture involves a larger number of sciences than any other human employment or profession, it will not be regarded as an unfit end of a sound collegiate training.

INSTRUCTION.

It has been the steady aim to give to the College of Agriculture the largest development practicable, and to meet the increasing demand, the Trustees design to employ additional instructors the coming year. Agricultural students are specially invited.

The instruction unites, as far as possible, theory and practice—theory explaining practice, and practice illustrating theory.

The subjects are so arranged that those not requiring illustration upon the farm are taught in the winter, and sufficient educational labor is required in favorable weather to impress and illustrate the principles developed in lectures and recitations. In Veterinary Science the lectures are given by a graduate of the Schools of Veterinary Science in both Edinburgh and London. Sick animals are brought in from the neighborhood, and are treated free of charge, for the instruction of the classes.

APPARATUS.

The college has for the illustration of practical agriculture a large stock farm of 410 acres, provided with a large stock barn, fitted up with stables, pens, yards, cooking room, etc. See map, page 3 of cover, and description, page 19. It has also a fine stock of several breeds of neat cattle, embracing Short Horns, Devons, and Jerseys. Also several breeds of swine and sheep, to illustrate the problems of breeding and feeding. An Experimental Department, aided by a special appropriation, exhibits field experiments, in the testing of the different varieties and modes of culture of field crops, and in the comparison and treatment of soils, carried on at the University farm, where about sixty acres are devoted to this purpose, and at other points representing the different soils and climates of the state. It includes also experiments in horticulture and agriculture, under the direction of the Professor of Horticulture and of the Farm Superintendent, and experiments in feed-

ing animals of different ages and development upon the various kinds of food. In common with similar departments in the several State Agricultural Colleges of the country, it attempts to create positive knowledge towards the development of an agricultural science.

A Veterinary Hall and Stable is provided, and a Clinic is held to illustrate the lectures on Veterinary Science.

Surveying and Drainage are illustrated by practice in the field. Chemistry is pursued by work in the Laboratory. Collections of seeds, soils, plants, implements, skeletons of animals, models, and apparatus are provided to illustrate the several branches of Agricultural Science.

SCHOOL OF HORTICULTURE.

OBJECT OF THE SCHOOL.

The aim of this school is to afford a scientific and practical education specially adapted to the wants of those who cultivate garden and orchard plants, or wish to manage nurseries, parks and pleasure grounds.

INSTRUCTION.

The instruction is both theoretical and practical. The class room recitations and lectures are supplemented by instructive practice in the fields and plant-houses. In connection with the lectures upon methods of obtaining and perpetuating new varieties of plants, students have practical exercises in cross-fertilizing, seeding, grafting, budding, etc., as a part of their regular education. So, in connection with the studies of ornamental plants and grounds, the care of the green-houses constitutes an essential feature of the student's work. Ladies can engage not only in the studies, but also in the practical exercises. The course which is recommended for those intending to prepare for the duties of the practical horticulturist, is given with the other courses, in Appendix.

APPARATUS.

The Apparatus for the practical portions of the course of instruction is well provided, and the means of illustration are fast accumulating.

Of 130 acres of land devoted to the use of the school, 20 are planted with forest timber trees, including many valuable kinds, both native and introduced. An apple orchard of over 1,200 varieties is beginning to bear, nearly 200 different kinds of pears are growing, also many varieties of cherries, grapes, blackberries, strawberries, currents, gooseberries, etc. The nurseries are well filled with young ornamental and useful plants, and in the vegetable gardens a large collection has been made. An Arboretum and a Botanical Garden have been commenced, in which it is proposed to gather all the native and hardy exotic plants. Twenty acres are devoted to the building and ornamental grounds, where much pains are taken to make both summer and winter ornamentation attractive and pleasing. A fine green-house, 36 by 70 feet, is filled with a rich collection of valuable plants. Other structures afford ample room for the propagation of a large stock of plants, and also illustrate the different modes of heating. The cabinets include many illustrative specimens, and the library contains the best horticultural literature known to the world.

COLLEGE OF ENGINEERING.

FACULTY.

THE REGENT.	PROFESSOR ROBINSON.
PROFESSOR WEBB.	PROFESSOR WEBBER.
PROFESSOR SHATTUCK.	PROFESSOR TAFT.
INSTRUCTOR RICKER.	INSTRUCTOR PATCHIN.

SCHOOLS.

S. OF MECHANICAL ENGINEERING.	S. OF CIVIL ENGINEERING.
S. OF MINING ENGINEERING.	S. OF ARCHITECTURE.

ADMISSION.

Applicants should be at least eighteen years of age, and none will be admitted under fifteen. Besides the requirements for admission into the University, given on page 23, they will be expected to pass their examination in Algebra, through Powers and Roots of any degree, and Quadratic Equations; also, in all Geometry, both plain and spherical, but not in Trigonometry. The examinations in Mathematics will be most thorough.

PREPARATION.

Thorough preparation is essential to success in the Professions of the Engineer and Architect.

The studies are arranged so that those who will make further preparation than is required before entering, can make their courses more extensive and profitable, and the following suggestions will be of use to such as wish to make thorough work: One recitation a day is devoted to English and modern languages; by coming well prepared in English grammar and composition, with some knowledge of English literature, the whole of this time can be devoted to French and German, each of which should have at least one year. Some preparation in Latin will be of great assistance in these languages. The engineer or architect should be an adept in the various departments of drawing, and some previous study and practice of this branch will be of great advantage; "Warren's Draughting Instruments" may be used as a text-book, and the drawings made on smooth drawing paper, each plate eight inches by ten inches.

REGULATION PAPER.

The following sizes and qualities of paper will be required in all the College exercises. Two scales are used, agreeing very nearly in the actual sizes, but adapted, the one to American inches, and the other to French centimetres. One or the other must be adhered to for the same class of exercises.

QUALITIES.

For manuscript and unimportant drawings, a heavy flat-cap paper, but slightly sized. For ordinary drawings, not colored, a heavy first-quality smooth drawing paper. For drawings finished in colors, the best Whatman's cold-pressed paper. For topographical and right-line drawings, and lettering, the best three-sheet Bristol board.

AMERICAN SIZES.

FRENCH SIZES.

For Problems and Exercises, and First and Second Vacation Journals:

Size of Page, 5 inches by 8 in.
Width of Margin, half an inch.

Size of Page, 12.5 cm. by 20 cm.
Width of Margin, 1.25 centimetres.

For Memoirs, Lectures, and other manuscripts, and for Geometrical, Projection, Topographical, Railroad, and Typographical Drawings:

Size of Page or Plate, 8 by 10 in. Size of Page or Plate, 20 by 25 cm.
Width of Margin, .75 inches. Width of Margin, 2 centimetres.

For Theses and Specimen Plates, to be deposited in the Library, the same size is used with an additional margin for binding, making the sheets 8 inches by 11.5 inches.

For Advanced Drawings, the Patent Office Size, or the corresponding size in French measure, is selected. Larger sizes will be allowed only when deemed necessary by the Professor in charge.

Size of Page or Plate, 10 in. by 15. Size of Page or Plate, 25 by 40 cm.
Width of Margin, 1 inch. Width of Margin, 2.5 centimetres.

CONTRIBUTIONS.

Our friends and students are earnestly desired to send us specimens of material and manufactures, and drawings, models or photographs of machinery, bridges, and other engineering and architectural works. Finished and detailed working drawings, perhaps otherwise useless, would be of great value for purposes of instruction. Illustrated circulars and price lists of manufacturing firms are desired. Contributions will be labeled with the donors' names and placed in the cabinets of the College for the inspection of students, and the illustration of lectures.

THESES.

In all the Schools of this College a Thesis is required of those who graduate. It must be an original composition of suitable length, upon a subject appropriate to the School, and approved by the Professor in

charge. The student must be prepared to read, explain and defend it before his class. It must be illustrated with such photographs, drawings and sketches as may be needed, and embellished with a title page neatly designed and printed with India ink, or colors. It must be upon Regulation Paper and securely bound. It will be prepared during the latter part of the fourth year and presented at the close of the course, after which it will be deposited in the Library of the College.

SCHOOL OF MECHANICAL ENGINEERING.

OBJECT OF THE SCHOOL.

This school is intended to prepare students for the profession of Mechanical Engineering. It is designed to supply a class of men long needed, not simply practical nor wholly theoretical, who, guided by correct principles, shall be fully competent to invent, design, construct, or manage machinery, in the various industrial pursuits. The instruction, while severely scientific, is thoroughly practical, aiming at a clear understanding and mastery of all mechanical principles and devices. Practice in the Mechanical Laboratory is combined with the theoretical training, and is counted as one of the studies of the course.

INSTRUCTION.

Instruction in this school is given in both Principles and Practice. IN PRINCIPLES, the knowledge is imparted in lectures, combined with the use of plates and illustrative models, and recitations are made from text-books. Numerous examples are also given, showing the application of the theories and principles taught. Experiments in the testing of machines and motors are undertaken by the student.

IN PRACTICE, the instruction consists mainly in the execution of Projects, in which the student is required to construct machines, or parts thereof, of his own designing, and from his own working drawings. The students, in class exercises under competent teachers, use the machinery and tools of the Machine and Pattern Shops and Foundry, according to the most approved methods of modern practice. See "Projects."

The practical instruction is not intended merely to teach the trade, but is added as a necessary supplement to the theoretical training.

TECHNICAL STUDIES.

The Course is given by the year and term in the tabular view, in Appendix, course 5. The order of studies there indicated should be closely followed, that the student may avoid interference of his hours of recitation. The following is a detailed view of the Technical Studies.

MATHEMATICS.

For a list of the subjects included under Pure Mathematics, see the Department of Pure Mathematics, in Appendix, as far as Calculus of Variations. The following are those included in Applied Mathematics:

CINEMATICS, AND PRINCIPLES OF MECHANISM—Relative Motion of points in a system of connected pieces; Motion independent of Force; Velocity ratio; Investigation of Motion of elementary parts of machines, as Friction and Curve Wheels in rolling contact, Cams and Curves in sliding contact; Correct-working Gear Teeth; Gearing Chains; Escapements; Link-work. **ANALYTICAL MECHANICS**—Equations of Equilibrium; Moments; Virtual Velocities; Centers of Gravity; Mechanical Powers; Friction; Dynamics. **HYDRAULICS**—Amount and Center of Pressure upon submerged surfaces; Flow of Liquids through Orifices, Weirs, Pipes and Channels; Distribution of water in cities. **THERMODYNAMICS**—Thermal and Thermometric Units; Sensible, Specific and Latent heat; Expansion by heat; Absolute Temperature; Laws of Thermodynamics; Thermal Lines; Changes of Temperature and Pressure attending Expansion of Gases; Laws of Work. **PNEUMATICS**—Flow of Gases through Orifices and Pipes; Density and Inertia of Gases; Distribution of Illuminating Gas; Ventilation.

NATURAL SCIENCE.

PHYSICS AND DESCRIPTIVE ASTRONOMY — See Departments of Physics and Astronomy. **CHEMISTRY** — Inorganic Chemistry and Qualitative Analysis. **GEOLOGY** — Elements of Physiographic, Lithological, Historical and Dynamical Geology.

