

From Dr. D. C. Stanton '79

CATALOGUE.

ILLINOIS

Industrial University.



1874-75.

CORNER CLARK & ADAMS STREETS.

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CATALOGUE AND CIRCULAR.

ILLINOIS

INDUSTRIAL UNIVERSITY.

LEARNING AND LABOR.

1874.

CHICAGO:
LAKESIDE PUBLISHING AND PRINTING COMPANY,
CORNER CLARK AND ADAMS STREETS.

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COL. SAMUEL W. SHATTUCK,
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COL. EDWARD SNYDER,
PROFESSOR OF MODERN LANGUAGES AND MILITARY TACTICS.

DON CARLOS TAFT,
PROFESSOR OF GEOLOGY AND ZOOLOGY.

J. BURKITT WEBB,
PROFESSOR OF CIVIL ENGINEERING.

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

HON. WILLARD C. FLAGG,
SUPERINTENDENT OF THE EXPERIMENTAL FARM.

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

* _____,
PROFESSOR OF AGRICULTURE.

EDWARD L. LAWRENCE,
HEAD FARMER.

* To be appointed before the next year opens.

INSTRUCTORS AND ASSISTANTS.

N. CLIFFORD RICKER,
INSTRUCTOR IN ARCHITECTURE.

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

JAMES D. CRAWFORD,
INSTRUCTOR IN ANCIENT LANGUAGES.

ALEXANDER C. SWARTZ,
ASSISTANT IN CIVIL ENGINEERING AND FOREMAN OF CARPENTER SHOPS.

CHARLES I. HAYS,
FLORIST AND ASSISTANT IN BOTANY.

PANAJIOTTIS GENNADIUS,
ASSISTANT IN FRENCH.

ELNA A. ROBINSON,
ASSISTANT IN MECHANICAL ENGINEERING AND FOREMAN OF MACHINE SHOPS.

JAMES P. CAMPBELL,
ASSISTANT IN MATHEMATICS.

GEORGE R. SHAWHAN,
ASSISTANT IN MATHEMATICS.

MELVILLE A. SCOVELL,
ASSISTANT IN CHEMICAL LABORATORY.

ARTHUR M. BARNES,
ASSISTANT IN CHEMICAL LABORATORY.

FERNARDO A. PARSONS,
ASSISTANT IN BOOKKEEPING.

CHARLES P. JEFFERS,
ASSISTANT IN CHEMICAL LABORATORY.

LIST OF STUDENTS.

EXPLANATION.

The figures after the names indicate 1st, 2d, 3d and 4th year students. The courses of studies are indicated as follows: El., Elective; 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.

GENTLEMEN.

NAMES.	COURSE.	P. O. ADDRESS.
ABBOTT, BYRON DAVID	1 El.	Mahomet.
ABBOTT, THEO. SPERRY	1 Min E.	Union Grove.
ADAMS, CHAS. F.	1 Ag'l.	Urbana.
ADAMS, G. C.	3 Ag'l.	Champaign.
ALFRED, B.	1 Chem.	Champaign.
ALLEN, CHAS. W.	1 Ag'l.	Harristown.
ALLEN, H. C.	2 Ag'l.	Harristown.
ALLEN, E. A.	3 C. E.	Sheffield.
ALLEN, JAS. A.	1 C. E.	Creston.
ALLEN, RALPH	2 Ag'l.	Delavan.
ANDERSON, GEO. W.	1 Ag'l.	Ladoga, Ind.
ANDERSON, JACOB W.	1 M. E.	Ladoga, Ind.
ANDREWS, CHAS. E.	1 El.	Maroa.
AYERS, GROVER, JR.	1 C. E.	Springfield.
BACON, ERNEST	1 C. E.	Princeton.
BAILEY, WILLIS JOSHUA	2 Ag'l.	Argo.
BAGBY, JOHN S.	2 C. E. & Mil.	Rushville.
BAKER, CARROLL	2 Ag'l.	Tuscola.
BAKER, IRA O.	4 C. E.	Oaktown, Ind.
BAKER, J. M.	3 Ag'l.	Tarboro, N. C.
BALCOM, STEPHEN F.	2 C. E.	Edgewood.
BALLOU, EDWARD L.	3 M. E.	Sherwood, Wis.
BALDWIN, JESSE A.	1 Ag'l.	Greenwood.
BARNARD, D. E.	4 Ag'l.	Manteno.
BARNES, A. M.	2 Ag'l & Mil.	Champaign.
BARNES, ARTHUR E.	3 Chem.	Champaign.
BARTHOLOW, JOHN H.	1 Nat. His.	Urbana.
BARRY, CHARLES HART	2 L. & S.	Alton.
BENTLEY, WILLIAM N.	2 Com.	Rockton.

BLACKALL, CLARENCE H.	1	Agl., Chem. & Mil.	Chicago.
BLAKE, A. E.	2	C. E.	Mendota.
BLAKE, JAY NEELEY	1	Ag'l	Mt. Carroll.
BLISS, JR., ABEL	2	C. E. & Mil.	Joliet.
BOHN, JACOB	1	Chem.	Monticello.
BOUGHTON, WILLIS	1	L. & S.	Sheffield.
BOWERS, JOHN HEWINS	3	El. & Mil.	Rankin.
BOWMAN, THOMAS H.	2	Ag'l	Piasa.
BOYER, CHARLES S.	3	Min. E.	Walla Walla, Wash. T.
BRECKENRIDGE, CHARLES E.	3	Ag'l	North Bennington, Vt.
BRINCKLEY, WILLIAM J.	1	Nat. Hjs.	Danville.
BROWN, DILLON S.	3	Ag'l	Genoa.
BROWN, FRANK ALBERT	2	C. E.	Marengo.
BROWN, RALPH LEE	3	L. & S.	Marengo.
BUCKINGHAM, WILLIAM	1	M. E. & Mil.	Chicago.
BULLARD, SAMUEL A.	2	Ag'l	Mechanicsburgh.
BUMSTEAD, JAMES EDWARD	1	El.	Marengo.
BURGESS, M. W.	1	El.	Tonica.
BUTTERFIELD, ALBERT M.	1	Ag'l	Champaign.
BUTTERFIELD, L. T.	2	C. E. & Mil.	Marengo.
BYRD, OLIVER WILSON	1	Com. & Mil.	Ladoga, Ind.
CAMPBELL, GEORGE DUNCAN	2	El.	Mt. Carroll.
CAMPBELL, JOHN P.	4	M. E.	McLeansboro.
CAMPBELL, R. H.	2	El.	Mt. Carroll.
CARPENTER, E.	1	Ag'l	Champaign.
CARR, JAMES W.	2	L. & S.	Fenton.
CHANDLER, WM. B.	2	Ag'l	Bourbon.
CHASE, WILLIS S.	4	El.	Chicago.
CHEEVER, GEORGE H.	2	El.	Champaign.
CHILDS, JOEL GOODELL	1	L. & S.	Buda.
CLARK, CHARLES WRIGHT	2	C. E.	Champaign.
CLARK, J. C.	2	L. & S.	Elvaston.
CLAY, JOHN RIDGWAY	1	M. E.	Cobden.
CLAY, LUTHER G.	3	Hor. & Mil.	Cobden.
CLEVELAND, HARRY	3	L. & S.	Champaign.
CLENDENEN, TAYLOR	1	Ag'l	Dawson.
CODINGTON, VANTILE WILLIAM	3	Arch	Menomonee, Wis.
COFFMAN, NOAH BERRY	1	Nat. Hist.	Urbana.
COLDITZ, WILLIAM D.	1	El.	Rochelle.
COLLINS, DANIEL PRATHER	1	El.	Clement.
COLVIN, ALBERT	1	Com.	Mt. Palatine.
COOK, PHINEAS SYLVESTER	1	L. & S.	Earlville.
COWDERY, GEORGE SABIN	1	C. E.	Cobden.
COWEN, R. H.	2	C. E. & Mil.	Champaign.
CRAWLEY, JOHN JOSEPH	3	E. L.	Tuscola.
CRAYNE, W. H.	4	E. L.	Champaign.
CULVER, LUCIEN M.	1	Com.	Henry.
CUSHING, JOHN JENCKES	1	M. E. & Mil.	Sterling.
DAVIS, LEROY	1	E. L.	Hamilton.
DEAN, ARTHUR ABBOTT	1	Mil. & El.	Joliet.

DIGHTON, JOHN N.	1	L.&S.& Mil.	Monticello.
DIMON, JACOB V.	2	L. & S.	Creston.
DOBSON, FRANKLIN PIERCE	3	C.E. & Mil.	Minonk.
DRAKE, JAMES FREDERIC	3	L. & S.	Belvidere.
DREWRY, EBENEZER L.	4	El.	Mason.
DUNLAP, BURLEIGH ARTHUR	3	C. E.	Savoy.
DUNLAP, HENRY	4	El.	Champaign.
DUNNING, ALBERT	2	C. E.	Jefferson.
DAVIS, JOHN M.	1	El.	Rossville.
EATON, HERBERT	3	Ag'l.	Philo.
ELLIOTT, CHARLES GLEASON	1	C. E.	Tonica.
ELLS, WILLIAM CUSHING	4	C. E.	Champaign.
ESTEP, HARVEY C.	4	C. E.	Rantoul.
EVERHART, WINFIELD SCOTT	3	L.&S.& Mil.	Neoga.
EYMAN, WALTER	3	Arch.	Belleville.
FARNSWORTH, DAVID	1	El. & Mil.	Blue Mound.
FARSON, JOHN W.	2	El.	Champaign.
FAULKNER, JAMES	4	Hor. & Mil.	Clement.
FAULKNER, RICHARD DOUGLAS	1	Ag'l & Mil.	Clement.
FERGUSON, WILLIAM DUGAN	2	Hor.	St. Charles.
FESSENDEN, ARTHUR L.	1	M. E.	Xenia, Ohio.
FIDLER, WILLIAM ALLEN	2	L. & S.	Neoga.
FILSON, WILLIAM F.	2	Ag'l.	Xenia.
FOSTER, CHARLES WILLIAM	4	El.	Champaign.
FOX, NATHANIEL M.	1	L.&S.& Mil.	Hainesville.
FREDENBUR, JOHN W.	1	L. & S.	Urbana.
FREDENBUR, W. M.	1	El.	Urbana.
FRANCIS, FRED.	1	El.	Kewanee.
GABRIEL, GREGORY	4	Ag'l.	Armenia, Asia Minor.
GAITHER, CHARLES	1	El.	Pekin.
GARDINER, WILLIAM RODNEY	2	Chem.	Mahomet.
GARST, J.	1	El.	Champaign.
GENNADIUS, PANAJIOTTIS	4	Ag'l.	Athens, Greece.
GIBSON, CHARLES BROCKWAY	1	Chem.&Mil.	Springfield, Vt.
GILKERSON, HIRAM	2	Ag'l & Mil.	Ney.
GILKERSON, JOHN	2	El.	Ney.
GILL, JOSEPH A.	2	Com.	Springfield.
GILL, JOHN DAVID	3	L. & S.	Antwerp, New York.
GILLEN, ELIJAH FISHER	2	El.	Champaign.
GILLETTE, STEPHEN LOREN	1	El. & Mil.	Aurora.
GARROD, JAMES A.	1	El.	Keenville.
GLASS, WILBUR SMITH	1	L.&S.&Mil.	Marengo.
GORE, FRED. HARRY	2	C. E. & Mil.	Byron.
GORE, SIMEON THOMAS	2	Arch.	Ashley.
GRAY, ELMER W.	2	El.	Rantoul.
GREENE, FREDERIC JAMES	1	Chem.& Mil.	Peoria.
GRIGSBY, HUGH DE LOSS	1	El.	Pittsfield.
GROVES, CHARLES W.	2	Com.	Champaign.

