

CATALOGUE OF THE ILLINOIS



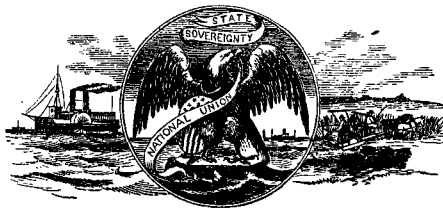
INDUSTRIAL UNIVERSITY.

CATALOGUE AND CIRCULAR

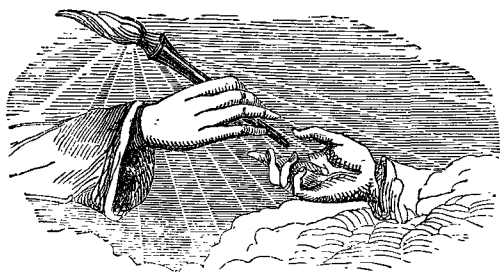
OF THE

Illinois Industrial University,

URBANA, CHAMPAIGN COUNTY.



ILLINOIS:
PUBLISHED BY THE UNIVERSITY,
1872.



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HON. JOHN M. GREGORY, Regent.	<i>Ex officio.</i>
HIS EXCELLENCY the Governor of Illinois, . . .	“
THE SUPERINTENDENT of Public Instruction, . .	“
THE PRESIDENT of the State Agricultural Society,	“

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Term Expires in 1873.

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Term Expires in 1875.

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Term Expires in 1877.

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J. M. GREGORY,
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E. COBB,
J. O. CUNNINGHAM,
M. C. GOLTRA,
L. W. LAWRENCE,
J. M. PEARSON,
J. H. PICKRELL,
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Professor of Mechanical Engineering.
- THOMAS J. BURRILL,
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Professor of Mathematics.
- CAPT. EDWARD SNYDER,
Professor of German and Military Tactics, and
Instructor in Bookkeeping.
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Professor of Geology and Zoology.
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Professor of Civil Engineering.
- I. D. FOULON,
Instructor in French.
- *DR. H. J. DETMERS,
Lecturer on Veterinary Science.
- HARALD HANSEN,
Instructor in Architecture and Free Hand Drawing.
- *JUDGE J. O. CUNNINGHAM,
Lecturer on Commercial Law.
- CHARLES W. SILVER, } Assistants in Chemical
HENRY S. REYNOLDS, } Laboratory.

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Professor of Agriculture.
- *THOMAS MEEHAN,
Lecturer on Vegetable Physiology and Fruit Growing.
- HON. W. C. FLAGG,
Superintendent of Experimental Farm.

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D. A. STEDMAN, Foreman of Wood-working Department. H. K. VICKROY, Orchardist & Gardener.
E. L. LAWRENCE, Head Farmer.

HISTORICAL.

THE ILLINOIS INDUSTRIAL UNIVERSITY IS BOTH STATE AND
NATIONAL IN ITS ORIGIN AND CHARACTER.

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 agriculturalists and other industrial classes, flooded the State Legislature. At length in 1856, 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 immediately excited in the question of its organization and location. Princely donations, in some cases of half a million of dollars, were tendered by several counties to secure the location of the institution in their midst. In February, 1867, a law was passed fixing the location and defining the plan of the University, and, in May of the same year 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. The 2d day of March, 1868, the University was opened for students, and on the 11th of the same month, formal inauguration exercises were held.

In the Autumn of 1871 the University was opened for the instruction of female students, and now it offers all its advantages to all classes of society, without regard to sex, sect or condition.

NAMES OF STUDENTS.