DRAWING.

PROJECTION DRAWING — Use of Instruments in applying the Elements of Descriptive Geometry; Use of Water Colors; Isometrical Drawing; Shades and Shadows; Perspective. **FREE-HAND DRAWING** — Sketches of Machinery; Ornamentation; Lettering. **MACHINE DRAWING** — Working Drawings of Original Designs; Finishing in Water Colors, and in Line-shading; Details for Shop Use according to the practice of leading manufacturers.

ENGINEERING.

PROJECTS — Proportions, dimensions and customary forms of Machinery; Designing and Detailing; Construction of Machines from Working Drawings in the Mechanical Laboratory. **RESISTANCE OF MATERIALS** — See School of Civil Engineering. **PRIME MOVERS**—Work developed by water-wheels, wind-wheels, and by steam; Hot-air and Electric Engines; Economy of different Engines. **MILL-WORK AND MACHINERY**—Principles of Mechanism; Correct forms for parts of Machines; Machinery for Transmission; Manufacturers' and Engineers' Machinery; Elastic and ultimate strengths of heavy machinery.

PROJECTS.

The Designing, Drawing and Shop Practice, have always a definite practical purpose. The student under the immediate direction of teachers, carefully determine the dimensions and shapes best suited for the parts of some machine, reduce them to neat and accurate working drawings and make tracings for shop use. In the fourth year the drawings are completely finished with line-shading or colors, and detailed according to the best methods. Specimen drawings are left for the use of the School. No student will commence his shop practice without working drawings. The designs are such as require execution in iron, brass and wood, for the purpose of giving breadth of practice.

The student is required to make the patterns and castings, finish the parts, and put them together in accordance with the working drawings and the required standard of workmanship. This acquaints him with the manner in which the Mechanical Engineer carries his designs into execution and teach him to so shape, proportion and dispose the parts of a machine as to secure the greatest economy of construction, and durability in use.

Experiments in the testing of Prime Movers and other machines, are undertaken by the classes. They take Indicator Diagrams from the engine of the Mechanical Laboratory and determine from them the power developed with different degrees of expansion.

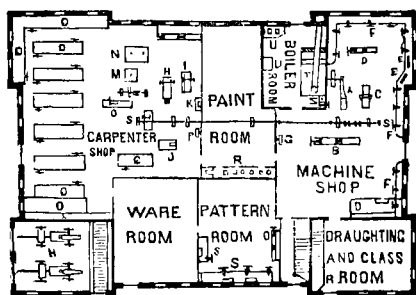
VACATION JOURNALS AND MEMOIRS.

Journals of Travel are required to be kept during the summer vacations. Entries should be made as often as once a week, and consist of notices of manufactories, especially of their peculiar mechanical methods and machines. Dimensions of large and important machinery, such as stationary engines of water works, blowing and hoisting engines, and machinery in use in mining or other operations, may form a part of the record. The Journals of the first vacations are to be read and discussed in connection with the class in Designing and Shop Practice; and those of the second, in connection with the class in Cinematics and Principles of Mechanism. They should be illustrated by sketches reproduced upon the blackboard.

Reports or memoirs upon visits and observations of the third vacation will be required instead of Journals, to be read in the class in Machine Drawing during the middle term of the fourth year. These reports should be made upon rare and interesting mechanical operations or machinery such as making gas pipe, spinning zinc, copper and brass ware, manufacturing saws, etc. They will be placed in the Library of the School, and should be illustrated by ample sketches and drawings.

APPARATUS.

This school is provided with plates and a cabinet of models illustrating mechanical movements and elementary combinations of mechanism. This collection is rapidly increasing by our own manufacture, and by purchase from abroad. A supply of Rigg's models has lately been added, and others from the celebrated model manufactory of J. Schröder of Darmstadt, Germany. About two hundred valuable models have been received from the United States Patent Office.



MECHANICAL LABORATORY.

This plan shows the arrangement of the Mechanical Laboratory. The bottom and left-hand side of the plan correspond to the two faces of the Mechanical Building, shown in perspective on page 19.

In the Boiler and Furnace Room, T, is a Root's Sectional Safety Boiler of 33 horse-power, which supplies steam for the engine, and for warming the building. The Emery Grinder, U, is

in this room. At Z are the Pumps, and Stillwell Heater and Lime Extractor for supplying the boiler with water.

In the Machine Shop, A, is the Engine, of 16 horse-power, regulated by a variable cut-off. It was made by the students of the University. A Richard's Indicator is fitted to the cylinder. The main line of shafting is 72 feet long, and furnished with the best iron pulleys and hangers. At B is a Putnam Engine Lathe of 20 inches swing by 10 feet bed. At D is an Ames Lathe of 15 inches swing and 6 feet bed. At C is a Putnam Planer for iron, planing 5 feet long. At E E are two Hand Lathes made by students. At F F F is a stretch of about 100 feet of heavy hard-wood benches, fitted up with vises, drawers, tool cases, etc. At G is the Grindstone, also a No. 1 Sturtevant Pressure Blower for furnishing blast to the furnace and forge.

In the Pattern Shop are four complete sets of tools, benches and vises. In a separate building are forges, a moulder's bench with sand, and a brass furnace.

During the past year the projects described on page 30, have included the designing, drawing and construction of machines and cabinet models, as follows: a Dead-beat Escapement, a Chronometer Escapement, a set of Planer Centers, a Direct Action hot and cold water Steam Pump, a Speed Lathe of two feet swing, &c.

As commercial work the shop has turned out one Thermometer Graduating machine, numerous well boring augers, forks and carriers, Grading machines, an air compressor, numerous repairs, &c.

SCHOOL OF CIVIL ENGINEERING.

OBJECT OF THE SCHOOL.

The School is designed to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable students to enter intelligently upon the various and important duties of the Engineer. Those who desire a preparation, at once broad and thorough, and who are willing to make persevering efforts to obtain it, are cordially invited to connect themselves with this School.

INSTRUCTION.

The student should lay a broad foundation in general and disciplinary culture, which will enable him to pursue his professional studies with greater ease and advantage. With this view the subjects peculiar to Civil Engineering are not introduced until the second year.

The instruction is, as usual, given by lectures, text-books and reading, to which are added numerous problems and practical exercises, as serving best to completely explain subjects and fix them in the mind. Models and instruments are continually used, both in lectures and by the students themselves.

COURSE OF STUDIES.

The Complete Course occupies four years. In the Appendix will be found the tabular view, showing the arrangement of the subjects. The studies of the first three years will prepare students for undertaking many engineering operations, such as the building of railroads, canals, embankments, etc. The fourth year is intended to fit them for the higher engineering constructions, as the building of arches, trussed bridges, and supporting frames of all kinds.

Each year consists of thirty-six working weeks, divided into Fall, Winter, and Spring Terms. The four years are divided among the different branches nearly as follows: Languages, 360 recitations. Pure Mathematics, 360 recitations. Drawing of all kinds, 840 hours. Lectures with Mathematical Analysis, 100 hours. Surveying, recitations, drawing and field-practice, 200 hours. Physics, Mechanics, Hydraulics, Astronomy, Geology, Chemistry, Mental Philosophy, Logic, Political Economy, History, altogether 680 lectures, recitations and exercises. Practice in the Chemical Laboratory, 110 hours. Engineering Projects, 240 hours. Besides the above there are various special exercises requiring time, the amount of which cannot be assigned. Each recitation requires one hour in the class-room, and to its preparation should be given an average time of three hours.

TECHNICAL STUDIES.

MATHEMATICS.

For a list of the subjects included under Pure Mathematics, see that Department, in Appendix, as far as "Calculus of Variations." The following are those included in Applied Mathematics:

DESCRIPTIVE GEOMETRY—Problems on the Point, Right-Line, and Plane; Curved Lines and Surfaces; Tangents; Intersections; Warped Surfaces; Perspectives; Shades and Shadows; Practical Problems. ANALYTICAL MECHANICS AND HYDRAULICS—See School of Mechanical Engineering. ASTRONOMY—The Observatory; Instruments and their adjustments; Determination of time, latitude and longitude; Practical Exercises. GEODESY—Figure of the Earth; Surveys of the Earth's Surface; Base-lines; Parallels and Meridians; Methods of the United States Surveys; Barometric Measurements. LAND SURVEYING—Areas; Distances; Omissions and Corrections; Standard Units; Metrical System; Refraction; Curvature of the Earth; Theories of Surveying Instruments; Adjustment of Instruments; R. R. SURVEYING—Curves; Turnouts; Crossings; Obstructions; Slope Stakes; Earth-work; Grades; Curvature of Rails; Coning of Wheels; Calculation and use of Tables.

DRAWING.

PROJECTION DRAWING—Use of Instruments in applying the Elements of Descriptive Geometry; Use of Water Colors; Isometrical Drawing; Shades; Shadows and Perspective; Drawings finished in colors and by right-line shading; Bridges; Right and Oblique Arches. FREE-HAND—Landscapes, Buildings; Lettering and Ornamental Work. TOPOGRAPHICAL—Sketching; Ink Drawings; Conventional Signs, etc. MAPPING—Railroad, and City and County Maps. ARCHITECTURAL—Designing and Drawing of Engineering Structures.

NATURAL SCIENCE.

PHYSICS AND DESCRIPTIVE ASTRONOMY—See Department of Physics and Astronomy. CHEMISTRY—Inorganic Chemistry and Qualitative Analysis. GEOLOGY—Elements of Physiographic, Lithological, Historical and Dynamical Geology.

ENGINEERING.

ROAD ENGINEERING—Location and construction of Roads and Railroads; Grades; Gauges; Tunnels, etc. RESISTANCE OF MATERIALS—Elasticity; Safe Limits; Shearing Stress; Flexure and Strength of Beams and Columns; Practical Formulæ. TRUSSES—Analysis of a variety of Roofs and Frames, with methods of obtaining the strains. BRIDGE CONSTRUCTION—Warren's, Howe's, and other Trusses; Tubular and Suspension Bridges; Arches, etc. STONE-WORK—Stone; Limes and Mortars; Foundations, etc.

SPECIAL EXERCISES—VACATION JOURNALS.

Journals are required to be kept by each student during his second and third vacations. They must be written as often as once a week, and will contain accounts of his travels and occupations, with special reference to matters pertaining to his chosen profession, and general attention to all scientific and industrial facts. They will be presented during the Fall terms, read before the class, interesting facts discussed, and marked and credited as studies of the course.

It is recommended that students employ their vacations in engineering practice. To facilitate this important part of their preparation, students of creditable standing at the ends of the second and third years of their courses, can obtain certificates to this effect from the professor in charge.

PROJECTS AND VACATION MEMOIRS.

During the Spring Term of the second year, an accurate Topographical Survey of a locality is made by the class, and instruction given in the use of the Level, preparatory to a project in Railroad Engineering, which is executed in the Fall Term of the next year. The Plane-table is used as in the U. S. Surveys.

The Project consists of a Preliminary Survey, Locations, Drawings, and Estimates.