GRÓVES, JOHN I.....	2	Com.....	Champaign.
GOULD, CHARLES EDWARD.....	1	El.....	Champaign.
GUNDER, JASPER W.....	2	Chem.....	Fairmount.
HAAS, CHARLES MARTIN.....	1	Ag'l.....	Woodstock.
HALL, CHARLES WILLIAM.....	1	Ag'l.....	Sweetwater.
HALL, WALTER ORLANDO.....	3	Ag'l.....	Rankin.
HALLETT, DOUGLAS FRANK.....	1	Com.....	Mt. Carroll.
HAMILTON, GEORGE G.....	1	M. E.....	La Harpe.
HANNAH, RICHARD HENRY.....	3	Hor.....	Rossville.
HANNAH, SAMUEL.....	1	El.....	Rossville.
HAUSER, HENRY.....	2	El.....	Mascontah.
HAWLEY, MILLARD GIDEON.....	1	Com.....	Pekin.
HEAD, EUGENE.....	1	Chem.....	Carlinville.
HIETT, GEORGE WASHINGTON.....	1	Ag'l.....	Sugar Grove, Ind.
HODGES, GEORGE IRVING.....	2	Com.....	Champaign.
HOLLENBECK, HORACE ORLANDO.....	1	El. & Mil.....	Clark's Hill, Ind.
HOWARD, EDWIN MONROE.....	2	Chem.....	Champaign.
HUGGINS, JOHN CLINTON.....	1	Ag'l.....	Woodburn.
HUGHES, CHARLES A.....	1	L. & S.....	Monticello.
JACK, IRWIN.....	1	Chem.....	Beaucoup.
JAMES, MINER PELEG.....	1	El. & Mil.....	Mendota.
JEFFERS, CHARLES PERRY.....	4	Chem.....	Lyndon.
JOHNSON, FREDERICK L.....	2	C. E. & Mil.....	Springfield, Vt.
JOLLEY, ALBERT REMBRANDT.....	1	El. & Mil.....	Cerro Gordo.
JONES, JAMES FRANCIS.....	1	C. E.....	Chester.
KAW, WILLIAM ALEXANDER.....	2	L.&S.&Mil.....	Fitt's Hill.
KASSON, MYRON C.....	2	El.....	Woodstock.
KELLEY, A. M.....	1	El.....	Paxton.
KELLEY, JOHN CAMPBELL.....	2	El.....	Paxton.
KENNEDY, ALLAN GILMOUR.....	1	C. E. & Mil.....	Eau Claire, Wis.
KENOWER, GEORGE FREDERIC.....	3	L. & S.....	Clement.
KIDDER, EDWARD M.....	1	C. E.....	Eau Claire, Wis.
KINGSBURY, CHARLES S.....	3	C. E.....	Rowensburg.
KITCHELL, WILLIAM W.....	2	Hor.....	Olney.
KNAPP, WILBERT.....	1	M. E.....	Gilman.
KNIBLOE, WALTER ELLIOTT.....	2	M. E.....	Gilman.
LEE, CHARLES MYLO.....	2	Ag'l.....	Millersburg.
LEE, EDDY ORLANDO.....	1	L. & S.....	Mt. Carroll.
LEFLAR, JOHN EMERSON.....	3	L. & S.....	Batavia.
LEITCH, SAMUEL M.....	1	C. E.....	Charleston.
LEWELIN, JOSEPH C.....	1	Arch.....	Sterling.
LEWIS, EDWARD VERNON.....	1	El. & Mil.....	Chatham.
LINARD, CHARLES WESLEY.....	1	El.....	Dayton, Ohio.
LOW, JAMES ELI.....	2	El.....	Waukegan.
LYFORD, CHARLES CHAMBERLAIN.....	4	Ag'l.....	Roscoe.
LYNCH, EDWARD.....	4	El.....	Monticello.
LYNCH, HENRY E.....	2	C. E.....	Monticello.
LOVE, S. S.....	3	Ag'l.....	Philo.

MABIN, GEORGE G.....	3	L. & S.....	Belvidere.
MAC KAY, DANIEL GROVER.....	2	L. & S.....	Oakville.
MAC KAY, JAMES HENRY.....	2	L. & S.....	Oakville.
MAC KAY, WILLIAM ALEXANDER.....	2	C. E. & Mil.	Oakville.
MAHAN, HENRY WESTON.....	2	L.&S.&Mil.	Champaign.
MAKEMSON, SAMUEL CLINTON.....	2	El.....	Wilmot, Ind.
MANN, FRANK IRVING.....	3	L.&S.&Mil.	Gilman.
MANN, H. A.....	3	L. & S.	Champaign.
MANN, JAMES ROBERT.....	2	El. & Mil ..	Gilman.
MARSHALL, GEORGE EDWARD.....	1	El.....	Mokena.
MARTIN, PARKS M.....	1	Chem.....	Ladoga, Ind.
MATHEWS, NEWMAN HAMLINE.....	2	M. E.	Mackinaw.
MCCAULEY, JOHN CHARLES.....	3	L. & S.....	Lincoln.
MCDONALD, ALEXANDER.....	2	Chem.....	Champaign.
McFADDEN, SHARON CARTER.....	1	M. E.....	Champaign.
McFALL, JAMES ALLISON.....	2	Chem.....	Mattoon.
McPHERSON, JR., JOHN.....	1	C. E.....	Rockford.
MILLER, ALEXANDER VIDDER.....	2	Com.....	Champaign.
MILLS, WILLIS B.....	1	El.....	Magnolia.
MITCHELL, RUFUS STERET.....	2	C. E.....	Champaign.
MOFFETT, JOHN.....	1	El.....	Derinda.
MOORE, AARON HENRY.....	3	L. & S.....	Louisville.
MOORE, JOHN FREMONT.....	1	Arch.....	Davenport, Iowa.
MOREHOUSE, KUSSUTH B.....	1	Ag'l.....	Sommers.
MORRIS, GEORGE W.....	1	El.....	Lexington.
MORRIS, JOHN CALVIN CALHOUN.....	4	El.....	Lincoln.
MORROW, A. T.....	4	C. E.....	Jonesboro, Ind.
MORSE, J. H.....	3	L. & S.....	Belvidere.
MOSELY, ROLAND EDWARD.....	1	C. E.....	Princeton.
NEBEKER, CORIE AQUILLA.....	3	El.....	Mahomet.
NESS, JOSEPH.....	3	L. & S.....	Rossville.
NOBLE, LOUIS REEDER.....	2	M. E. & Mil.	Mattoon.
OLIVER, WILLIAM FORREST.....	2	Chem & Mil.	Ladoga, Ind.
ORMSBY, WILLIAM L.....	1	L. & S.....	Springfield.
PAGE, CALVIN SAMUEL.....	3	L. & S.....	Champaign.
PAIGE, JAMES ALBERT.....	2	C. E.....	Brush Valley, Pa.
PALMER, FRANK MITCHELL.....	3	El.....	Clinton.
PARKS, JAMES HARVEY.....	3	C. E. & Mil.	Orion.
PARSONS, FERNANDO ALSTON.....	3	L. & S.....	Waterloo, Iowa.
PATCH, EMORY EDWARD.....	4	M. E.	Janesville, Wis.
PATON, JOHN.....	3	M. E.	Lincoln.
PATTERSON, W. FREMONT.....	1	Hor.....	Mt. Carroll.
PAYSON, EDWARD.....	1	M. E.....	Chicago.
PHILLIPS, RICHARD.....	1	El.....	Rantoul.
PICKRELL, WATSON.....	3	Ag'l.....	Mechanicsburg.
PICKRELL, WILLIAM.....	4	Ag'l.....	Mechanicsburg.
PIERCE, ELON A.....	2	Ag'l.....	Belmond, Iowa.
PIERCE, JOHN L.....	4	L. & S.....	Champaign.
PIERCE, W. R.....	2	El.....	Flora.