Name.	Residence.	Course.	Years.
ADAMS, GEORGE C.	Fairmount,	Agl. ✓	1
ADAMS, W. W.	Urbana,		
ALDRICH, JASHER W.	Tiskilwa,	Agl. ✓	3
ALLEN, EMORY A.	Sheffield,	C. E. ✓	1
ANTHONY, JOSEPH R. J.	Princeton,	L. S.	
AUSTIN, THOMAS W.	Louisville,		
BAKER, FRANK S.	Tarboro, N. C.,	L. S.	1
BAKER, HORATIO F.	Mattoon,	C. E. ✓	1
BAKER, IRA O.	Mattoon,	C. E. ✓	3
BAKER, JULIAN M.	Tarboro, N. C.,	L. S.	1
BAKER, WILLIAM S.	Tarboro, N. C.,	Agl. ✓	1
BALCOM, STEPHEN F.	Edgewood,	C. E. ✓	1
BALLOU, EDWARD L.	Shelbyville, N. C.,	Agl. ✓	1
BARLOW, WILLIAM L.	Tarboro, N. C.,	Agl. ✓	1
BARNES, ARTHUR E.	Champaign,	Chem. ✓	1
BARNETT, GEORGE	Indianola,	Coml. ✓	1
BARNETT, JOHN	Indianola,	Agl. ✓	1
BARTLETT, ARTHUR W.	Indianapolis, Ind.,	M. E. ✓	1
BEASLEY, JOSEPH T.	Champaign,	Agl. ✓	2
BERLIN, ROBERT C.	Granville,	Arch. E. ✓	1
BIRD, ALBERT J.	Rochelle,		
BLAGDEN, ALONZO D.	Genoa,	Coml. ✓	1
BLAKE, ARTHUR E.	Mendota,	C. E. ✓	1
BOLES, FRANK	Bloomfield,		
BOON, THOMAS J.	Sidney,	C. E. ✓	1
BOWERS, JOHN H.	Blue Grass,	C. E. & Mil. ✓	1
BOYER, CHARLES S.	Walla Walla, Wash. Ter.	Min. E. & Mil. ✓	1
BRADLEY, CYRUS D.	Milan,	Coml. ✓	1
BRADLEY, REUBEN H.	Roscoe,	C. E. ✓	1
BRADWAY, AUGUSTUS C.	Hainesville,	M. E. ✓	1
BRENNEMAN, JOSEPH	Granville,	Agl. ✓	1
BREESE, AMBROSE	Sandwich,	M. E. ✓	1
BROOKS, FRANCIS M.	Newton,	Coml. ✓	1
BROOKE, SAMUEL P.	Lyndon,	Elect.	2
BROWN, DILLON S.	Genoa,	Agl. ✓	1
BROWN, FRANK B.	Peru, Ind.,	Elect.	1
BROWN, RALPH L.	Marengo,	L. & S.	1
BURWASH, MILO B.	Champaign,	Agl. ✓	4
BUTLER, ALBAN	Decatur,	C. E. ✓	1
BURSOM, LUTHER E.	Vermillion,		

Name.	Residence.	Course.	Years.
CAMPBELL, JOHN P.	McLeansboro,	C. E. ✓	2
CANTRELL, JOHN E.	Lincoln,	M. E.	3
CATE, HCRATIO W.	Hamilton,		
CHANDLER, WILLIAM B.	Bourbon,	Agl. ✓	1
CHAPMAN, HENRY H.	Elvaston,	Agl. ✓	2
CHASE, WILLIS H.	Chicago,	C. E. & Mil. ✓	2
CLAY, LUTHER G.	South Pass,	Hort. & Mil. ✓	1
COATS, HENRY L.	Nunda,	C. E. ✓	2
CODINGTON, VANTILE W.	Menomonee, Wis.,	M. E. ✓	1
COFFIN, EARL W.	Oakland,	Agl. ✓	1
COLE, HENRY C.	Chester,	Chem. ✓	1
COLE, RICHARD H.	Peru, Ind.,	C. E. & Mil. ✓	2
COLLINS, LEANDER A.	Carbondale,		
COLUMBIA, THOMAS B.	Champaign,	Elect.	2
CONNOR, HENRY	Burton,	L. & S. & Mil.	1
CONNET, DICKEY	Champaign,	Agl. ✓	1
COOK, FRANCIS	Nokomis,		
CORSON, EDWARD	Richland,	M. E. & Mil. ✓	1
COVINGTON, MARCELLUS E.	Havana,	Elect.	1
COWEN, ROBERT H.	Champaign,	Agl.	1
COYKENDALL, MILTON	Brushy Fork,	Elect.	1
CRAIG, AUGUSTUS L.	Aledo,	L. & S.	1
CRAIG, CALVIN	Liberty,	Chem. ✓	1
CRAVER, JAMES C.	Jonesboro,	Chem. ✓	2
CRAWFORD, JOHN S.	Champaign,		
CRAWLEY, JOHN J.	Tuscola,	Elect.	2
CRAYNE, WILLIAM H.	Urbana,	M. E. ✓	2
CRAYNE, JOHN S.	Urbana,	Agl. ✓	1
CUSSINS, JAMES S.	Decatur,	L. & S. & Mil.	2
DAVENPORT, JOSEPH J.	Minonk,	Mil.	1
DAVIS, CHARLES	Marengo,	L. & S. & Mil.	1
DAVIS, JOHN J.	Freeport,	Agl. & Chem. ✓	3
DAVIS, TAYLOR	Bourbon,	L. & S. & Mil.	2
DIER, WILLIAM A.	Forreston,	L. & S.	1
DOBSON, FRANKLIN P.	Minonk,	C. E. & Mil. ✓	1
DOVE, CLARENCE F.	Forreston,	L. & S.	1
DOWE, ARTHUR W.	Rock Island,	C. E. ✓	1
DOWELL, WILSON J.	Lexington,	Arch. ✓	3
DRAKE, JOSEPH F.	Belvidere,	Hort. ✓	1
DRAPER, EDWIN F.	Nokomis,	Mil.	1
DREWRY, EBENEZER L.	Mason,		
DREWRY, HENRY N.	Mason,	Elective,	3
DUNAYSKI, FRANK A.	Danzig, Germany,	Agl. ✓	1
DUNHAM, HORACE E.	Pittsfield,		
DUNLAP, BURLEY A.	Savoy,	C. E. ✓	1
DUNLAP, CLERMONT D.	Norwood,	C. E. ✓	2
DUNLAP, ERNEST L.	Savoy,	Agl. ✓	1