The Preliminary Survey will consist in an examination of the locality, and in running tangent lines, with leveling and topographical sketching.

The Location will consist in running the line over the route decided upon, with all the necessary measurements and calculations for establishing the grade, setting slope stakes, determining the amount of earth-work, designing the buildings, bridges, culverts, etc.

The Drawings will include Alignment, Profile, Plans, and Sections.

The Estimates will give the cost of ground, earth-work structures, rolling stock, etc.

A Memoir will be required at the opening of the fourth year upon an allowed subject, and a Project in Engineering construction will be executed during the year.

APPARATUS.

The school is provided with both English and American instruments for the different branches of Engineering Practice, and for the Astronomical work of Higher Surveying. It has numerous models for illustration of its specialties, and access to the cabinets of the other schools. To facilitate the practice in Trigonometrical and Land Surveying, it has a specially prepared area, in which the difficulties of plane surveying are presented to the beginner as he is able to meet them, and where is taught practical methods of overcoming them. This area is subdivided by a large number of lines, the position of which are accurately known, but not by the student. He is then required to determine the position of the "corners" by various methods, and to calculate the enclosed areas. Other problems are given in determining inaccessible distances, passing obstacles, avoiding local attractions, etc., for which the ground is prepared. The number of divisions is so large that no two students need have the same problem, and so accurately laid out that the correctness of the student's work can at once be determined.

An Astronomical Observatory for meridian observations, and of suitable size for the Practical Exercises in Astronomy, has been erected and is in use. An equatorial telescope has also been mounted for the use of the students. A set of Smithsonian Meteorological instruments has been procured, placed in suitable positions, and observations commenced.

SCHOOL OF MINING ENGINEERING.

OBJECT AND INSTRUCTION.

This School is intended to qualify the student for undertaking mining operations of all kinds. Its instruction consists of a thorough training in the principles of theoretical and applied chemistry, of chemical and blow-pipe analysis, of assaying and metallurgy, and of the engineering operations of mining.

STUDIES AND APPARATUS.

The course of studies will be found in the Appendix.

The Cabinet already contains a quantity of mining models, and about \$2,000 worth in addition have recently arrived from Europe.

SCHOOL OF ARCHITECTURE.**OBJECT OF THE SCHOOL.**

The object of the school is three-fold, viz.:

1. To enable the student to obtain a thorough knowledge of the principles of construction, employed in all classes of buildings.
2. To furnish a varied, and thorough course of practice in the preparation of general and detail drawings, plain, shaded, or colored, with the specifications, estimates, etc., necessary to form a complete design.
3. To afford the student an opportunity of acquiring a practical knowledge of construction in all its forms by a full course of shop practice.

Skilled mechanics may be admitted to instruction in Free Hand and Architectural Drawing, and other technical studies, for a limited time, without being required to pass the usual examination for admission, but they will be required to pay the ordinary fees.

A BUILDER'S COURSE, occupying a single year, has just been added for those wishing to fit themselves for Master Builders.

SPECIAL ARCHITECTURAL STUDIES.

CONSTRUCTION—Elements of construction, and finish of all classes of buildings, in wood, brick, stone and iron—foundations, walls, roofs, doors, windows, lengths and cuts for all kinds of framing, stairs, &c.

SHOP PRACTICE—Construction of frames, doors, windows, stairs, &c., to scale from drawings.

ADVANCED SHOP PRACTICE—Same, from original designs by students.

VAULTED CONSTRUCTIONS—Working drawings for arches, vaults, domes and their centers.

FREE HAND DRAWING—Outlines, shading, drawing from casts and objects in pencil or crayon.

MODELLING IN CLAY AND PLASTER—Ornaments, Designs, and Ornamental Compositions.

The study of Ornament as applied to Architectural purposes.

HISTORY OF ARCHITECTURE—A full and detailed examination of the various Architectural styles, their derivation, characteristics, spirit, decoration, successes, and adaptability to American needs.

APPARATUS.

The school possesses a fine collection of plaster casts, 150 in number, made by Christian Lehr, Berlin, mostly from architectural subjects, for use in the drawing classes, besides those in the Art Gallery.

The library is large and well selected, containing the latest and most useful works and periodicals in the English, French, and German languages, for study and reference, and a fine collection of colored plates, illustrative of water color painting, and the different styles of finishing architectural drawings.

The Carpenter shop shown on page 31, is fitted up for the regular shop practice of students in architecture. It contains a Whitney Planer, a Moulding Machine, a Tenoning Machine, Jig, Cutting off and Slitting saws, a Morticing Machine, a Yankee Whittler, a Turning Lathe, a Foot Lathe, with saws, drills, taps, dies, &c., and three power Grindstones. Ten work benches, with six sets of bench tools, and six sets of tools for making models. Also a small dry kiln built on an improved plan.

COLLEGE OF NATURAL SCIENCE.

FACULTY.

THE REGENT.
PROFESSOR BURRILL.

PROFESSOR TAFT.
PROFESSOR WEBBER.

SCHOOLS.

SCHOOL OF CHEMISTRY.

SCHOOL OF NATURAL HISTORY.

SCHOOL OF CHEMISTRY.

OBJECT OF THE SCHOOL.

The object of this school is to impart such theoretical and practical knowledge of Chemistry as will enable the student to apply the principles of the science to any of the related arts, and to fit him not only for the field of original research, but for the practical business of the Druggist and Practical Chemist.

A tabular view of the complete course is given in the Appendix.

The instruction in the principles of Chemistry and chemical physics, of five recitations a week, will occupy six weeks of the first term of the first year. For the remainder of the year the recitations will alternate with laboratory practice. During the remaining three years each student is expected to work two hours daily in the laboratory, five days in the week, and in order to graduate, each is expected, at the close of the course, to make an original investigation, and to write a thesis. See also "Department of Chemistry."

Students who pursue Chemistry only as a part of other courses, will find it to their advantage to work at least two consecutive hours daily during such time as their specialty may require.

TEXT-BOOKS—Roscoe's Chemistry; Douglas & Prescott's Analysis; Fresenius' Analysis; Miller's Chemistry; Rose's Analysis.

BOOKS OF REFERENCE—Gmelin's Handbook of Chemistry; Graham-Otto's *Ausführliches Lehrbuch der Chemie*; Watt's Dictionary of Chemistry; Lehmann's Physiological Chemistry; Percy's Metallurgy; Mitchell's Practical Assaying.

APPARATUS.

The facilities offered here for obtaining a practical knowledge of Chemistry are confidently believed to be unsurpassed by those of any other institution in the West. A second laboratory has recently been fitted up for advanced students, in quantitative analysis. In addition to the usual apparatus found in every laboratory, is an extensive series of instruments recently purchased in Europe, including a large platinum retort for the preparation of hydrofluoric acid; a Dove's polarizer, with a complete suit of accompanying apparatus; a Geissler's mercurial air pump; Hofman's apparatus for illustrating in the lecture room the composition of compound gases; a Soleil-Scheibler's saccharometer of the most recent and approved construction; an excellent set of arcometers; a Haüy's goniometer; a camera with Ross' lenses; a Ruhmkorff's coil; galvanic batteries of Grove and Bunsen; also a potassium

dichromate battery, a galvanometer and a thermo-electric pile; a spectroscope and a large binocular microscope; two additional chemical balances, peculiar in the shortness of their beams, and remarkable for the accuracy and rapidity with which weighing can be executed with them. A natterer's carbon dioxide condenser, and an extensive set of metallurgical apparatus, consisting of models of furnaces, etc., have recently been received.

The Library of the School has recently been enriched with complete sets of standard scientific works; the *Annalen der Chemie und Pharmacie*; the *Jahresbericht ueber die Fortschritte der Chemie*; Dinger's *Polytechnic Journal*; the *Handwörterbuch der Chemie*; Percy's *Metallurgy*; Silliman's *Journal*. See Table of Contents for the list of periodicals taken.

SCHOOL OF NATURAL HISTORY.

OBJECT OF THE SCHOOL.

The aim of this School is to educate and prepare practical geologists, collectors and curators of cabinets and museums of natural history, and superintendents of scientific explorations and surveys.

INSTRUCTION.

The instruction is given by lectures and text-books, and excursions are made under charge of the professors. The course of studies will be found in the Appendix. Vacation journals and memoirs are required as in the College of Engineering.

APPARATUS.

Collections of specimens and illustrative apparatus have been provided by purchase, manufacture and donation.

In **BOTANY** the School has an extensive and valuable Herbarium, collected by several expeditions, and largely increased from other sources; also a Lignarium exhibiting woods in section. It has a fine collection of enlarged *papier-mache* models of flowers and fruits, made by Dr. Auzoux, of Paris, and dissected to exhibit perfectly the most minute organs and tissues. Among these are a pink, a papilionaceous flower, a cherry, a strawberry, a pea-pod with peas, a vetch legume, a grain of wheat, etc. The Green-houses, Arboretum and Botanical Garden, are open to the students of this School.

In **ZOOLOGY** the Cabinets contain: a human skeleton, purchased in Paris, and a manakin made by Dr. Auzoux; skeletons of a cow and other mammals, and of birds; stuffed preparations of a large number of birds, mammals, fishes, reptiles, etc., a dissected horse's leg and hoof, a dissected eye, trachea, and vocal apparatus, in *papier-mache*, by Dr. Auzoux; collections of shells, fossils and insects.

In **ENTOMOLOGY**: Dr. Le Baron, State Entomologist, required by law to make collections for the University, is preparing a full suite of specimens. A large number have been received.

In **GEOLOGY**: a complete collection of specimens from the State Geological Survey. In **MINERALOGY**, **PALÆONTOLOGY**, etc.; large collections, with preparations of ores.

There is also a pair of large dissolving-view cameras with slides, for illustrating Astronomy, Geology, Zoology, and History.

COLLEGE OF LITERATURE AND SCIENCE.

FACULTY.

THE REGENT.	PROFESSOR PICKARD.
PROFESSOR SNYDER.	PROFESSOR BURRILL.
PROFESSOR WEBBER.	PROFESSOR TAFT.
PROFESSOR SHATTUCK.	INSTRUCTOR PATCHEN.
INSTRUCTOR CRAWFORD.	

SCHOOLS.

SCHOOL OF ENGLISH AND MODERN LANGUAGES.
SCHOOL OF ANCIENT LANGUAGES AND LITERATURE.

ADMISSION.

Candidates for admission to either of these Schools must have the qualifications prescribed on page 23, and for the School of Ancient Languages and Literature, they will, in addition, be examined in Latin Grammar, Elementary Latin Prose Composition (Harkness or Arnold), four books of Cæsar's Commentaries, six orations of Cicero, and six books of the *Æneid*, or other selections from the same or other authors of equal amount and like character, also, in Greek Grammar, three books of Xenophon's *Anabasis*, and twenty-four exercises in Arnold's Greek Prose Composition.

The object of this College is to furnish a sound and liberal education to fit students for the general duties of life, and especially to prepare them for those business pursuits which require a large measure of literary and scientific knowledge and training. It is designed to meet the wants of those who wish to prepare themselves for the labors of the press as editors or publishers, for teachers in the higher institutions, or for the transaction of public business.