PIERPONT, WATSON TAYLOR.....	1	El.....	Rockford.
PLAINE, THOMAS HENRY.....	1	El.....	Champaign.
POLLOCK, WILLIAM CLARENCE.....	3	Chem.....	Mt. Vernon.
POOLE, FRANKLIN RAND.....	3	El. & Mil...	Cobden.
PORTERFIELD, EMET.....	1	El.....	Sidney.
PRESCOTT, WILLIAM HENRY.....	1	C. E.....	Rockford, Mich.
PRICKETT, CHARLES MORTIMER.....	3	El.....	Ringwood.
PUCKETT, RALPH W. E.....	3	Ag'l.....	Nora.
QUINBY, EDWARD VINCENT.....	1	El.....	Pittsfield.
REED, FRANK MORTIMER.....	1	El.....	Rockford.
REINHARDT, ADOLPH.....	2	Ag'l.....	Granville.
REYNOLDS, HENRY SHELDON.....	5	Ag'l.....	Urbana.
RHODES, JAMES FREDERICK.....	2	L. & S.....	Dwight.
RICE, GEORGE CLARK.....	1	L. & S.....	Fithian.
ROBERTS, HEBER.....	1	Ag'l.....	Champaign.
ROBERTSON, HENRY WRIGHT.....	2	El.....	Compromise.
ROBINSON, ELNA ALPHONSO.....	4	M. E.....	Champaign.
ROOP, CHRISTIAN Y.....	1	Chem & Mil.	La Grange, Ind.
RUSSELL, SULLIVAN J.....	3	C. E.....	Elmwood.
RUTAN, ABRAM RHARSON.....	2	Com.....	Dwight.
SCHARDON, LOUIS F.....	2	El.....	Hillsboro.
SCOVELL, MELVILL AMASA.....	3	Chem.....	Champaign.
SCRIBNER, ARTEMAS COFFIN.....	2	Ag'l.....	Bradford.
SCUDDER, CLARENCE O.....	3	L. & S.....	Creston.
SEARLES, FRANK WESLEY.....	2	H.&L.&Mil.	Hadley.
SEYMOUR, JOHN JAMES.....	1	C. E. & Mil.	Seymour.
SHAW, FRANKLIN DAVIS.....	2	El.....	Paxton.
SHAWHAN, GEORGE ROBERT.....	3	L & S.....	Sidney.
SHEFFIELD, WILLIS B.....	1	Ag'l.....	Champaign.
SHELDON, CLARENCE F.....	2	L. & S.....	Urbana.
SIMM, COLER LINDLEY.....	2	L. & S.....	Urbana.
SIZER, DANIEL A.....	1	M. E. & Mil.	Mahomet.
SMITH, CHARLES A.....	4	M. E.....	Mt. Vernon, Ind.
SPENCE, FRANKLIN.....	1	El.....	Hamilton.
SPENCE, JOHN I.....	1	C. E.....	Hamilton.
SPENCE, WILLIAM WRIGHT.....	1	Ag'l.....	Hamilton.
SPERRY, JASPER NEWTON.....	1	L. & S.....	Urbana.
SPITLER, JONAS BEAVER.....	3	L. & S.....	Brunnersburg, O.
SPRAGUE, MARTIN.....	1	El. & Mil...	Blue Mound.
STALEY, CALVIN C.....	1	L. & S.....	Champaign.
STANTON, SAMUEL CECIL.....	2	Nat. Hist...	London, England.
STARR, FRANK A. E.....	3	H.&S.&Mil.	Elsha.
STAYMAN, JOHN MATHER.....	2	C. E.....	Champaign.
STEPHENS, J. L.....	1	Ag'l.....	Champaign.
STEWART, CHARLES EVANS.....	2	El.....	Champaign.
STEWART, ROBERT E.....	1	Ag'l.....	Champaign.
STODDARD, IRA J.....	1	C. E. & Mil.	Pella, Iowa.
STOREY, GEORGE.....	4	C. E.....	Champaign.

List of Students—Gentlemen.

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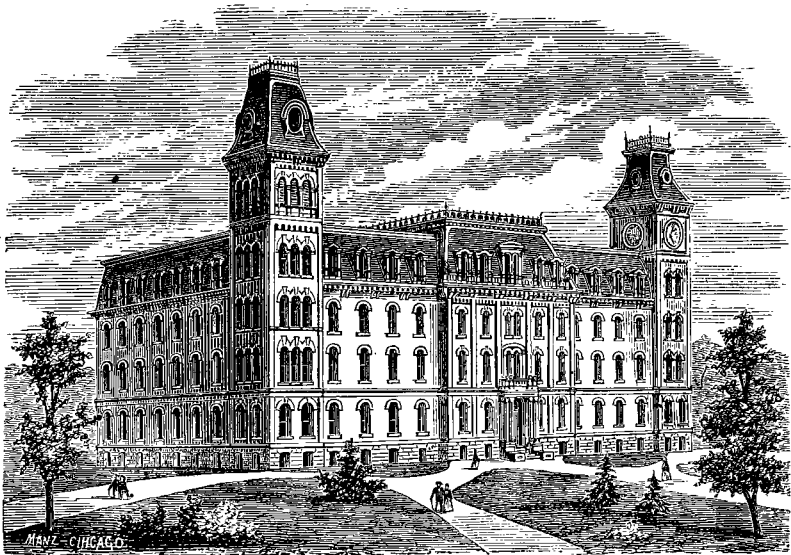
STOOKEY, DANIEL WESLEY.....	2	M. E.	Harristown.
STRIPP, R. G.....	1	Ag'l.....	Champaign.
STULL, LOUIS.....	1	El.....	Marengo.
STULL, WILLIAM.....	2	L. & S.	Marengo.
SUTTON, JOHN THOMPSON.....	1	El.....	Champaign.
THOMAS, STEPHEN M.....	1	L. & S.	Mt. Carroll.
TOMLINSON, JOSIAH J.....	1	El.....	Magnolia.
TROWBRIDGE, SILAS.....	3	M. E.....	Champaign.
TYNDALE, HECTOR HILGARD.....	3	C. E. & Mil.	Springfield.
VAUGHN, JOSIAH.....	1	Chem.....	Fidelity.
VARTANIAN, AVADIS.....	1	Ag'l.....	Bittis, Up. Armenia, Asia.
WADE, J. B.....	1	Chem. & Mil.	Jerseyville.
WADE, THOMAS A.....	1	Chem. & Mil.	Jerseyville.
WAKEFIELD, CHAS. CLEMSON.....	1	Ag'l.....	Monroe City, Mo.
WAKEFIELD, JOS. CAMPBELL.....	1	M. E.	Bolivar, Pa.
WALKER, ENOCH.....	3	M. E.	Clinton.
WALKER, RALPH MANNING.....	1	M. E.	Monroe City, Mo.
WARD, WALTER P.....	1	L. & S.	Terre Haute.
WARNER, LYMAN FENN.....	3	C. E.....	Rockford.
WARREN, FRANK.....	1	M. E.	Chicago.
WARRINGTON, GEORGE.....	1	M. E.	Chicago.
WATERMAN, JAMES D.....	1	El.....	Sycamore.
WATTS, WILLIAM.....	4	Arch. & Mil.	Watts.
WELCH, THOMAS JEFFERSON.....	3	L. & S.	Sidney.
WESTON, CHARLES.....	3	L. & S.	Champaign.
WHARRY, WALTER WARD.....	4	El. & Mil.	Sycamore.
WHARTON, JACOB W.....	1	Sp'l Min. E.	Bement.
WHEELER, HERBERT.....	2	El.....	Yellowhead.
WHITE, ALFRED.....	4	L. & S.	Champaign.
WHITE, WALLACE.....	1	C. E.....	Hale.
WHITHAM, ROBERT FARWELL.....	2	C. E. & Mil.	Paxton.
WHITLOCK, JOHN FRANKLIN.....	1	El.....	Dwight.
WILD, GEORGE ALFRED.....	2	C. E. & Mil.	Marengo.
WILLIAMS, GEORGE AURELIUS.....	1	Ag'l.....	Quincy.
WILLIAMS, THOMAS T.....	2	L. & S.	Sterling.
WOOD, FREDERICK LANSING.....	3	Hort.....	Chicago.
WOOD, CHARLES N.....	1	El.....	Sycamore.
WOODWORTH, ALVIN ORTON.....	1	C. E. & Mil.	Champaign.
WORRELL, ROBERT EDWIN.....	3	L. & S.	Bowensburgh.
WRIGHT, FRANK E.....	3	L. & S.	Arcola.
WRIGHT, MYRON JEROME.....	1	Com.....	Woodstock.
ZELLER, CHARLES ALEXANDER.....	1	Com.....	Spring Bay.
ZELLER, GEORGE ANTHONY.....	1	El.....	Spring Bay.

LADIES.

NAMES.	COURSE.	P. O. ADDRESS.
ADAMS, NETTIE V.	2 El.	Urbana.
ANDERSON, ELLA JANE	2 L. & S.	Champaign.
ANDERSON, LAURA MORRIS	3 L. & S.	Champaign.
AYERS, LETTIE	2 L. & S.	Urbana.
BAKER, JENNIE	2 L. & S.	Champaign.
BARBER, HATTIE LOUISA	1 El.	Champaign.
BERNSTEIN, JOANNA	1 El.	Champaign.
BERGEN, LAVINA E.	1 El.	Lilly.
BEYER, AMELIA	1 El.	Sadorus.
BLASDEL, MARIA	3 L. & S.	Champaign.
BOGARDUS, EVA	1 El.	Champaign.
BROSHAR, CORNELIA	2 El.	Champaign.
BURGESS, ADA AUGUSTA	1 El.	Tonica.
BURGESS, MARY CELIA	2 El.	Tonica.
BURT, IDA KATE	2 El.	Urbana.
BURT, NORA	2 L. & S.	Urbana.
BURWASH, CARRIE L.	1 El.	Champaign.
BURWASH, HARRIET LOVINA	2 El.	Champaign.
CAMPBELL, AMANDA	3 L. & S.	Philo.
CARLEY, ISOTTA	2 El.	Champaign.
CARPENTER, EMMA AGNES	1 El.	Champaign.
CHAPMAN, AGNES E.	2 El.	Richmond, Ind.
CHEEVER, ALICE	4 L. & S.	Champaign.
CLARK, EMMA JOSEPHINE	1 El.	Champaign.
CLARK, MARY NAOMI	1 El.	Champaign.
COFFMAN, ADA O.	1 El.	Urbana.
COLUMBIA, EMMA E.	1 El.	Champaign.
COLUMBIA, FRANCES MAE	3 El.	Champaign.
CONN, EMMA ANNA	1 El.	Champaign.
DAVIS, NANCY JANE	1 El.	Monticello.
DAY, MRS. MARIAN	1 Chem.	Urbana.
DEARDORFF, SARAH C.	1 El.	Cobden.
DENNEY, H. A.	1 El.	Champaign.
DOBSON, SUSAN ANN	1 El.	Minonk.
DODSON, KATE	1 El.	Champaign.
DUNLAP, MAGGIE E.	2 L. & S.	Champaign.
EATON, ADA	1 El.	Philo.
EVERHART, OPHELIA	2 L. & S.	Neoga.