STUDENTS.

9

Name.	Residence.	Course.	Years.
DUNLAP, HENRY	Savoy,	Agl. ✓	2
DUNLAP, WARREN	Keokuk Junction,	C. E. ✓	2
DUNNING, RUSSELL O.	Jefferson,	Hort. ✓	2
EATON, HERBERT	Philo,	Agl. & Mil. ✓	3
EATON, ERNEST	Philo,	Agl. ✓	3
ELDER, JOSEPH W.	Marissa,	M. E. ✓	1
ELLISON, THEODORE S.	Marine,	Agl. ✓	1
ELLS, WILLIAM C.	Champaign,	C. E. ✓	2
ESTEP, HARVEY C.	Rantoul,	C. E. ✓	2
EVERHART, WINFIELD S.	Neoga,	M. E. & Mil. ✓	1
EYMAN, WALTER	Belleville,	C. E. ✓	1
FAULKNER, WATSON	Champaign,	Coml. ✓	2
EAULKNER, JAMES	Clement,	Hort. & Mil. ✓	2
FERRIS, WILLIAM W.	Champaign,		
FIDLER, WILLIAM A.	Neoga,		
FILSON, WILLIAM F.	Xenia,		
FLAGG, ALFRED M.	Moro,	L. & S. & Mil.	4
FOSTER, CHARLES W.	Scott,	Agl. ✓	3
FOLKS, WILLIS K.	Champaign,	C. E. ✓	1
FREDERICKSON, WILLIAM O.	Champaign,	C. E. ✓	1
GABRIEL, GREGORY	Armenia, Asia Minor,	Agl. ✓	2
GARDNER, WILLIS S.	Champaign,	Elect.	1
GENNADIUS, PANAJIOTTIS	Athens, Greece,	Agl. ✓	2
GILL, JOHN D.	Antwerp,		
GOODRICH, NATHANIEL K.	Cobden,	Coml. & Mil.	1
GRAHAM, CHARLES P.	Champaign,	Elect.	3
GREGORY, CHARLES E.	Rochelle,	L. & S. & Mil.	2
GREGORY, SAMUEL F.	Sand Lake, N. Y.	Elect. & Mil.	2
GRIDLEY, GEORGE N.	Half-Day,	Agl. ✓	3
GROVES, CHARLES W.	Champaign,		
GROVES, JOHN I.	Champaign,		
HALL, WALTER O.	Sugar Creek,	Agl. ✓	2
HANCOCK, OSCAR W.	Neoga,		
HANNAH, RICHARD H.	Rossville,	Hort. ✓	1
HANSBROUGH, JOHN F.	Chicago,	Coml.	1
HATCH, FREDERICK L.	Bliven's Mills,	Agl. ✓	2
HATCH, MILES F.	Bliven's Mills,	M. E. ✓	3
HAWORTH, FILMORE A.	Georgetown,	Agl. ✓	1
HAYS, CHARLES I.	Bridgeport,	Hort. ✓	2
HENNESSEY, AUGUSTUS L.	Utica,	C. E. ✓	3
HESSEY, CLARENCE K.	Champaign,	Arch. ✓	2
HILL, EDGAR L.	Effingham,	Chem. & Mil. ✓	3
HOBART, CHARLES H.	Downer's Grove,		
HOLMES, CHARLES B.	Urbana,	Elect.	1