Students in the agricultural and other technic schools desiring to educate themselves as teachers, writers, and professors in their special departments, require a knowledge of the Ancient, as well as the Modern Languages, to give them full command of all the instruments and facilities required for the highest proficiency in their studies and proposed work. The University seeks through these schools to provide for this important part of its mission—the furnishing of teachers to the industrial schools of the country, and investigators and writers for the Arts. The large liberty allowed in the selection of the special studies of his course will permit the student to give such direction to his education as will fit him fully for any chosen sphere or pursuit.

INSTRUCTION.

The plan of instruction embraces, besides the ordinary text-book study, lectures and practical exercises in all the departments, including

original researches, essays, criticism, proof reading, and other work intended to illustrate the studies pursued, and exercise the student's own powers. It is designed to give to all the students voice culture and a training in elocutionary practice.

A prominent aim in this, as in all the departments of the University, will be to teach the right use of books, and thus prepare the student for self-directed investigation and study which will extend beyond the curriculum of his school and the period of his graduation. With this view, constant use of the already ample and continually enlarging stores of the Library will be required and encouraged. As a farther aid in this direction the members of the advanced English classes are expected to act as assistant librarians. In this service they are able to obtain much valuable knowledge of the various departments of English Literature, of prominent authors, and the extent and scope of their writings. Of special value as an incentive to, and the means of practice in, English Composition, should be mentioned *THE ILLINI*, a monthly paper edited and published by the students of the several colleges, each of which is appropriately represented in its columns. A printing office has been provided for in the new Mechanical Building, and a press with the requisite supply of type.

In the School of Ancient Languages and Literature, the methods of instruction, without swerving from their proper aim, to impart a sufficiently full and critical knowledge of the Latin and Greek languages and writings, will make the study of these tongues subservient in a more than usual degree to a critical and correct use of the English. With this view written translations, carefully prepared, with due attention to differences, equivalences and substitution of idioms, and the comparison and discrimination of synonyms, will form part of the entire course.

In the School of English and Modern Languages, the instruction in Modern Languages will, for the present, be confined to English, German and French. Instruction in the latter two will extend through two years of the course. In the first year the student passes over a complete grammar and reader, acquiring a knowledge of the technicalities of the idiom, and a sufficient vocabulary for the use of the books of reference within his course. The second year is devoted to a critical study of the languages and philological analysis, and to a course of select classic reading, composition and conversation.

THE LIBRARY is well supplied with works illustrating the several periods of English, American, French and German Literature. It contains at present nearly ten thousand well selected volumes, and is constantly growing by purchase at home and abroad. Valuable American and Foreign periodicals are received regularly in the Reading Room, a list of which is given in the "Miscellany" following, page 49. For the courses of study recommended in this College, see Appendix.

SPECIAL EXERCISES.

Vacation Journals, with notices of readings, narratives of public events, and observations on the current literature and the progress of public affairs will be required.

OTHER SCHOOLS.

SCHOOL OF MILITARY SCIENCE.

OBJECT AND INSTRUCTION.

The aim of this School is to teach Military Tactics to all the students of the University, as required by the laws of Congress and the State.

MILITARY TACTICS—Practical instruction is, for the present confined to the infantry arm, to all able-bodied male students of the University, according to the following programme—the exercises occupying one to two hours a week, (see figures in programme).

PROGRAMME.

FIRST YEAR.—*Fall Term*—School of Soldier, Manual of Arms. 2. *Winter Term*—School of Company, Firings, etc. 2. *Spring Term*—School of Battalion. 2.

SECOND YEAR.—*Fall Term*—Reviews of Company, and Battalion Drill. 2. *Winter Term*—Bugle Calls and Skirmish Drill. 1. *Spring Term*—Skirmish Drill and Battalion Evolutions. 2.

THIRD YEAR.—*Fall Term*—Review, Picket Duty. 1. *Winter Term*—Guard and Picket Duties. 1. *Spring Term*—Skirmish and Battalion Evolutions. 1 to 2.

FOURTH YEAR.—*Fall Term*—Reviews, Bayonet Fencing. 1. *Winter Term*—Bayonet Fencing. 1. *Spring Term*—Battalion Evolutions, Target Practice. 1. to 2.

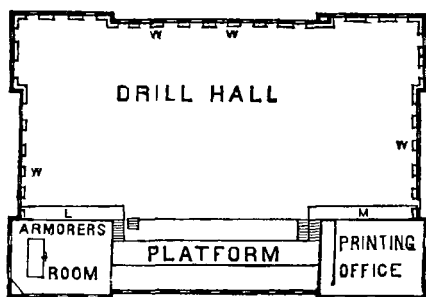
There is now formed a battalion of eight companies, officered by the students of the class in Military Science.

MILITARY SCIENCE—A class is taught in Military Science and Art, as far as is necessary for officers of the line. Students are admitted into this class after having participated one year in the general military exercises, and shown the proficiency and ability necessary to a utilization of the instruction thus received. The members of this class officer the companies, and act as drill sergeants and instructors for the lower classes.

The instruction and exercises occupy two hours each week, arranged so as not to interfere with any courses of study, making it possible for the members of other courses to enter this. The course of studies will be found in appendix.

No student is admitted to this Class before his second year in the University, and none are to be allowed to hold any Command who do not maintain a good standing in scholarship and conduct.

APPARATUS.



MECH. AND MIL. BUILDING, 2ND FLOOR.

THE DRILL HALL is 124 by 75 feet. 350 rifle muskets are ranged around it in racks, W. There are also cavalry swords, fencing swords and muskets, an armory with a growing collection of arms, and models of arms and projectiles for practical instruction. Below the Armorer's room is the Artillery room, and above it the Band Room. The Platform and Galleries L, M, will accommodate over 300 visitors.

The PARADE GROUND is shown on page 3 of cover. The University Library contains books on Military Science, Military History and Engineering.

A GYMNASIUM, at present in the Drill Hall, has been furnished with apparatus, and classes are organized under a skilled leader.

The recent act of the Legislature requires that all male students shall take part in the Military Drill, unless exempted by physical disability, and wear the University Uniforms.

In connection with the Military Department, there is a Telegraph office in the New University Building, with accommodations for learners and connections with the Mechanic and Military, the Dormitory and several private houses, making about 3 miles of Telegraph lines. The Students form an association or class, and the members join the University main line, using their own instruments in their rooms. The class appoint their own officers, inspectors, etc., and pay a small contribution for maintaining batteries, etc. At present there are 27 instruments on the line.

SCHOOL OF COMMERCE.

The course in this School is given in Appendix; the first term will be occupied in teaching the principles of book-keeping in general; the second, their application to special lines of business, general business forms and papers; and the third, to the higher operations of a counting house, commercial law and political economy. Students who wish to prepare for a commercial career, and also acquire a general education, may extend this course through two or more years, by taking such collateral studies as their contemplated vocation may render desirable. The studies recommended for this purpose are: English and German, Mathematics, one or two terms of Chemistry (for druggists, etc.) and History, Political Economy and Commercial Law.

SCHOOL OF DOMESTIC SCIENCE AND ART.

This School was put into practical operation the present year, under the chief instruction of Miss Lou C. Allen, late preceptress of the Peoria County Normal School. Classes have been taught through the year, and a full course of studies has been arranged. See Appendix.

The purpose of this School is to provide a full course of instruction in the arts of the household, and the sciences relating thereto. No industry is more important to human happiness and well-being than that which makes the home. And this industry involves principles of science, as many and as profound as those which control any other human employment. It includes the architecture of the dwelling house, with the laws of heating and ventilation; the principles of physiology and hygiene, as applied to the sick and the well; the nature, uses, preservation and preparation of animal and vegetable food, for the healthful and for invalids; the chemistry of cooking; the uses, construction, material and hygiene, of dress; the principles of taste as applied to ornamentation, furniture, clothing and landscapes; horticulture and culture of both house and garden plants; the laws of markets; and the usages of society and laws of etiquette and social life.

Drawing is taught by a skilled instructor, music can be had as an "extra," and Painting will be provided for. Vacation Journals will be required as in the other schools.

HEALTH AND PHYSICAL TRAINING.

A spacious Gymnasium for young women has been fitted up in the Chapel wing, and instruction in calisthenics is given to two or more classes daily. Lectures on health, its conditions, and on other important topics, will be delivered to these classes at suitable intervals, and great pains will be taken to secure, to the utmost possible extent, physical vigor, robust health, and a graceful carriage, and to prepare young women to take enlightened care of their own health and of the health of others under their charge.

Students are requested to come provided with a Gymnastic Suit. The texture of this should be woolen, but other material may be used if lined with flannel. To secure the required freedom of motion, a loosely fitting waist is recommended. The seam on the shoulder should be short, and the belt should measure three or four inches more than the body, to allow the free use and expansion of the respiratory organs. The skirt should reach within nine or ten inches of the floor, and measure three and one-half or four yards around the bottom. Dark solid colors which permit the use of bright trimmings are usually adopted. The preferred uniform is a dark steel gray flannel, or ladies' cloth.

DEPARTMENTS.

EXPLANATIONS.

A department of study embraces a single branch of learning. A School includes studies from several departments, taken to the extent necessary for the purposes of the school. It will be seen that some of the branches can be pursued farther than is required in any of the schools. The numerals indicate years corresponding to those of some of the courses, in Appendix.

AGRICULTURE.

This department embraces a thorough course of instruction in the theory and practice of land culture and cropping in its several varieties; animal husbandry, including stock and dairy farming; sheep and swine husbandry; and the principles of stock breeding. It includes also the principles of the amelioration of soil, veterinary science, and the general management of farming estates.

2. THE FARM—Its measurements and mapping; Subdivisions—meadows, pastures, orchards, woodlands, gardens, etc., fences, hedges. Soil—Chemical elements and chemical treatment, classification, and mechanical treatment, plowing, etc. FERTILIZERS—Composition, manufacture, preservation and application. Drainage. PLANT CULTURE—Structure and physiology of plants; Classes of useful plants, their characteristics, varieties and values. Wheat culture; maize, grass, and root culture. Insects injurious to vegetation.

3. THE FARM—Farm implements—principles of structure and use. Road making. ANIMAL HUSBANDRY—Breeds and varieties of neat cattle, horses, sheep and swine; Principles of breeding, rearing, training, fattening, etc.; Chemical composition of food, and preparation of the several varieties; Poultry; Bees; Veterinary surgery and medicine. FRUIT GROWING. BOOK-KEEPING—Farm book, herd book, etc. RURAL LAW—Tenures and conveyances of land, highways, cattle, fences, noxious weeds, etc.; Laying out estates.

4. AGRICULTURAL ECONOMY—The relation of agriculture to the other industries and to commerce; The several branches of agriculture; Farm buildings; Climate; Influence of light, heat and electricity on soils and vegetable growth; Foreign and ancient farming; Dairy farming and general farm manufactures—cheese, butter, cider, vinegar, etc. History and literature of agriculture.