FALLS, IDA BELLE	1	El.	Champaign.
FOOS, FLORENCE IDA	2	El.	Champaign.
GISH, MARGARET	1	El.	Covington, Ind.
GIVAN, EVVIE	1	El.	Chicago.
GOODWIN, NELLIE J.	1	El.	Urbana.
GOODWIN, JESSIE	2	El.	Urbana.
GREGORY, CARRIE L.	2	El.	Urbana.
GREGORY, LUCY M.	2	El.	Urbana.
GREUZARD, EUGENIA	2	El.	Champaign.
HALL, ELLEN ELIZABETH	2	El.	Urbana.
HAMMOND, EMILY ALMINA	1	El.	Rantoul.
HARRIS, MAGGIE	2	El.	Champaign.
HARRIS, SALLIE LOUISA	1	El.	
HOLTON, MARTHA GRAY	2	El.	Champaign.
JOHNSON, ESTHER ANN	1	El.	Champaign.
KARIHER, ISRAELLA KATE	3	El.	Champaign.
KELLOGG, FLORA LORANIA	3	El.	Woodsville, O.
KINCAID, MATTIE	2	El.	Champaign.
KIRKPATRICK, LIZZIE	1	El.	Mayview.
LARNED, MARY	2	El.	Champaign.
LEE, ALICE	3	El.	Champaign.
LEMEN, ANNA PRICE	2	El.	Champaign.
LONGMATE, EMMA JANE	2	El.	Farmer City.
LYMAN, EMMA STEWART	3	El.	Champaign.
MAHAN, JENNIE C.	2	El.	Champaign.
MANSFIELD, MARIA POPE	2	El.	Mansfield.
MAXWELL, EMILY C.	1	El.	Champaign.
McFADDEN, CORDELIA	1	El.	Champaign.
McFADDEN, MARY A.	1	El.	Champaign.
McWHORTER, DELLA	1	El.	Aledo.
PAGE, MARTHA ELLEN	1	L. & S.	Mackinaw.
PARSONS, NORA E.	1	El.	Waterloo, Iowa.
PIATT, EMMA C.	1	El.	Monticello.
PIERCE, FANNY	3	El.	Champaign.
POTTER, FRANCES ADELIA	4	L. & S.	Champaign.
PUGH, M. E.			
RAYMOND, JENNIE	4	L. & S.	Sidney.
REYNOLDS, ANNA M.	3	El.	Belvidere.
SCOGGINS, SARAH	1	El.	Champaign.
SKINNER, ELLA V.	1	El.	Champaign.
SPENCE, JENNIE E.	1	Chem.	Hamilton.

STANTON, ELLEN LOISE	2	L. & S., & Com.	London, England.
STEELE, MARY C.	3	El.	Urbana.
STEWART, MAGGIE ESTHER	3	El.	Champaign.
STEWART, MAGGIE L.	2	El.	Champaign.
SWITZER, GERTRUDE	1	El.	Champaign.
THOMAS, ELIZ. R.	2	El.	Champaign.
VAN HORN, EMMA R.	2	El.	Champaign.
VICTOR, CARRIE	2	El.	Champaign.
WALLACE, EMMA ELIZA	1	El.	Champaign.
WHITCOMB, EMMA L.	3	El.	Urbana.
WHITED, ROSE M.	1	El.	Belmond, Iowa.
Total number of gentlemen			316
Total number of ladies			90
Total number of Students			406



NEW UNIVERSITY BUILDING.

Illinois Industrial University.

THE UNIVERSITY

IS BOTH STATE AND NATIONAL IN ITS ORIGIN AND CHARACTER.

HISTORY.

The public movement which gave rise to this University, began a quarter of a century ago. Public meetings of the friends of industrial education were held in all parts of the state, and numerous petitions, signed by thousands of the agriculturists and other industrial classes, flooded the State Legislature. At length, in 1854, the General Assembly adopted joint resolutions, asking Congress to make grants of public lands to establish colleges for industrial education. After long discussions, Congress passed the necessary law in July, 1862, making the magnificent grant of public lands out of which has arisen that long list of agricultural colleges and industrial universities now scattered over the continent.

Illinois, the first to ask, was among the first to accept the grant, and great public interest was excited in the question of the organization and location. Princely donations, in some cases of half a million of dollars, were tendered by several counties to secure the locating of the institution. In February, 1867, a law was passed fixing the locality, and defining the plan of the University, and in May, the Board of Trustees met at the University Building, donated by Champaign County, and finally determined the location. During the year much of the script was sold or located, necessary alterations were made in the buildings, apparatus and library were purchased, a faculty partly selected, and preparations made for active work. On March 2, 1868, the University was opened for students, and on the 11th, formal inauguration exercises were held. 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.

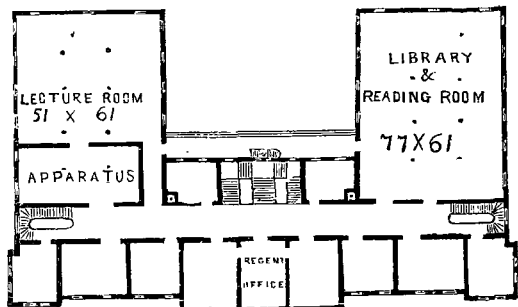
The University is situated in the City of Urbana, adjoining the limits of the City of Champaign, in Champaign County, Illinois. It is one hundred and twenty-eight miles from Chicago on the Illinois Central Railroad. The Indianapolis, Bloomington and Western Railway passes near the grounds. The county 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 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 the grounds, page 61) embraces about 623 acres, including stock farm, experimental farm, orchards, gardens, nurseries, forest plantations, arboretum, botanic garden, ornamental grounds and military parade ground.

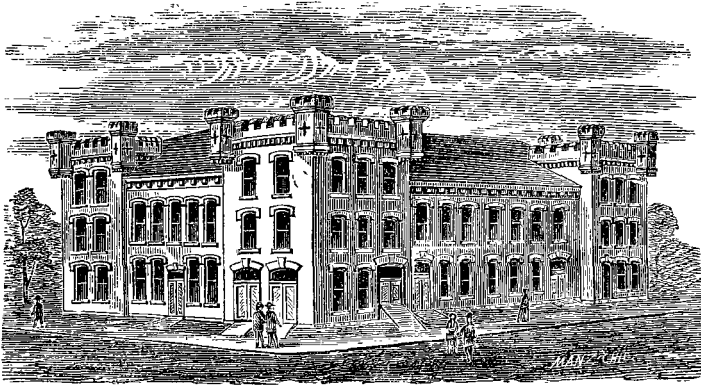
The old University Building (see page 61, A) now occupied partly by chemical laboratory, contains some eighty dormitories for students. It is 125 feet in length, and five stories in height, with a wing of 40 by 80 feet, four stories in height. The building was donated by the county. (See cut on last cover page.)

The New University Building, (see page 15, E,) 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 mu-



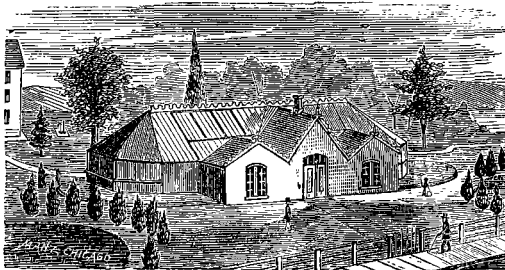
PLAN OF NEW BUILDING.

seums. 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.



MECHANICAL BUILDING AND DRILL HALL.

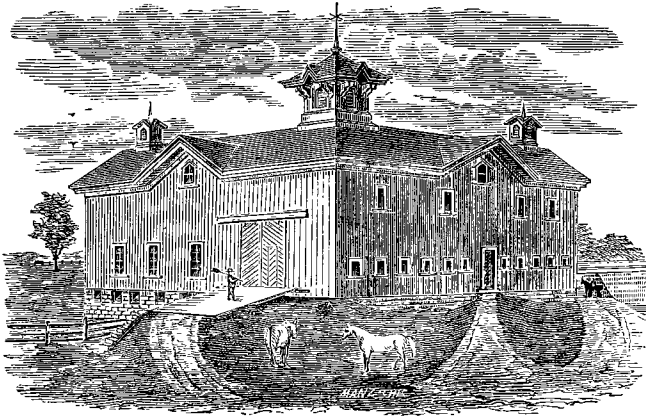
The Mechanical Building and Drill Hall (see Map, page 61, C) is of brick, 128 feet in length by 88 feet in width. It contains a boiler, forge and tank room; a machine shop, furnished for practical use, with a steam engine, lathes and other machinery; a pattern and finishing shop; shops for carpentry and cabinet work, furnished with wood-working 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.



GREEN-HOUSE.

The Green-House (page 61, B) is 70 feet by 36, and contains potting, seed and furnace rooms. There are two other green-houses: one 12 feet by 35, the other 22 by 40.

The University has two large and valuable barns (see page 61, J and G,) belonging to the stock and experimental farms, and four dwelling houses for the superintendents.



STOCK FARM BARN.

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.

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 towards the erection of the Main Building, and furnishing the same; \$10,500 to furnish the Chemical Laboratory; and \$20,000 for Library and Apparatus; \$3,000 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 about 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 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.

Its practical aims will be best understood by a survey of the following departments of instruction, for which it offers the best facilities:

SCIENTIFIC AGRICULTURE— Soil Culture of all varieties, and for all crops, Animal Husbandry, Stock-breeding, Feeding, Veterinary Science, Agricultural Chemistry, Rural Engineering and Drainage.

HORTICULTURE— Market Gardening, Fruit Growing, Management of Nurseries, Forests, Green Houses, Propagating Houses, and Ornamental Grounds.

MECHANICAL ENGINEERING— Theory and Practice in Construction of Machinery, Pattern Making, and Working in Iron and Brass. Study of the Motors, Strength of Materials, and Mechanical Drawing.

CIVIL ENGINEERING— Land and Government Surveys, Railroads, Canals, Bridge Building, Topographical Surveys and Leveling.

MINING ENGINEERING— Mine Surveys, Sinking and Tubing of Shafts, Driving of Adits and Methods of Working, Assaying, Treatment of Ores, and Metallurgy.

ENGLISH LANGUAGE AND LITERATURE— A thorough and extended course in higher Grammar, Rhetoric, Criticism and Essay Writing, to fit students for editorial or other literary work, or teaching.

ANALYTICAL CHEMISTRY— Chemistry applied to the Arts; Laboratory Practice with Re-agents, Blow-pipe and Spectroscope. A full course to fit students to become Chemists, Druggists and Pharmacutists.

ARCHITECTURE — Architectural Drawing, Styles of Building, Plans, Materials, Estimates, Ornamentation.

MILITARY TACTICS — Manual of Arms, Squad, Company and Battalion Drill, Brigade and Division Evolutions, Bayonet and Sword Fencing, Military Arms, Roads and Fortifications.

HISTORY AND SOCIAL SCIENCE — General and Special History, Political Economy, Rural and Constitutional Law.

MENTAL AND MORAL PHILOSOPHY — and Logic.

MODERN AND ANCIENT LANGUAGES — French, German, Latin, etc.
COMMERCIAL SCIENCE — Book-keeping, Commercial Law, etc.

MATHEMATICAL SCIENCE — Pure and Applied, Physics, Astronomy.

NATURAL HISTORY — Botany, Zoölogy, Geology, Physical Geography.

DRAWING — Mathematical and Free-hand.

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, Zoölogy 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, Modeling and Patterns, Bridges, etc., Astronomy and Military 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 for young men and women who may claim to know something of their own 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 students shall be thoroughly prepared to enter and keep pace with the classes in the studies chosen; 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 changes 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, on pages 53 to 58.

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, solutions 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 War.

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

common 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.

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.

For the dates of Examinations, beginning of the year, Matriculation Fee, etc., etc., see Table of Contents, for "Calendar" and "Expenses;" or read the miscellaneous matter following page 48.

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. THE 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.

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

V. OTHER SCHOOLS.

SCHOOL OF MILITARY SCIENCE. SCHOOL OF COMMERCE. SCHOOL OF DOMESTIC SCIENCE AND ART.

Schools of WOOD ENGRAVING, PRINTING, TELEGRAPHING, PHOTOGRAPHY, and DESIGNING, it is hoped, will be added at an early day.

Upon pages 53 to 58 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 thus 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 STUART.
PROFESSOR BURRILL.	PROFESSOR TAFT.
PROFESSOR SHATTUCK.	SUPERINTENDENT FLAGG.
DOCTOR PRENTICE.	

SCHOOLS.

SCHOOL OF AGRICULTURE. SCHOOL OF HORTICULTURE.

CONTRIBUTIONS.

Many manufacturers have favored us with donations of implements, and it is hoped this will continue until the large room devoted to the tools shall become a rich museum of all that is most important.

Appeal is made to friends everywhere for assistance in furnishing the fruit and tree plantations with the fullest possible stock, in the building and furnishing of 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.

SCHOOL 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 carefully 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 farmer to understand thoroughly and profoundly, all that men can know about soil 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—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 the principles of 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 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 surrounding 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 61, and description, page 18. It has also a fine stock of several breeds of neat cattle, embracing Short Horns, Herefords, Devons, Ayrshires, 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 feeding 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 in the Fall or Winter Term, 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.

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, pages 53 to 58.

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 nearly all the valuable kinds, both native and introduced. An apple orchard of 1,200 varieties is beginning to bear, nearly 200 different kinds of pears are growing, also many varieties of cherries, grapes, blackberries, strawberries, currants, 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 is 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. Two 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. See Map of the Grounds on page 61, and descriptions on page 43.

COLLEGE OF ENGINEERING.

FACULTY.

THE REGENT.	PROFESSOR ROBINSON.
PROFESSOR WEBB.	PROFESSOR STUART.
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 22, 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 plane 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, and applicants will do well to make sure of passing their examinations in Mathematics.

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 in. by 10 in. Size of Page or Plate, 20 cm. 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.
Width of Margin, 1 inch.

Size of Page or Plate, 25 cm. by 40 cm.
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, page 55, 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, page 46, 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 the 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; Escapement Link-work. ANALYTICAL MECHANICS — Equa-

tions 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.

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.

DRAWING.

PROJECTION D.—Use of Instruments in applying the Elements of Descriptive Geometry; Use of Water Colors; Isometrical Drawing; Shades and Shadows; Perspective. **FREE-HAND D.**—Sketches of Machinery; Ornamentation; Lettering. **MACHINE D.**—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 of Transmission; Manufacturers' and Engineers' Machinery; Elastic and ultimate strengths of heavy machinery.

PROJECTS.

The Designing, Drawing and Shop Practice, has always a definite practical purpose. The students 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. The drawings are left for the further 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 the student

with the manner in which the Mechanical Engineer carries his designs into execution, and teaches him to so shape, proportion and dispose the parts of a machine as to secure the greatest economy in construction, and durability in use.

Experiments in the testing of Prime Movers and other machines, are undertaken by the classes. They will 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 or important machinery, such as stationary engines of water works, blowing or hoisting engines, and machinery in use in mining or other operations, may form a part of the record. The Journals of the first vacation 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.

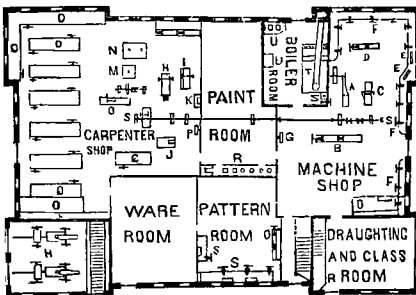
Reports or memoirs upon visits and observations of the third vacation will be required instead of journals, to be read in the class in Machine Drawing during the middle term of the fourth year. These reports should be made upon rare and interesting mechanical operations or machinery, such as making gas 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 for 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 Riggs' 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 U. S. Patent Office.

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 17.

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 Forge and Furnace, UU, are in



MECHANICAL LABORATORY.

this room, and also a moulder's bench, with sand and the appliances for making brass, iron, and other castings. 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 nominal horse-power, but capable of working to 30. It is regulated by a variable cut-off of new design and simple construction, by Professor Robinson. It was made by the students of the University. A Richards' Indicator of the most approved construction, is fitted to the cylinder. The main line of shafting is cold-rolled iron, 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 by 6 feet bed. At C is a Putnam Planer for iron, planing 5 feet long. At E E are two Hand Lathes swinging about 10 inches by four feet: these were 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. The Steam-heating Coils of this room are under the benches. 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, each sufficient for a pattern maker; also a small buzz-saw.

In the Carpenter Shop are the following: A Whitney Planer, a Moulding Machine, a Tenoning Machine, a Jig Saw, a Cutting-off Saw, a Slitting Saw, a Morticing Machine, a Yankee Whittler, a Turning Lathe, and three Power Grindstones. Also, ten Work-benches, and a corresponding number of sets of Bench-tools. There is also at the back of the building a brick Drying-House, 25 feet by 14 feet, for drying lumber, containing 1,000 feet of three-quarter inch heating pipe.

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 effort to obtain it, are cordially invited to connect themselves with this School.

INSTRUCTION.

It is desired that the student 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. Upon page 55 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 is 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, page 48, 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 D.—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, etc.; 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. See also "Thesis," page 28.

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 he 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 positions of the "corners" by various methods, and to calculate the enclosed areas. Other problems are given in determining inaccessible distances, passing obstacles, avoiding local attraction, 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 on page 56.

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

SCHOOL OF ARCHITECTURE.

OBJECT OF THE SCHOOL.

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

1. To enable the student to obtain a full and thorough knowledge of the scientific principles of construction, employed in the erection of the most important classes of buildings.
2. To furnish him with an extensive, varied, and thorough course of practice in the preparation of general and detail drawings, plain,

shaded, and colored, with the specifications, estimates, etc., necessary in practice.

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.

To skilled mechanics, who can pass the examinations for admission, an opportunity will be afforded of obtaining the Lectures on History of Architecture, Elements of Construction, Projection, and Architectural Drawing, in a course of a single year.

SPECIAL ARCHITECTURAL STUDIES.

CONSTRUCTION — Elements of construction and finish of all classes of buildings, in brick, stone, iron, and wood, walls, floors, ceilings, roofs, foundations, doors, windows, etc. **SHOP PRACTICE** — Construction of models to scale, from drawings, of the various elements of buildings. **ADVANCED SHOP PRACTICE** — Same, from original designs by students, for stairs, etc. **STONE WORK** — Preparations of working drawings for the voussoirs, for the various forms of arches, vaults, and domes. **STRENGTH OF MATERIALS**—Roof and Bridge Trusses, their stability and construction.

DRAWING.

FREE-HAND — Outlines and shaded copies, drawing from the cast and object in pencil and crayon. **WATER COLOR PAINTING**!—In ink, monochrome, and full color, as far as applied in the coloring of elevations and perspectives. **SHADES AND SHADOWS** — By single plane method, perspectives. **HISTORY OF ARCHITECTURE** — Preliminary, a general view and comparison of the principal styles. Detailed, a full examination of the different styles, their spirit, construction, and decoration, successes and failures, applicability to American uses. **ARCHITECTURAL DRAWING** — Working out of full sets of working drawings from sketches furnished by instructor. **ARCHITECTURAL DESIGNING** — Original competitive designs made by class for projects designated by instructor, with specifications, estimates, and details. **ÆSTHETICS OF ARCHITECTURE** — Principles of taste, as applied to the decoration of the more elaborate classes of buildings, by form and color. **ESTIMATES** — Of cost of all kinds of buildings. **SPECIFICATIONS** — Agreements, contracts, liabilities and rights of architects, contractors, and owners. **VENTILATION** — Warming by direct radiation, hot air, steam, hot water, etc. **WATER AND GAS SUPPLY.**

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.

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. See Carpenter Shop, Mechanical Laboratory, page 30.

*COLLEGE OF NATURAL SCIENCE.**FACULTY.*THE REGENT.
PROFESSOR BURRILL.PROFESSOR STUART.
PROFESSOR TAFT.*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 successfully the principles of the science to any of the related arts, and to fit him for the more difficult but not less attractive field of original research.

INSTRUCTION.

A tabular view of the complete course is given on page 57, course 9. Each student who takes it is expected, in connection with other studies, to work two hours daily in the laboratory, five days in the week, during four years, beginning with the second term of the first year; 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; Will's Outlines of Chemical 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 here for obtaining a practical knowledge of Chemistry are confidently believed to be unsurpassed by those of any other institution in the West. 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; a so-called 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 areometers; a Hauy'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 been ordered, and are expected at an early date.

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*; *Dingler'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 thoroughly 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 on page 57, course 8. Vacation journals and memoirs are required, as in the College of Engineering.

APPARATUS.

Collections of specimens and illustrative apparatus are being rapidly 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. See page 17.

In **ZOÖLOGY** the Cabinets contain: a human skeleton, purchased in Paris, and a manikin 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 large dissolving-view camera and slides, for illustrating Astronomy, Geology, Zoölogy, and History.

*COLLEGE OF LITERATURE AND SCIENCE.**FACULTY*

THE REGENT.	PROFESSOR PICKARD.
PROFESSOR SNYDER.	PROFESSOR BURRILL.
PROFESSOR STUART.	PROFESSOR TAFT.
PROFESSOR SHATTUCK.	INSTRUCTOR PATCHIN.
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 22, 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 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 shall 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 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 will be procured at an early day.