The instruction is aided by, and illustrated with practical exercises on the Experimental and Stock Farms, and in the management of fine and graded stock of several varieties. But it must be fully understood that it is no part of the business of the department to teach the mere manual processes of plowing, hoeing, harvesting, etc.; these can be learned in the employ of some good practical farmer, such as may be found in every township.

HORTICULTURE.

The studies in this department will include the formation, management and care of gardens, hot-beds, propagating houses, green-houses, nurseries, orchards, tree plantations and ornamental grounds. The instruction will be from text-books and by lectures in the classroom, together with illustrations and applications in the propagating and green-houses, botanical garden and arboretum, and upon the vegetable and fruit grounds.

2. Composition and classes of soils, with reference to their uses; Fertilizers; Vegetable physiology, and laws of growth of plants; Chemical treatment of soils; Manufacture and application of manure; Laying out and mapping of grounds; Mechanical treatment of soils; Drainage; Insects injurious to vegetation.

3. Fruit growing; Planting and treatment of orchards: Forest culture: Management of Nurseries; Propagating, grafting, etc.; Plans of orchards, gardens, etc.; Records; Management of market and vegetable gardens; Small fruit culture.

4. Care of hot and green-houses; Propagating houses; Conservatories; Floriculture; Garden architecture; Ornamentation; Green-house work; Landscape gardening; Ancient and foreign horticulture.

ENGINEERING AND ARCHITECTURE.

See the Schools of engineering and the School of Architecture, pages 27 to 36; also the courses of study in Appendix.

CHEMISTRY.

To accommodate those who have a particular object in view, this department has three special courses of Laboratory work arranged. Also pages 37 and 38, and list of Periodicals.

AGRICULTURAL.

1. Inorganic, Organic, and Agricultural Chemistry; Qualitative and Quantitative Analyses of Salts; Chemical Physics.

2. Analysis of Clays, Marls, Mineral Waters, Manures, Soils and Vegetable Products.

3. Insoluation of Organic Acids and Bases; Estimation of Hydrogen, Carbon, Sulphur, Sugar, Tannin, etc.

4. Analysis of Air, Illuminating Gas, etc.; Study of Poisons.

TECHNICAL AND PHARMACEUTICAL.

1. The same as AGRICULTURAL, except Agricultural Chemistry.

2. Quantitative Analysis of Dolomite, Marl, Silicates, and Ores; Preparation of Acids, Alkalies and Salts.

3. The same as in AGRICULTURAL, with Electroplating, Bleaching, Dyeing, Tanning, and Assaying.

4. Same as in AGRICULTURAL, with Photography.

METALLURGICAL.

1. Inorganic Chemistry; Chemical Physics; Qualitative and Blowpipe Analyses of Alloys, etc.

2. Analysis of Gold, Silver, Copper and other Ores, also Slags of Furnaces; Assays of Bullion, and Ores of Zinc, Antimony, Tin, etc.

3. Analysis of Iron; Steel, Nickel, Cobalt, etc.; Fuel; Electro-Metallurgy; Preservation of Wood; Lime, Mortar, and Cements.

4. Same as in AGRICULTURAL.

NATURAL HISTORY.

The studies in this department begin with the second term in the Colleges of Natural Science and Agriculture. The increased prominence given to this class of studies by the new school laws of the State, will be met by increased efforts to make the instruction as thorough and practical as possible.

1.—BOTANY—Essential parts of plants; Modifications of the root, stem, leaves, flowers, fruits, etc., Laws of Morphology and Terminology; Structural, Physiologic, and Systematic Botany; Microscopic Vegetable Anatomy; Life-work of plants; Classification and distribution of the flowering plants.

2.—BOTANY—Flowerless plants; Anatomy and physiology of injurious plants; Lectures upon vegetable physiology; Practical work with microscopes. LECTURES introductory to the study of Natural History. Illustrated lectures on Human Anatomy and Physiology. Systematic ZOOLOGY—Principles of Classification; Characteristics of Departments, Classes, Orders, etc. ENTOMOLOGY of injurious and beneficial insects.

3.—COMPARATIVE ANATOMY—Modification of plan by which animals are adapted to the various conditions of existence, in respect to respiration, circulation, embryology, peculiar modes of reproduction and development, geological and geographical distribution, etc. GEOLOGY—Forces known to produce observed phenomena in the crust of the earth; Characteristics of the rocks, stratified and unstratified, constituent elements, crystalline structure, etc. Historic Development of the Earth, as revealed by Palæontology, or the entombed Fossils of the primeval inhabitants.

4.—GEOLOGY—History of the origin and progressive phases of the Science. PHYSICAL GEOGRAPHY and METEOROLOGY—Principles of the phenomena manifest in the Life of the Earth, or of the Earth's Physiology; Topography and Geology of Illinois, with excursions of observation and practical work.

ENGLISH LANGUAGE AND LITERATURE.

In the arrangement of the studies in this department, the endeavor is to present a thorough and extended drill in grammatical and philological study, and in the authors and history of the English Language, affording a training equivalent to the ordinary studies of the classical languages. The course extends through three years, but may be shortened according to the ability and preparation of the student.

Weekly essays, forensics, plans and criticisms are required. Instruction in Anglo-Saxon will be given to those who desire it. See the College of Literature and Science, Appendix, and the course of study in Languages, the "Library," and "Periodicals," also in Appendix.

Sources and History of the English Language; Advanced Grammar; Principles of Composition; Philological and Grammatical Analysis of Authors; History of their times and Contemporaries.

Rhetoric, Reading and Analysis of Shakespeare and the early Dramatists, Spenser, Chaucer, Gower, etc.

History of English and American Literature; Elements of Criticism; Principles of Taste; Methods of Philological Study, etc.

MODERN LANGUAGE AND LITERATURE.

Instruction in this department is given in the French and German languages. Two years are devoted to each, the first enabling the student to read scientific works, the second completing the course.

GERMAN.

1. Otto's German Grammar—Otto's Reader.
2. Whitney's Classic Reader—Reviews of Grammar (in German) Composition—German Classics selected.

FRENCH.

1. Otto's French Grammar—Otto's French Reader.
2. Classic Reader—Review of Grammar, (Chapsal and Noel, in French) Composition—Pylodet Literature Contemporaine.

LATIN.

See Appendix for preparatory, and collateral studies. Other Authors may be substituted for those given below.

1. Cicero d'Amicitia; Livy; Odes of Horace; Roman History; Archæology; Prose Composition; Prosody; Written Translations and Comparison of parallel and equivalent idioms.
2. Horace—Satires and Ars Poetica; Juvenal; Quintilian; Roman History and Archæology, continued.
3. Cicero d'Officiis; Tacitus; Origin and Structure of the Language; Relations of the Latin and English Languages.

GREEK.

See page 40 for preparatory, and appendix for collateral studies. Other authors may be substituted for those below given.

1. Xenophon's Anabasis—4th book; Herodotus; Thucydides.
2. Iliad and Demosthenes de Corona.
3. Selections from Greek Tragedy; Xenophon's Memorabilia; Plato; Greek Philosophy.

HISTORY AND SOCIAL SCIENCE.

The studies afford a general view of the history, social organization and progress of the race. They embrace also the history of the Arts and Sciences, and of Civilization, the principles of civil polity and law, the philosophy of history, and the principles of political economy and constitutional law. The instruction is given chiefly by lectures,

with readings of specified authors, and the study of historical geography and chronology. The course occupies three terms in the third and fourth years of the University Courses.

3. Ancient History of Greece and Rome, with notices of other nations; Ancient Geography, Mediæval History, Modern History, general European History. European Geography.

4. Constitutional History of England and of the United States—five lectures a week. History of Civilization, analysis of historical forces and phenomena, notices of the arts and of the inductive sciences, Political Economy.

PHILOSOPHY AND LOGIC.

The studies of this department are taught chiefly by lectures, with readings of specified authors and written essays.

4. FIRST T. Mental Philosophy. Analysis and classification of mental phenomena; Theories of perception, imagination, memory, judgment, reason, intuition. Doctrines of the absolute and the unconditioned. Philosophy of Education. SECOND T. Moral Philosophy. Theory of Conscience, Nature of Moral obligation, Moral Feeling. The Right. The Good. Practical ethics; Duties. Formation of character. Logic, formal and inductive. THIRD T. History of Philosophy. Ancient Schools of Philosophy, Scholasticism, Modern schools of philosophy. Influence of philosophy on the progress of civilization and on modern sciences and arts.

PURE MATHEMATICS.

1. GEOMETRY. Facts and principles, demonstrated, illustrated and applied, with reference to right-lines, circles, angles, triangles polygons, planes, solid angles, prisms, pyramids, cylinders, cones and spherical surfaces, and the measurement of their lengths, areas and volumes. ALGEBRA. Powers, roots and radicals of any degree; Binomial Theorem, Properties and summation of series, Exponential quantities, Logarithms. General theory and methods of solving equations. ADVANCED GEOMETRY. Application of Algebra to Geometry, Transversales, Harmonic Proportion, etc. TRIGONOMETRY. Analytical, Plane and Spherical. Relations between the functions of an arc, Formation and use of tables, Solution of plane and spherical triangles.

2. ANALYTICAL GEOMETRY. Construction of equations by means of co-ordinates; Discussion in a plane of the point, right-line, circle, ellipse, parabola and hyperbola; Higher plane curves, cycloid, cissoid of Diocles, etc. DIFFERENTIAL CALCULUS. Differentials of algebraic and transcendental functions, Maclaurin's Theorem, Taylor's Theorem, Maxima and minima of functions, Equation of Tangents, normals, sub-tangents, sub-normals, etc.; Differentials of lines, surfaces and volumes. INTEGRAL CALCULUS. Integration of known forms and of rational fractions, Rectification of curves, quadrature of plane areas and surfaces of revolution, and cubature of solids of revolution.

3. ANALYTICAL GEOMETRY, Loci in space; Surfaces of the second order. DIFFERENTIAL CALCULUS. Differentials and maxima and minima of functions of two or more variables, Osculatory curves radius of curvature; Evolutes, involutes, envelopes; Discussion of algebraic and transcendental curves and surfaces; Tangent plane and normal,

Partial differentials of surfaces and volumes. INTEGRAL CALCULUS, Integration of transcendental and irrational differentials, Differentials of higher orders, Differential equations, Rectification, quadrature and cubature in general; Calculus of Variations.

PHYSICS.

The department of physics is amply provided with illustrative apparatus for use in the lecture room, and an extensive Physical Laboratory has been instituted in the New Building. The laboratory is adjacent to the physical lecture room; connected by sliding doors so that the apparatus is convenient either for use in the lectures, or for the laboratory work. Instruction in physics embraces four kinds of work:

1. Recitation, four exercises a week in which a text-book is used as a guide.
2. Physical experiments one day each week in which the student uses the instruments in testing the principles taught.
3. Illustrated experiments one evening each week in which the more costly apparatus is used before the whole class, in such experiments as are difficult to perform and which are most effective when prepared for an audience.
4. The higher physical experiments by advanced classes consisting either of researches, or of reviews of careful and elaborate experiments previously worked up by others.

To prepare for the last named work, the student should have pursued Physical studies at least one term in the first three.