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 German and French, and will extend through two years of the course. In the first the student passes over a complete grammar and a 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 a course of select classic reading, composition and conversation will enter largely into the year's work. A third year, in either language, if called for, will consist of a course of Rhetoric, Composition and History of Literature, with recitations in the language studied.

THE LIBRARY is well supplied with works illustrating the several periods of English and American Literature. It contains at present nearly ten thousand well selected volumes, and it is constantly growing by purchase at home and abroad. Valuable American and Foreign periodicals are regularly in the Reading Room, a list of which is given in the "Miscellany" following, page 48.

The courses of study recommended in this College are to be found on page 58.

SPECIAL EXERCISES.

Three 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 not to make professional soldiers, but to teach Military Tactics to all the students of the University, as required by the laws of Congress and the State. To such as desire it, the leading principles of Military Science will also be taught.

The Instruction in this School is given in two sub-divisions.

MILITARY TACTICS—Practical instruction, for the present confined to the infantry arm, to all able-bodied male students of the University, comprising the following branches :

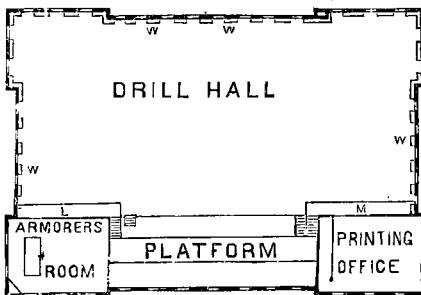
Manual of arms; Squad and company drill; Bayonet exercise; Skirmish drill; Battalion drill; Guard and picket duty; Evolutions of the brigade; Target practice.

The exercises are confined to three hours' drill and instruction per week. There is now formed a battalion of six companies, officered by the students of the class in Military Science, for battalion and skirmish drills. Bayonet exercises are also practiced.

MILITARY SCIENCE—There is taught a class in Military Science and Art, as far as is necessary for the duties of officers of the line. Students are admitted into this class after having participated at least two terms 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 but five hours each week, arranged so as not to interfere with any courses of study, making it possible for the members of other schools to engage in it as an optional study. The course of studies will be found on page 53. It will be confined to two years' instruction until further facilities and teaching force can be obtained.

APPARATUS.



MECH. AND MILITARY 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. The Platform is large enough to accommodate over 250 visitors, and the galleries, L, M, will hold 100 more, besides the University Band. Below the Armorer's Room is the

Artillery Room, and above it the Band Room.

THE PARADE GROUND is shown on page 61. 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 a club has been 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 as prescribed on page 51.

SCHOOL OF COMMERCE.

The course in this School is given on page 53; 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.

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. It is intended eventually to develop the course to cover the topics named and whatever else may pertain to domestic economy.

The instruction in this School will be developed as fast as practicable. The full course will very nearly correspond with the course in English and Modern Languages, page 58, except that in the second and third years' lectures on the foregoing topics will take the place of the mathematical studies. Drawing is taught by a skilled instructor, music can be had as an "extra," and Painting will be provided for.

Negotiations are in progress to open a class in Wood Carving, Engraving and Designing the coming year.

DEPARTMENTS.

EXPLANATIONS.

A department of study embraces a single branch of learning. The following statements are intended to show more fully than is done under the Schools of the University, the extent of the instruction given in the different branches. It will be seen that some of the branches can be pursued farther than is required in any of the schools. The heavy numerals indicate years corresponding to those of some of the courses, pages 53 to 58.

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. See also pages 23 and 24.

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 class-room, together with illustrations and applications in the propagating and green-houses, botanical garden and arboretum, and upon the vegetable and fruit grounds. See also page 25.

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 26 to 35; also the courses of study on pages 53 and 58.

CHEMISTRY.

To accommodate those who have a particular object in view, this department has three special courses of Laboratory work arranged. See also pages 36 and 37, and list of Periodicals, page 51.

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. Isolation 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 Blow-pipe 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, page 38, and the courses of study in Languages on page 58; also, "Library" on page 18, and "Periodicals," page 51.

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.

GERMAN.

This language, being of practical value to the farmer and artisan, is taught thoroughly. The first year should enable the student to read German scientific works; the second year completes the course, and should make him thoroughly acquainted with the language. Books of reference: Becker's *Deutsche Grammatik*; Grimm's *Deutsche Sprache*; Grimm's and Sander's Dictionaries. See *Periodicals*, page 51.

1. Comfort's Complete German Course. Etymology completed; Conversational Reader commenced. Syntax; Reader completed.

2. Review of Etymology; Classic Reader; Review of Syntax; Schiller's "*Jungfrau von Orleans*;" Goethe's "*Iphigenia*." Heyse's *Leitfaden der Deutschen Sprache*; German Composition and Conversation; Lectures on the German Language and Literature. Reading of German Papers. A third year of German Rhetoric and Composition, Literature and History, will be added to this course.

FRENCH.

The studies of the first year should enable the student to read French Scientific Works, and in the second he should become well acquainted with the language. See list of *Periodicals*, page 51.

1. Review of Grammar; Classic French Literature. Modern French Literature, novels, comedies, etc. Composition; History of French Literature; Written criticisms of French authors, weekly.

2. Etymology; Exercises in pronunciation. Written translations, English into French; Select readings. Syntax; Translations; French composition.

LATIN.

See page 38 for preparatory, and page 58 for 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 Poet*; 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 39 for preparatory, and page 58 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 two terms in the first, and three each in the third and fourth years of the University Courses.

1. Discovery, settlement and colonial history of the United States, with notices of other American States; American Geography, History of the United States from the time of the Revolution — two lectures or lessons a week.

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

4. Constitutional history of England and of the United States — four 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. The æsthetic. Phenomena of dreaming, clairvoyance and insanity. Doctrines of the absolute and the unconditioned. Philosophy of education. SECOND T. Moral Philosophy — three lectures a week. Theory of conscience, Nature of moral obligation, Moral Feeling, The Right. The Good. Practical ethics; Duties. Formation of character. Logic, formal and inductive — two lectures a week. 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. Inductive logic.

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, Transversals, 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, subtangents, 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.

A Physical Laboratory has been established in the New Building, and amply furnished, by special state appropriation, with apparatus for experimental investigation. Here the student, in connection with the study of the principles, carefully repeats many of the most important experiments. Special attention is given to molecular force, properties of matter, laws of undulation, spectrum analysis, laws of heat, electricity and magnetism.

Chemical Physics is given in a special course of lectures.

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 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.

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 hour 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 in 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 the standing of each student, 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 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.

SUPERINTENDENTS' CERTIFICATES.

To prevent pecuniary loss to those living at a distance, not prepared to enter the University, but who 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 the first term of their attendance.

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 52.

LADIES' BOARDING HALL.

Until the old University building can be thoroughly refitted and devoted to the use of lady students, and to the School of Domestic Science and Art, and other schools for women, young ladies may find suitable accommodations and care at the Hall, which has been opened near the University. This affords good rooms for about forty students, with parlor, dining room, kitchen, laundry and music room. The whole is under the charge of a competent steward and experienced matron. As the number who can be accommodated is limited, all who desire rooms should apply early to the steward, Rev. A. N. Page; no room will be reserved after the opening of the term. The private rooms, for two students each, are furnished with bedstead, wardrobe, wash-stand, two chairs, table and stove. Those desiring it may have rooms fully furnished. The charges for room and board for the coming year will be as follows: Board, with unfurnished rooms, \$3 a week; board, with rooms furnished as above, \$3.50; board, with rooms fully furnished, \$4. *Payment must be made monthly in advance.*

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, and 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 go out four hours each alternate 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.

STUDENTS' ORGANIZATIONS.

UNIVERSITY BATTALION—Commander, Colonel Edward Snyder; Captains, W. W. Wharry, I. P. Dobson, James Faulkner, William Watts, W. S. Everhart, F. M. Palmer. *University Cornet Band*—Fifteen instruments; Henry S. Dunlap, Leader.

LITERARY SOCIETIES—*Adelphic*—C. P. Jeffers, Pres.; W. Mackay, Sec. *Philomathean*—D. Mackay, Pres.; H. H. Tyndale, Sec.

SCIENTIFIC ASSOCIATION—C. C. Syford, Pres.; E. Walker, Sec. *Alethemai*—Miss M. E. Stewart, Pres.; Miss Jennie Baker, Sec.

CHRISTIAN ASSOCIATIONS—*Y. M. C. A.*—C. P. Jeffers, Pres.; R. H. Hannah, Sec.

MUSICAL SOCIETIES—*University Choir*—C. E. Elliott, Chorister; Miss A. Cheever, Organist. *Apollothemesians*— — — — —, Pres.; — — — — —, Sec.

GYMNASIUM CLUB—D. Barnard, Leader; James Faulkner, Treas.

STUDENTS' GOVERNMENT.

EXECUTIVE.—J. L. Pierce, Pres.; A. E. Barnes, Sec.; W. Mackay, Marshal.

JUDICIARY.—F. P. Dobson, Chief Justice; J. R. Mann and D. E. Barnard, Associate Justices; F. E. Wright, Prosecuting Attorney.

LEGISLATIVE.—George Kenower, President of Senate; C. Weston, Secretary of Senate.

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.

Citizens of Champaign and Urbana have contributed over \$2,000 for casts in plaster and plastique of some of the most celebrated, ancient and modern statuary, to be selected this summer in Rome, Florence, Paris, London, and other great art centers. The collection will also include a large number of busts of celebrated men, and copies of architectural and other sculptures. The University already has a large collection of valuable pictures, portraits and photographs, of large size, of famous places, paintings and buildings, which will be increased by new purchases to be made in Europe. A beautiful hall nearly 60 by 80 feet has been set apart to receive these collections. The value of the fine arts in general education, and in their reactive influence on the useful arts, is just beginning to be appreciated in this country.

PERIODICALS IN THE LIBRARY.

AGRICULTURAL AND HORTICULTURAL — American Agriculturist, Chemische Ackersmann, Cultivator and Country Gentleman, California Journal, Journal d'Agriculture, Michigan Farmer, New England Farmer, Northwestern Farmer, National Live Stock Journal, Prairie Farmer, Rural New Yorker, Rock River Farmer, Southern Cultivator, Viehsucht, Western Agriculturist, Western Rural, Willamette Farmer, Gardeners' Monthly, Horticulturist, Revue Horticole, Farmers' Home Journal. ENGINEERING — American Builder, Le Moniteur des Architectes, Manufacturer and Builder, Mining Journal — London, Railroad Gazette, Railway Review, Scientific American, The Builder — London, The Workshop, Van Nostrand's Eclectic Engineering Magazine. SCIENTIFIC — American Chemist, American Journal of Science, American Naturalist, Annalen der Physic, British Microscopic Journal, British Journal of Science, Comptes Rendus, Geological Magazine — London, Journal of the Franklin Institute, Nature, Polytechnische Journal, Philosophical Magazine — London, Popular Science Monthly, Journal of Chemistry, Revue Scientifique. LITERARY — Edinburgh Review, London Quarterly, The Nation, North American Review, North British Review, Revue des Deux Mondes, Scribner's Magazine, Revue Politique et Litteraire. PHILOLOGICAL — Archiv fuer Studium der Neueren Sprachen und Literatur. NEWS — Champaign County Gazette, Centralia Sentinel, Illinois State Journal, Illinois Staats Zeitung.

CALENDAR FOR 1874.

Baccalaureate Address in University Chapel.....	June 7.
Third Term Examinations commence.....	June 5.
Examinations for Admission, and Closing of Third Term.....	June 9.
Class Day.....	June 8.
Society Addresses.....	June 9.
Commencement Day, Wednesday.....	June 10.

Vacation of Fourteen Weeks.

Examinations for Admission.....	September 16.
First or Fall Term begins.....	September 17.
First Term Examinations begin.....	December 21.
Closing of the First Term.....	December 23.

Vacation of Two Weeks.

FOR 1875.

Examinations for Admission to Advanced Classes.....	January 5.
Opening of the Second or Winter Term.....	January 6.
Anniversary Day.....	March 11.
Second Term Examinations begin.....	March 22.
Second Term closes.....	March 24.
Third or Spring Term begins.....	March 25.
Third Term Examinations commence.....	June 3.
Baccalaureate Sermon in University Chapel.....	June 6.
Class Day.....	June 7.
Competitive Speaking; Society Addresses.....	June 8.
Commencement Way, Wednesday.....	June 9.

Vacation of Fourteen Weeks.

EXPENSES.

THE TUITION IS FREE in all the University Classes.

THE MATRICULATION FEE entitles the Student to membership in the University until 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

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 for thirty-six weeks at the University :

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

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

COURSES OF STUDY

Recommended by the Faculty of the University.

EXPLANATIONS.

The following are the Courses arranged for the Schools of the University, as stated upon page 21. Students who are to graduate in a school must follow closely, and in the proper order, the studies assigned to them. Those studies of a course which are collateral are separated from each other by semicolons, which are reserved for that purpose. Where two or more studies are taken up consecutively, the time devoted to each is indicated by the proper number, followed by w. for weeks. For each study not otherwise marked, the student is expected to be in prompt and regular attendance in the proper University Class Room, during one assigned hour each school day. Variations from this are indicated by placing after the study simply a numeral stating the number of hours per week required. For "Special Exercises" the time cannot be given.

COURSE 0; THE ELECTIVE COURSE.

(Refer to page 20, under "FREEDOM IN CHOICE OF STUDIES.")

COURSE 1; SCHOOL OF MILITARY SCIENCE.

FIRST YEAR.

1. School of the company. Bayonet fencing.
2. Battallion and skirmish drill. Bayonet fencing.
3. Brigade and division evolutions. Target practice, and theoretical instruction on firearms.

SECOND YEAR.

1. Military administration. Reports and returns. Army regulations and military laws. Sword fencing.
2. Mahan's outpost and picket duty. Sword fencing.
3. Art of war. Strategy and grand tactics. Organization of armies.

THIRD YEAR.

1. Artillery practice. Drill at the cannon. Field artillery.
2. Military engineering. Cavalry tactics— theoretical.
3. Military fortifications. Field and permanent bridges and roads. Military history and statistics.

COURSE 12; SCHOOL OF COMMERCE.

FIRST YEAR.

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 2; SCHOOL OF AGRICULTURE.

FIRST YEAR.

1. Plane Geometry ; Chemistry ; English or Latin ; History, 2.
2. Botany ; Chemistry ; English or Latin ; History, 2 ;
3. Botany ; Chemical Laboratory Practice, 10 ; English or Latin.

SECOND YEAR.

1. Farm Surveying, 10, 7w. Soils, 7w ; Cryptogamic Botany ; French, or Analytical Chemistry, 10,
2. Chemistry of Soils and Manures, 2 ; Farm Mapping, 6 ; Zoölogy ; French, or Analytical Chemistry, 10.
3. Drainage, 6w. Mechanical Treatment of Soils, 5w. ; Entomology ; French, or Analytical Chemistry, 10.

THIRD YEAR.

1. Orchard Fruits ; Anatomy and Physiology ; German or History.
2. Animal Husbandry ; Geology ; German or History.
3. Agricultural Bookkeeping ; Rural Law and Economy ; German or History.

FOURTH YEAR.

1. Dairy Farming and Farm Manufactures ; Mental Philosophy or Constitutional History ; History of English and American Literature.
2. Veterinary Surgery ; Physical Geography and Meteorology ; Rural Architecture.
3. Landscape Gardening ; Geology of Illinois or Political Economy ; History of Philosophy or Logic.

COURSE 3; SCHOOL OF HORTICULTURE.

FIRST YEAR.

1. Plane Geometry ; Chemistry ; English or Latin ; History, 2.
2. Botany ; Chemistry ; English or Latin ; History, 2.
3. Botany ; Chemical Laboratory Practice, 10 ; English or Latin.

SECOND YEAR.

1. Farm Surveying, 10, 7w. Soils, 7w. ; Cryptogamic Botany ; French or Analytical Chemistry, 10.
2. Chemistry of Soils and Manures, 2 ; Farm Mapping, 6 ; Zoölogy ; French or Analytical Chemistry, 10.
3. Drainage, 6w. Mechanical Treatment of Soils, 5w. ; Entomology ; French or Analytical Chemistry, 10.

THIRD YEAR.

1. Orchard Fruits ; Anatomy and Physiology ; German or History.
2. Propagation of Plants ; Geology, German or History.
3. Small Fruits and Vegetables ; Rural Law and Economy ; German or History.

FOURTH YEAR.

1. Green Houses ; Mental Philosophy or Constitutional History ; History of English and American Literature.
2. Garden Architecture ; Physical Geography and Meteorology ; History of Civilization.
3. Landscape Gardening ; Geology of Illinois, or Political Economy ; History of Philosophy or Logic.

COURSE 4; MECHANICAL ENGINEERING.

FIRST YEAR.

1. Advanced Algebra ; Drawing 10w ; Descriptive Geometry, 4w ; English or French ; History, 2.
2. Advanced Geometry ; Free-hand Drawing, 10 ; English or French ; History, 2.
3. Plane and Spherical Trigonometry ; Botany, 10 ; English or French ; History, 2.

SECOND YEAR.

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

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 Pneumatics, Trusses ; Geology or Mental Philosophy ; Vacation Journal and Memoir.
2. Prime Movers, Millwork ; Finished Machine Drawings, 10 ; History of Civilization ; Experimental Physics, 2.
3. Millwork and Machines ; Designs and Estimates, 10 ; Political Economy ; Thesis.

COURSE 5; SCHOOL OF CIVIL ENGINEERING.

FIRST YEAR.

1. Advanced Algebra ; Drawing 10w, Descriptive Geometry 4w, 10 ; English or French ; History, 2.
2. Advanced Geometry ; Free-hand Drawing, 10 ; English or French ; History, 2.
3. Plane and Spherical Trigonometry ; Free-hand Drawing, 10 ; English or French ; History, 2.

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.
3. Analytical Mechanics, 3 ; Descriptive Astronomy, 4 ; Physics ; Chemical Laboratory Practice, 10.

FOURTH YEAR.

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

COURSE 6; SCHOOL OF MINING ENGINEERING.

FIRST YEAR.

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

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, 1 ; Practical Astronomy and Geodesy, 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 7 ; SCHOOL OF ARCHITECTURE.

FIRST YEAR.

1. Advanced Algebra, 5 ; Projection Drawing, 10 ; English or French, 5 ; Shop Practice, 10 ; Lectures on U. S. History, 2 hours per week.
2. Advanced Geometry, 10 ; Free-hand Drawing, 10 ; English or French, 5 ; Shop Practice, 10.
3. Trigonometry, 5 ; Free-hand Drawing, 10 ; English or French, 5 ; Shop Practice, 10.

SECOND YEAR.

1. Elements of Construction, 10 ; Descriptive Geometry, 10 ; Surveying and Leveling, 5 ; German, 5.
2. Advanced Shop Practice, 10 ; Analytical Geometry, 5 ; Water-color Painting, 10 ; German, 5.
3. History of Architecture, Preliminary, 5 ; Calculus, 5 ; Architectural Drawing, 10 ; German, 5.

THIRD YEAR.

1. History of Architecture, 5 ; Calculus, 5 ; Architectural Drawing, 10 ; Chemistry, 5.
2. History of Architecture, 5 ; Shades, Shadows and Perspectives, 10 ; Physics, 5.
3. History of Architecture, 5 ; Architectural Designing, 10 ; Physics, 5.

FOURTH YEAR.

1. Strength of Materials ; Trusses, 5 ; Estimates, 5 ; Architectural Designing, 10 ; Geology or Mental Philosophy, 5.
2. Bridges, 5 ; Heating and Ventilation, 2 ; Specifications, Agreements, etc., 3 ; Architectural Designing, 10.
3. Stone Work, 10 ; Æsthetics of Architecture, 5 ; Thesis.

COURSE 8; SCHOOL OF NATURAL HISTORY.

FIRST YEAR.

1. Inorganic Chemistry ; Geometry ; English or Latin ; Chemical Physics, 2.
2. Botany ; Algebra ; English or Latin.
3. Advanced Botany ; Trigonometry ; English or Latin.

SECOND YEAR.

1. Cryptogamic Botany ; Anatomy and Physiology ; French.
2. Zoology ; French ; Drawing, 10, or Laboratory Practice, 10.
3. Special Entomology ; French ; Drawing, 10, or Laboratory Practice, 10.

THIRD YEAR.

1. Mineralogy ; Ancient History ; German.
2. Geology ; Medieval History ; German.
3. Lithological Geology ; Modern History, or Drawing, 6, and Descriptive Astronomy, 4 ; German.

FOURTH YEAR.