The laboratory and the lecture room are in the first story above the chapel, and occupy the same amount of floor. During the past year about \$3000, worth of instruments have been added to the laboratory outfit, and another \$1000, is already allowed for its further enlargement. The collection of instruments embraces Acoustic apparatus from R. Koenig of Paris; apparatus for Heat and Molecular physics from J. Salleron of Paris; for Light, Optics and Electricity from Stoehrer of Leipsic, and Browning and Newton of London; Pneumatic and Electrical apparatus from E. S. Ritchie of Boston; and a number of pieces prepared at the Mechanical Shops of the University.

ASTRONOMY AND GEODESY.

Temporary arrangements have been made for Observatory Practice by the erection of a small observatory and the mounting of instruments of convenient size for students' use. DESCRIPTIVE ASTRONOMY is given by lectures, with Lockyer's *Astronomy* for a text-book. The Equatorial Telescope is in constant use during the favorable weather. PRACTICAL ASTRONOMY is given by lectures, practical work with the Meridian Circle, Sextant, Theodolite, etc., and Astronomical Calculations. GEODESY is given by lectures, practice and calculations. Some first-class instruments have been ordered and trigonometrical stations will be erected.

MISCELLANY.

DRAWING.

Complete Courses in Geometrical and Projection, Architectural Engineering, Mechanical and Free-hand Drawing are given. FREE-HAND DRAWING is given by personal instruction in the execution, with pencil and crayon, of "studies" by celebrated French and German artists, and in drawing from plaster models and other objects. The selections are made from a large and valuable stock purchased in Europe. Painting in Oil and Water colors will be provided for.

MODELLING IN CLAY has been recently introduced as an adjunct study in the Architectural course. It is taught by an educated Sculptor, a graduate of the Fine Art School of Louvain in Belgium.

MUSIC.

Instruction is provided for on the Piano and Organ. This is charged for at the rate of \$10 for term of 20 lessons; and if a University instrument is used for practicing, the charge per term for such use is \$2 for each daily practice. The class meets weekly for public practice, and at the end of the term they are examined in public and marked, as in the other classes.

EXAMINATIONS.

Frequent examinations will be held to test progress of study, and to determine each student's fitness to remain in his classes. The University insists on thoroughness in its own proper studies.

Regular examinations of all the classes are made at the close of each term. A record is kept of each student's standing and from this his final certificate of graduation is made up.

CERTIFICATES.

Under the law, any one who remains a year at the University, and maintains a satisfactory standing in his studies and in character, is entitled, on leaving the University, to a certificate of his studies and standing.

The full certificate of the University will be given to those only who have satisfactorily completed a *four years'* course in some one of

the colleges. Each certificate will state the college and course pursued, the actual studies taken, and the number of terms, with standing in each marked on a scale of 100. Hence, each diploma will have just so much value as the student shall have given it, by a more or less thorough mastery of his studies.

COUNTY SUPERINTENDENTS' CERTIFICATES.

To prevent pecuniary loss to those living at a distance, who are not prepared to enter the University, but might come, hoping to pass the examinations for admission, the following arrangement has been made:

County Superintendents of Schools will be furnished with questions and instructions for the examination of candidates, and those who pass creditably will, when they present the Superintendent's certificate to that effect, be admitted to the University Classes. They will pay their fees but their Matriculation Papers may be withheld until they shall have passed the regular examinations of their first term.

Applicants not personally known to a Superintendent must present to him introductory letters, and satisfy him as to their moral character.

DORMITORIES AND BOARD.

There are in the several University Buildings about one hundred private rooms, which are rented to the students who first apply. Each room is of ample size for two students, and is without furniture, as it is thought best that the students shall provide their own.

There are many boarding houses near the University, where either table board, or board and rooms can be obtained, with the advantages of the family circle. Boarding clubs are also formed by the students, by which the cost of meals may be reduced to \$2 per week. Many students prefer to prepare their own meals, and thus reduce expenses still farther.

Coal is purchased at wholesale, and furnished to the students at cost.

For estimated expenses see page 54.

LADIES' BOARDING HALL, OR STUDENTS' HOME

Until a proper University building can be thoroughly refitted and devoted to the use of lady students, and to the School of Domestic Science and Art, young ladies may find suitable accommodations and care at the Hall, which has been opened near the University. This Home can furnish about thirty rooms suitable for two students each — twelve on first floor, twelve on second floor, and six on third floor. The following prices are for rooms on the second floor. Rooms on the first floor will be from ten to fifteen per cent. higher, and rooms on third floor will be forty per cent. lower. Where a student desires room and furniture alone for herself, eighty per cent. will be added for the room and furniture. Tea and Coffee are extra. If ladies do not claim all of the rooms, gentlemen can have rooms in one wing of the building. Gentlemen who room elsewhere are admitted to the tables. Prices are as follows; monthly in advance for food only, per week \$2,50. For food with unfurnished room \$2,90. For food and room with ward-

robe, bedstead, table, washstand, stove and two chairs, \$ 3.30. Food and room furnished with bed and bedding, plain carpet, window curtains, looking glass, wash bowl, pitcher and towels, \$ 3.75. All rooms to be neatly cared for by the occupants. All articles broken to be paid for or replaced, and all rooms to be open for inspection, and supervision of the Stewart and Matron. Address A. N. PAGE.

LABOR.

Labor is not compulsory, but is furnished as far as possible to all who desire it. It is classified into Educational and Remunerative labor.

Educational Labor is designed as practical instruction, and constitutes a part of the course in several schools. Students are credited with their proficiency in it as in other studies. Nothing is paid for it.

Remunerative Labor is prosecuted for its products, and students are paid what their work is worth. Those desiring employment must join the *Labor Classes*, which labor from two to four hours a day. The maximum rate paid for farm, garden and shop labor is *ten cents*, and for that about the buildings and ornamental grounds, *eight cents per hour*. Efficient students, who desire to earn more money, can often obtain work for extra hours; or they may be allowed to work by the piece or job, and thus, by diligence or skill, secure more.

Some students, who have the requisite skill, industry and economy, pay their entire expenses by their labor; but, in general, young men cannot count upon doing this at first, without a capital to begin with, either of skill, or of money to serve them till a degree of skill is acquired. With this, however, and with a judicious use of time during vacations, many students have been able to meet their entire expenses.

UNIVERSITY UNIFORMS.

Under the authority of the act of incorporation, the Trustees have prescribed that all the male students, after their first term, shall wear the University uniform. The University cap is to be worn from the first. This uniform consists of a suit of cadet grey mixed cloth, of the same color and quality as that worn at West Point, and manufactured by the same establishment. Students can procure them ready-made on their arrival here. The University cap is of dark blue cloth, and is ornamented in front with the initials I. I. U. surrounded by a silver wreath. Students will always wear their uniforms on parade, but in their rooms and at recitations may wear other clothing.

FINE ART GALLERY.

During the past year there has been added to the attractions of the University a large collection of Statuary and pictures, the gift of the Citizens of Champaign and Urbana. A beautiful Hall, nearly 60 by 80 feet, has been fitted up as an Art Gallery, and the large and beautiful display of Art objects in it surprises and delights all visitors. Many have come from a distance to see it, and several High Schools have made excursions to visit it. There is, perhaps, no Collection in

the West that equals it in the number and value of its Specimens. Many of the great master pieces of Sculpture, are here exhibited in casts taken directly from the originals. The value of this splendid Collection as a means of Education is already exhibiting itself in the several Drawing Departments.

PERIODICALS IN THE LIBRARY.

AGRICULTURAL AND HORTICULTURAL—American Agriculturist, Cultivator and Country Gentleman, California Farmer, Journal d'Agriculture Pratique, Michigan Farmer, New England Farmer, National Live Stock Journal, Prairie Farmer, Rural New Yorker, Rock River Farmer, Southern Cultivator, Gardners' Chronicle, London Agricultural Gazette, New England Homestead, Western Agriculturist, Western Rural, Williamette Farmer, Gardeners' Monthly, Horticulturist, Revue Horticole.

ENGINEERING—Encyclopedie d'Architecture—Paris, Engineering—London, Art Journal—London, Architectonisches Skizzenbuch—Berlin, Engineering News, Railroad Gazette, Scientific American, The Builder—London, The Workshop, Van Nostrand's Eclectic Engineering Magazine.

SCIENTIFIC—American Chemist, American Journal of Science, American Naturalist, Annalen der Chemie, British Microscopic Journal, Comptes Rendus—Paris, Geological Magazine—London, Journal of the Franklin Institute, Nature—London, Polytechnisches Journal, Philosophical Magazine—London, Popular Science Monthly, Astronomical Register—London, Mathematical Quarterly, Official Patent Office Gazette, Patent Right Gazette, Industrial Bulletin, Science of Health.

LITERARY—Edinburgh Review, London Quarterly, The Nation, North American Review, North British Review, Revue des Deux Mondes, Scribner's Magazine, Deutsche Rundschau, Atlantic Monthly, International Review, Dollar Monthly, The Arcadian, New England Journal of Education, New York Observer.

NEWS—Champaign County Gazette, Centralia Sentinel, Illinois Staats Zeitung, Rantoul News.

STUDENTS' FUNDS.

The Business Agent will receive on deposit any funds parents may desire to intrust to him to meet the expenses of their sons. No greater error can be committed than to send boys from home with large amounts of spending money, without the authoritative care of some prudent friend. Half the dissipation in Colleges springs from excessive allowances of money. Students have little real need for money beyond that required for fees, board bills and books.

CALENDAR FOR 1875.

Baccalaureate Address in University Chapel.....	June 6.
Third Term Examinations commence.....	June 4.
Senior Class Examinations.....	May 31.
Class Day.....	June 7.
Society Addresses.....	June 8.
Commencement Day, Wednesday.....	June 9.

Vacation of fourteen weeks.

Examinations for Admission, Tuesday.....	September 14.
First or Fall Term begins Tuesday.....	September 14.
First Term Examinations begin.....	December 21.
Closing of the First Term.....	December 22.

Vacation of two weeks.

FOR 1876.

Examinations for Admission to Advanced Classes.....	January 4.
Opening of the Second or Winter Term Tuesday.....	January 4.
Anniversary Day.....	March 11.
Second Term Examinations begin.....	March 21.
Second Term closes.....	March 22.
Third or Spring Term begins.....	March 22.
Third Term Examinations commence.....	June 2.
Baccalaureate Sermon in University Chapel.....	June 4.
Class Day.....	June 5.
Society Addresses.....	June 6.
Commencement, Wednesday.....	June 7.

Vacation of Fourteen Weeks.

EXPENSES.

THE TUITION IS FREE in all the University Classes.

THE MATRICULATION FEE entitles the Student membership in the University untill he completes his Studies, and must be paid before he enters. Amount..... \$10 00

THE TERM FEE for Incidental Expenses is, per Student..... 5 00

Room Rent in a University Dormitory, each Student per Term. 4 00

Each Student in the Chemical and Physical Laboratories, and in the Draughting and Engineering Classes, is required to make a deposit varying from 50 cents to \$8. to pay for chemicals used and for any breakages or damages.

ALL BILLS due the University *must be paid, and the receipt of the Treasurer shown to the Regent before the Student can enter the Classes.*

The following are the estimated Maximum and Minimum Annual Expenses, exclusive of books and clothing, of a residence of thirty-six weeks at the University:

	MIN.	MAX.
Term Fees and Room Rent for each Student.....	\$ 27 00	\$ 27 00
Table Board in Boarding Houses and Clubs.....	72 00	144 00
Fuel and Light.....	10 00	15 00
Washing, at 75 cents per dozen.....	13 50	27 00

Total Annual Amount.....	\$122 50	\$213 00
Board and Room in Private Houses, per week....	\$ 4 00	\$ 6 00

APPENDIX.

EXPLANATIONS.

The following Courses have been arranged for the Schools of the University, as stated upon page 22. Students who are to graduate in a school must follow the studies assigned to that school. Where two studies are taken up consecutively in the same term, the time devoted to each is indicated by the proper numeral, followed by w. for weeks. Each study not otherwise marked, will occupy one hour each school day. Variations from this are indicated by placing after the study a numeral indicating the number of hours per week required.

Every student is expected to select a course and adhere to it as closely as he can.

COURSE 1; SCHOOL OF AGRICULTURE.

FIRST YEAR.

1. Plane Geometry; Chemistry, 2 & Laboratory, 6; English or French.
2. Botany; Chemistry 2, & Laboratory, 6; English or French.
3. Botany; Chemistry & Laboratory Practice, 10; English or French.

SECOND YEAR.

- 1 Agriculture; Anatomy and Physiology; French, or Analytical Chemistry, 10
- 2 Agriculture; Cryptogramic Botany; French, or Analytical Chemistry, 10.
- 3 Drainage; Farm Surveying, and Mapping, 10; Entomology; French, or Analytical Chemistry, 10.

THIRD YEAR.

- 1 Orchards and Forests; Anat. and Phys. of Domestic Animals; History.
- 2 Veterinary Science. Geology; Physics, or History.
- 3 Veterinary; History, or Physics.

FOURTH YEAR.

1. Ag'l Book Keeping & Rural Law; Mental Philosophy; Constitutional History.
2. Practical Agriculture; Physical Geography and Meteorology; Rural Architecture, or Logic.
3. Landscape Gardening; Political Economy; History; Philosophy; Thesis.

COURSE 2, SCHOOL OF HORTICULTURE.

FIRST YEAR.

Same as Agricultural Course.

SECOND YEAR.

Same as Agricultural Course.

THIRD YEAR.

1. Orchards and Forests; Drawing, 10; History.
2. Small Fruits and Vegetables and Propagation of Plants; Geology; History or Physics.
3. Drawing, 10; History; Physics.

FOURTH YEAR.

1. Floriculture and Garden Architecture, Mental Philosophy, Constitutional History.
2. Geography and Meteorology, History of Civilization, Logic.
3. Landscape Gardening, Political Economy, History of Philosophy, Thesis.

COURSE 3; MECHANICAL ENGINEERING.**FIRST YEAR.**

- 1.** Advanced Algebra; Projection drawing; English or French.
- 2.** Advanced Geometry; Free-hand Drawing, 10; English or French.
- 3.** Plane and Spherical Trigonometry; Drawing and Clay Modelling; English or French.

SECOND YEAR.

- 1.** Designing and Drawing, 10; Advanced Descriptive Geometry and Drawing; French or German.
- 2.** Shop Practice and Drawing, 10; Analytical Geometry; French or German.
- 3.** Shop Practice, 10; Calculus; French or German.

THIRD YEAR.

- 1.** Principles of Mechanism; Calculus; Principles of Chemistry; Vacation Journal and Memoir.
- 2.** Analytical Mechanics; Physics; Shades, Shadows, and Perspective, 10.
- 3.** Analytical Mechanics, 3; Descriptive Astronomy, 4; Physics; Chemical Laboratory Practice, 10.

FOURTH YEAR.

- 1.** Resistance of Materials, and Hydraulics; Thermodynamics and Pneumotics; Geology or Mental Philosophy; Vacation Journal and Memoir.
- 2.** Prime Movers, Millwork; Finished Machine Drawings, 10; History of Civilization; Experimental Physics, 10.
- 3.** Millwork and Machines; Designs and Estimates, 10; Political Economy; Thesis.

COURSE 4; SCHOOL OF CIVIL ENGINEERING.**FIRST YEAR.**

- 1.** Advanced Algebra; Projection Drawing 4w, 10; English or French.
- 2.** Advanced Geometry; Free-Hand Drawing, 10; English or French.
- 3.** Plain and Spherical Trigonometry; Free-Hand Drawing, 10; English or French.

SECOND YEAR.

- 1.** Land Surveying and Drawing, 10; Higher Descriptive Geometry and Drawing; French or German.
- 2.** Topographical and Right-line Drawing, 10; Analytical Geometry; French or German.
- 3.** Topographical Surveying and Drawing, 10; Calculus; French or German.

THIRD YEAR.

- 1.** Railroad Surveying and Drawing, 10; Calculus; Principles of Chemistry; Vacation Journal.
- 2.** Analytical Mechanics; Physics; Shades, Shadows, and Perspective, 10; Astronomy, 2.
- 3.** Analytical Mechanics; Astronomy 2; Physics; Chemical Laboratory Practice, 10.

FOURTH YEAR.

- 1.** Resistance of Materials, Hydraulics; Higher Engineering and Geodesy; Geology or Mental Philosophy; Vacation Journal and Memoir.
- 2.** Bridge Construction and Trusses; Finished Engineering Drawings, 10; History of Civilization.
- 3.** Stone Work, 8; Architectural Drawing, 8; Political Economy; Thesis.

COURSE 5; SCHOOL OF MINING ENGINEERING.

FIRST YEAR.

- 1 Advanced Algebra; Descriptive Geometry and Drawing, 10; English or French.
- 2 Advanced Geometry, Free-hand Drawing, 10; English or French.
- 3 Plane and Spherical Trigonometry; Free-hand Drawing, 10; English or French.

SECOND YEAR.

- 1 Surveying and Drawing, 10; Advanced Descriptive Geometry; German.
- 2 Topographical and Right-line Drawing, 10; Analytical Geometry; German.
- 3 Topographical Surveying and Drawing, 10; Calculus; German.

THIRD YEAR.

- 1 Railroad Surveying and Drawing, 10; Calculus; Principles of Chemistry; Vacation Journal and Memoir.
- 2 Analytical Mechanics; Physics; Chemical Laboratory Practice, 10.
- 3 Mineralogy and Crystallography; Physics; Descriptive Astronomy, 4; Chemical Laboratory Practice, 10.

FOURTH YEAR.

- 1 Hydraulics, and Strength of Materials, 8; Chemical Laboratory Practice, 10; Geology or Mental Philosophy; Vacation Journal and Memoir.
- 2 Assaying; Mining Engineering, Metallurgy.
- 3 Mining Drawings, 10; Metallurgy, Geology of Mining Districts, Thesis.



COURSE 6, SCHOOL OF ARCHITECTURE.

FIRST YEAR.

- 1 Advanced Algebra, 5; Projection Drawing, 10; English or French, Shop Practice, Optional 10.
- 2 Advanced Geometry, 10; Free-hand Drawing, 10; English or French, Shop Practice, Optional, 10.
- 3 Trigonometry, 5; Free-hand Drawing, 10; English or French, Shop Practice, Optional, 10.

SECOND YEAR.

- 1 Elements of Construction, 10; Descriptive Geometry, 10; Ornaments or French.
- 2 Advanced Shop Practice, 10; Analytical Geometry, Modelling in Clay, 10; or French.
- 3 Calculus, 5; Modelling in Clay or Plaster, 10; Surveying and Levelling, 10.

THIRD YEAR.

- 1 History of Architecture, Calculus or Composition of Ornament, Architectural Drawing, 10.
- 2 History of Architecture, Shades, Shadows and Perspectives, 10; Physics.
- 3 History of Architecture, Architectural Designing, 10; Physics.

FOURTH YEAR.

- 1 Strength of Materials, Hydraulics, Estimates, Architectural Designing, 10.
- 2 Bridges, Trusses, Heating and Ventilation, 6w; Specifications, Agreements, etc., 6w; Architectural Designing, 10.
- 3 Stone Work, 10; Æsthetics of Architecture, 5; Thesis, Political Economy.

COURSE 7, SCHOOL OF NATURAL HISTORY.

FIRST YEAR.

- 1 Chemistry and Laboratory, Geometry, English or Latin.
- 2 Botany, Chemistry, English or Latin.
- 3 Advanced Botany, Chemistry, English or Latin.

SECOND YEAR.

- 1 Anatomy and Physiology, Mineralogy, French or English.
- 2 Zoology, Cryptogamic Botany, French or English.
- 3 Zoology, Special Entomology, French or English.

THIRD YEAR.

- 1 Ancient History, Drawing, German or English.
- 2 Geology, Physics, Medieval History, or German.
- 3 Geology, Physics, German or Modern History, Descriptive Astronomy, 2.

FOURTH YEAR.

- 1 Geology, Mental Philosophy, Constitutional History.
 - 2 Meteorology and Physical Geography, History of Civilization, Logic.
 - 3 History of Philosophy, Political Economy, Drawing or Modelling, or Laboratory Work. Thesis.
-

COURSE 8, SCHOOL OF CHEMISTRY.

FIRST YEAR.

- 1 Chemistry and Laboratory, Geometry, English or Latin.
- 2 Chemistry and Laboratory Practice, 10; Algebra, English or Latin.
- 3 Organic Chemistry, Laboratory Practice, 10; Trigonometry, English or Latin.

SECOND YEAR.

- 1 Chrystallography and Mineralogy, Analytical Chemistry, 10; Anatomy and Physiology, French or English.
- 2 Analytical Chemistry, 10; Botany, Analytical Geometry or French or English.
- 3 Analytical Chemistry, 10; Advanced Botany or Entomology, Calculus.

THIRD YEAR.

- 1 Practical Chemistry, 10; History, Drawing or German.
- 2 Practical Chemistry, 10; Physics, Mediaeval History or German.
- 3 Practical Chemistry, 10; Physics, Modern History or German.

FOURTH YEAR.

- 1 Chemical Researches, 10; Geology, Mental Philosophy.
- 2 Chemical Researches, 10; Meteorology and Physical Geography, Hist. of Civ.
- 3 Thesis, 10; Political Economy, History of Philosophy.

COURSE 9, SCHOOL OF ENGLISH AND MODERN LANGUAGES.

FIRST YEAR.

- 1 Elements of English or French, Geometry, Chemistry.
 2 American Authors, French, Algebra, Free-hand Drawing, 10; or Chemistry.
 3 British Authors, French, Trigonometry, Botany.

SECOND YEAR.

- 1 Rhetoric, French or German, Advanced Algebra, or Anatomy and Physiology
 2 English Classics, French or German, Analytical Geometry or Zoology.
 3 English Classics, French or German, Calculus or Entomology.

THIRD YEAR.