1. History of Geology ; Comparative Anatomy ; Mental Philosophy.
2. Meteorology and Physical Geography ; Physics ; History of Civilization.
3. Geology of Illinois ; Excursions ; Political Economy ; Physics ; Logic.

COURSE 9; SCHOOL OF CHEMISTRY.

FIRST YEAR.

1. Inorganic Chemistry ; Geometry ; English ; Chemical Physics, 2.
2. Organic Chemistry ; Laboratory Practice, 10 ; Algebra ; English.
3. Crystallography and Mineralogy ; Laboratory Practice, 10 ; Trigonometry ; English.

SECOND YEAR.

1. Determinative Mineralogy ; Analytical Chemistry, 10 ; Anatomy and Physiology ; or Advanced Algebra ; German.
2. Analytical Chemistry, 10 ; Botany ; Analytical Geometry ; German.
3. Analytical Chemistry, 10 ; Advanced Botany ; Entomology or Calculus ; German.

THIRD YEAR.

1. Practical Chemistry, 10 ; Comparative Anatomy ; Vegetable Physiology ; French.
2. Practical Chemistry, 10 ; Physics ; Medieval History ; French.
3. Practical Chemistry, 10 ; Physics ; Modern History ; French.

FOURTH YEAR.

1. Chemical Researches, 10 ; Geology ; Mental Philosophy.
2. Chemical Researches, 10 ; Geology ; History of Civilization.
3. Thesis, 10 ; Geology of Illinois ; Political Economy.*

COURSE 10; SCHOOL OF ENGLISH AND MODERN LANGUAGES.

FIRST YEAR.

1. Advanced Grammar ; Geometry ; Chemistry ; History, 2.
2. American Authors ; Algebra ; Free-hand Drawing, 10, or Chemistry ; History, 2.
3. British Authors ; Trigonometry or Chemistry ; Botany or Book-keeping.

SECOND YEAR.

1. Rhetoric ; French ; Advanced Algebra, or Descriptive Geometry, or Anatomy and Physiology.
2. English Classics : French ; Analytical Geometry or Zoology.
3. English Classics ; French ; Calculus, or Mineralogy and Entomology.

THIRD YEAR.

1. English Classics ; German ; Ancient History and Drawing, or Anatomy and Physiology.
2. English Classics ; German ; Medieval History or Geology.
3. Aesthetics and Criticism ; German ; Modern History or Geology.

FOURTH YEAR.

1. Mental Science ; Constitutional History or Geology ; Practical Astronomy.
2. Moral Philosophy, 3 ; Logic, 2 ; History of Civilization and the Arts ; Physical Geography or Physics.
3. History of Philosophy, Logic ; Political Economy ; Constitutional Law or Physics.

COURSE 11; 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 ; Prose Composition ; Algebra ; Herodotus and Prose Composition, or Chemistry.
3. Horace — Odes, Prosody, Roman History ; Trigonometry or Chemistry ; Thucydides or Botany.

SECOND YEAR.

1. Horace — Satires and Ars Poetica ; Descriptive Geometry or Advanced Algebra, or Anatomy and Physiology ; Iliad and Greek Prosody.
2. Juvenal ; Analytical Geometry or Zoölogy ; Iliad.
3. Quintilian ; Calculus or Mineralogy and Entomology ; Demosthenes de Corona.

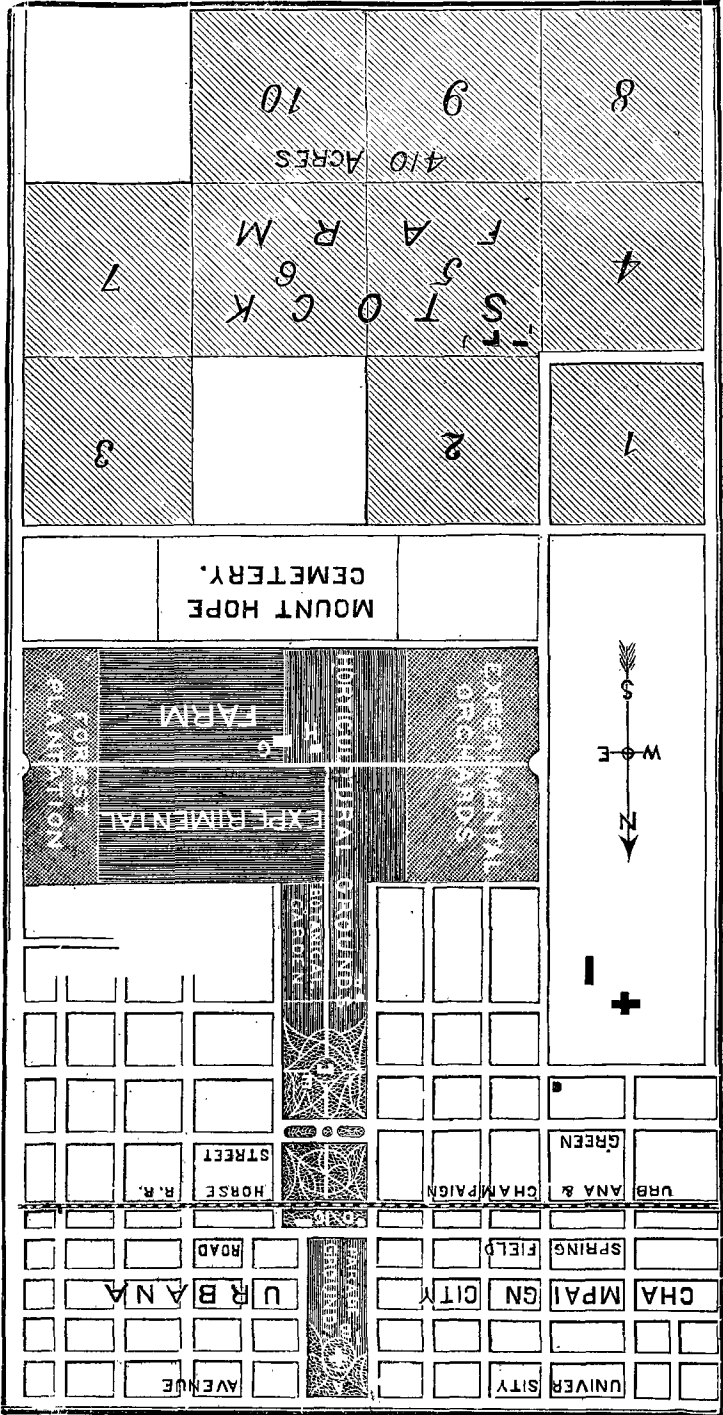
THIRD YEAR.

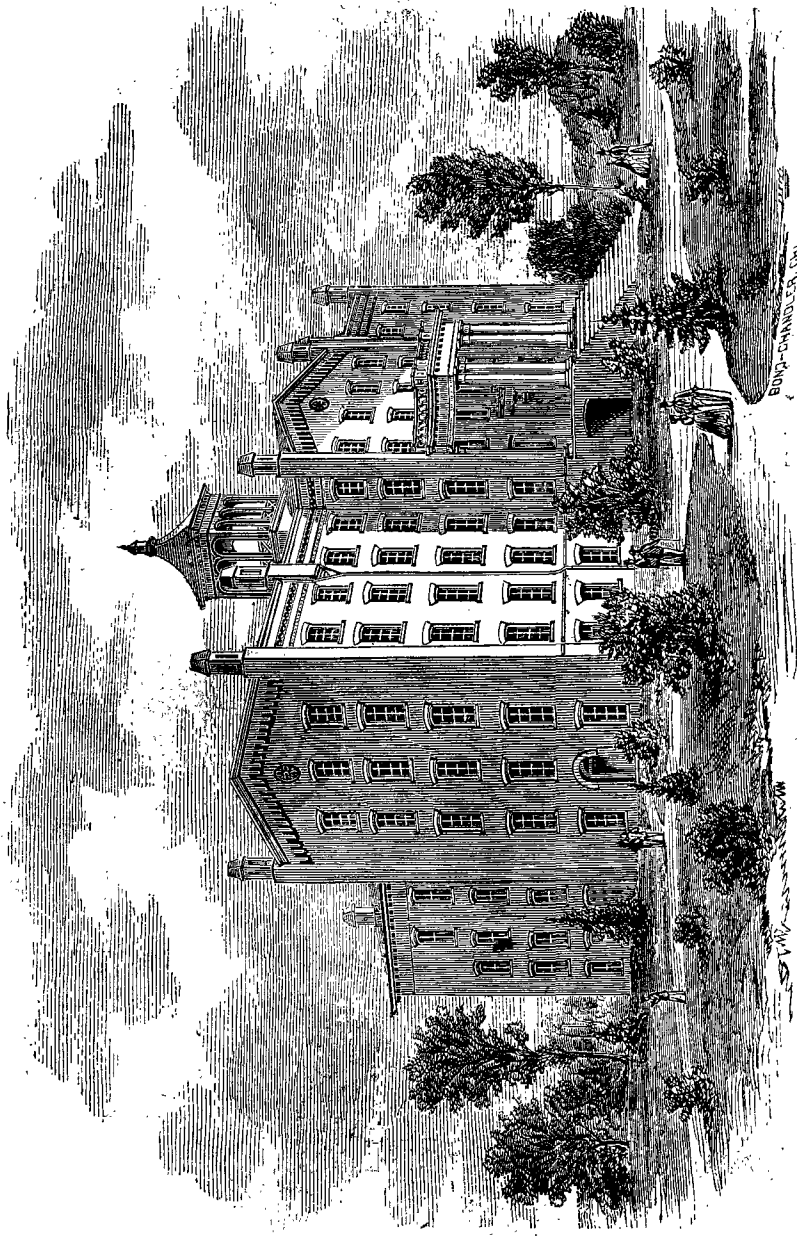
1. Cicero de Officiis ; Ancient History, or Comparative Anatomy and Physiology ; Selections from Greek Tragedy,
2. Tacitus ; Mediæval History or Geology ; Xenophon's Memorabilia.
3. Tacitus ; Modern History or Geology ; Plato and Grecian Philosophy.

FOURTH YEAR.

1. Mental Science ; Constitutional History or Geology ; Practical Astronomy.
2. Moral Philosophy ; Logic, 2 ; History of Civilization and the Arts ; Physical Geography or Physics.
3. History of Philosophy ; Logic ; Political Economy ; Constitutional Law or Physics.

MAP OF UNIVERSITY GROUNDS.





BOND-CHANDLER, CH.

UNIVERSITY DORMITORY.