- 1 English Classics, German, Ancient History.
 2 English Classics or German, Medieval History, Geology.
 3 Æsthetics or German, Modern History, Geology or Astronomy.

FOURTH YEAR.

- 1 Mental Science, Constitutional History, Geology.
 2 History of Civilization, Physical Geography or Physics, Logic.
 3 History of Philosophy, Political Economy, Physics, Oration or Essay.

COURSE 10, SCHOOL OF ANCIENT LANGUAGES AND LITERATURE

FIRST YEAR.

- 1 Cicero de Amicitia, and Prose Composition, Geometry, Anabasis—4th Book,
 and Prose Composition.
 2 Livy and Roman History and Prose Composition, Herodotus and Prose Com-
 position, or Chemistry, Algebra.
 3 Horace—Odes, Prosody, Roman History, Trigonometry or Chemistry, Thu-
 cydides or Botany.

SECOND YEAR.

- 1 Horace—Satires and Ars Poetica, Advanced Algebra or Anatomy and Physi-
 ology, Iliad and Greek Prosody.
 2 Juvenal, Analytical Geometry or Zoology, Illiad.
 3 Quintilian, Calculus or Entomology, Demosthenes de Corona.

THIRD YEAR.

- 1 Cicero de Officiis, Ancient History, Selections from Greek Tragedy.
 2 Tacitus, Mediæval History or Geology, Xenophen's Memorabilia.
 3 Tacitus, Modern History or Geology, Plato and Grecian Philosophy.

FOURTH YEAR.

- 1 Mental Science, Constitutional History, Geology.
 2 Logic, History of Civilization and the Arts, Physical Geography or Physics.
 3 History of Philosophy, Political Economy, Physics, Oration or Essay.

COURSE 11; SCHOOL OF MILITARY SCIENCE.

FIRST YEAR.

- 1 School of the soldier. Bayonet fencing, and Skirmish Drill. 2.
- 2 School of Company and Battalion. Bayonet fencing. 2.
- 3 School of Battalion (completed). Ceremonies and Reviews. Skirmish Drill. 2.

SECOND YEAR.

- 1 Brigade and Division Evolutions. Sword fencing. 2.
- 2 Guards, outpost and picket duty. Sword fencing. 2.
- 3 Military Administration. Reports and Returns. Theory of fire-arms. Target practice. 2.

THIRD YEAR.

- 1 Organization etc. of armies. Art of war. 1.
 - 2 Artillery and Cavalry tactics—theoretical. Sword fencing. 2.
 - 3 Engineering, and Field Fortifications. Target practice. 1 to 2.
-

COURSE 12; SCHOOL OF COMMERCE.

- 1 Bookkeeping by single and double entry. Theory of mercantile accounts, and the several principal and auxiliary books. Penmanship. Commercial calculations; English or German; Mathematics, Chemistry or History.
 - 2 Partnership Accounts. Commission and Shipping. Farm Books. Business Forms and Papers. Notes, Drafts, Exchange, Endorsements. Bills of Lading. Accounts Current. Account Sales. Inventories, Invoices, etc. Commercial Correspondence; English or German; Mathematics or Chemistry.
 - 3 Banking. Brokerage. Railway Accounts; Political Economy or Commercial Law; English, German or Mathematics.
-

COURSE 13, SCHOOL OF DOMESTIC SCIENCE AND ART.

FIRST YEAR.

- 1 Chemistry, Geometry or Projection Drawing, English.
- 2 Chemistry, Botany or Algebra or Free-hand Drawing, English.
- 3 Botany, Designing and Drawing, English.

SECOND YEAR.

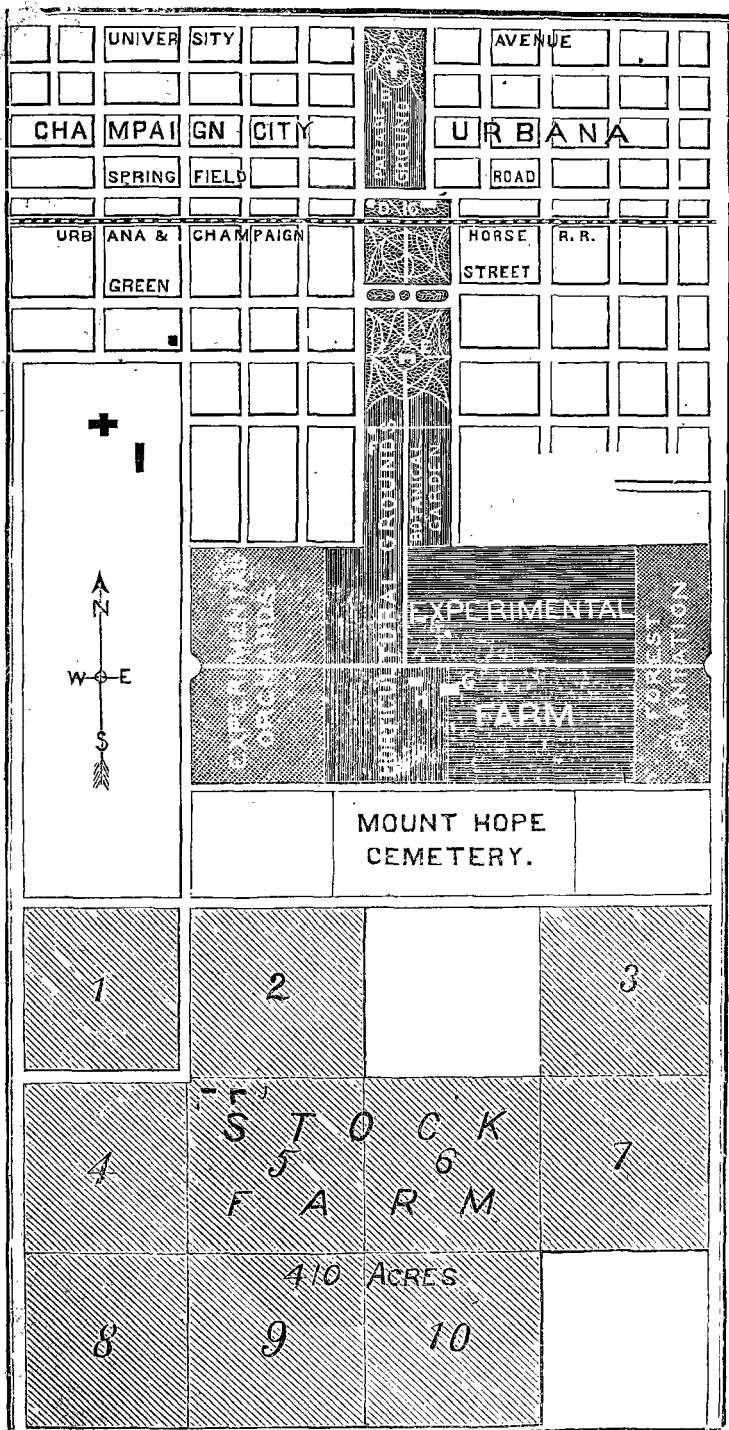
- 1 Chemistry of Foods, Physiology, English, German or French.
- 2 Principles of Cooking, Zoology or Book-keeping, English or German or French.
- 3 Domestic Hygiene, Zoology or Mineralogy and Entomology, English or German or French.

THIRD YEAR.

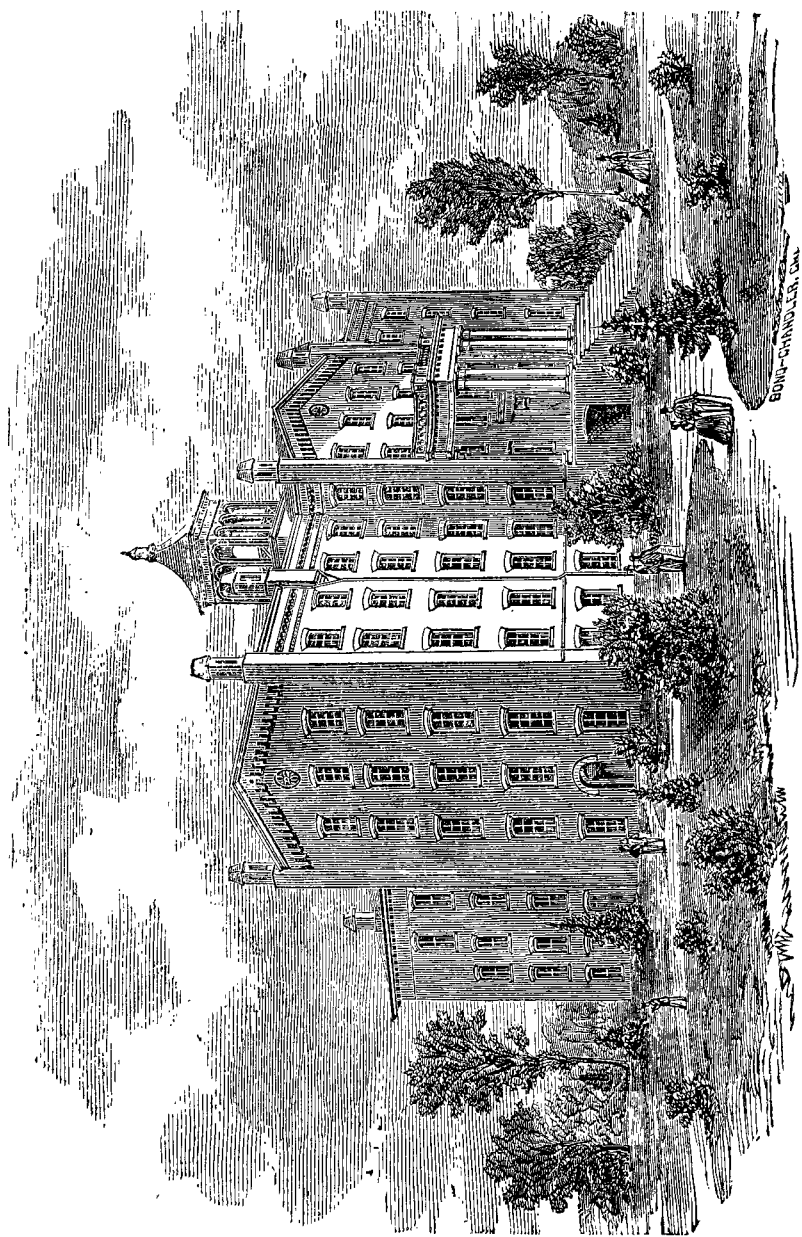
- 1 Architectural Designing, Ancient History or Zoology, German or French.
- 2 Home Architecture, Physics or Medieval History, German or French.
- 3 Æsthetics of the Household, Physics or Modern History, German or French

FOURTH YEAR.

- 1 Heating, Ventilation and Illumination, 6w; Domestic Hydraulics, 8w; or Constitutional History, Mental Science.
- 2 Propagation of Plants, Moral Philosophy and Logic, History of Civilization.
- 3 Domestic Economy, Usages of Society, &c., Political Economy, Landscape Gardening.



MAP OF UNIVERSITY GROUNDS.



BOULDER, COLORADO, U.S.A.

UNIVERSITY DORMITORY.