Name.	Residence.	Course.	Years.
HOLTON, HENRY C.	Indianola,	Elect.	2
HOOK, SAMUEL H.	Urbana,	C. E. ✓	2
HOOVER, HENRY C.	Urbana,		
HORNBERGER, OLIVER B.	Macon,	Elect.	1
HOWE, CHARLES	Wenona,	Agl. ✓	1
HUBBARD, GEORGE W.	Urbana,	Elect.	1
HUEY, CHARLES J.	Clement,	M. E. ✓	1
HUGHS, JOHN M.	Sparta,		
HULL, EVELYN T.	Alton,	Hort. ✓	1
HURST, DAVID A.	Chillicothe, Ohio,	Elect.	1
JACK, SAMUEL B.	Beaucoup,	Agl. ✓	1
JEFFERS, CHARLES P	Lyndon,	Chem. ✓	2
JENNINGS, EMMETT F.	Palermo, N. Y.	Elect.	1
JOHNSON, SAMMIE E.	Okalla,	M. E. ✓	1
JONES, THOMAS A.	Brighton,	Agl. ✓	1
JUDY, WILLIAM S.	Talula,	Elect.	1
KENNEDY, DAVID C.	Clay City,	M. E. ✓	2
KENNEDY, WILLIAM J. W.	Clay City,	Elect.	2
KENNEDY, JOHN W.	Peru,	Elect.	2
KENOWER, GEORGE F.	Clement,	L. & S.	1
KINGSBURY, CHARLES S.	Bowensburg,	C. E. ✓	1
KNAPP, ALBERT J.	Joliet,	M. E. & Mil. ✓	1
KYLE, JAMES H.	Urbana,		
LAMBERT, CYRUS W.	Rantoul,	Mil.	2
LAWHEAD, CHARLES A.	Champaign,		
LEFLAR, JOHN E.	Batavia,	L. S.	2
LEERS, MATTHEW	Sigel,	Elect.	1
LINDLEY, JACOB	New Providence, Iowa,	L. & S.	1
LINDSLEY, IRA S.	Grove City,	Agl. ✓	2
LINN, EDWARD W.	Montgomery, Ala.,	Agl. ✓	2
LOOMER, MELVIN H.	Marengo,	Mil.	1
LOVE, SHARON S.	Philo,	Agl. ✓	1
LUFKIN, GEORGE A.	Villa Ridge,	C. E. ✓	2
LYFORD, CHARLES C.	Roscoe,	Agl. ✓	2
LYMAN, GEORGE H.	Richland,	C. E. ✓	4
LYTLE, GEORGE W.	Champaign,	Coml. ✓	1
MABIN, GEORGE G.	Belvidere,	L. & S.	1
MANN, FRANK I.	Gilman,	Chem. & Mil. ✓	1
MANN, JAMES R.	Gilman,	Mil.	1
MANN, HOWARD A.	Batavia,	L. & S.	2
MANSON, WILLIAM C.	Beaufort, N. C.,	Coml.	1
MATTHEWS, JAMES N.	Mason,	Elect.	4
MATTHEWS, WILSON T.	Camden Mills,	Agl. ✓	1
MCCAULEY, JOHN C	Lincoln,	L. & S.	1

STUDENTS.

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Name.	Residence.	Course.	Years.
McCAULEY, JAMES I.	Beaucoup,	Coml.	1
MCDANNELL, URILLO S.	Rock Island,	L. S.	1
McKINLEY, WILLIAM B.	Champaign,	L. S.	1
McVICKER, W. D.	Saratoga,		
MERRILL, WARREN	Astoria,	Agl. ✓	2
MERRIMAN, CHARLES M.	Champaign,	Agl. ✓	1
MILLER, CHARLES W.	Chicago,	Chem. ✓	2
MILLOT, HENRY C.	Harvel,	Elect.	1
MILTIMORE, CHANCY K.	Janesville, Wis.,	Elect.	1
MINGLE, CHARLES I.	Clyde,	Agl. ✓	1
MITCHELL, AUDUBON Q.	Atilla,	Elect.	1
MOORE, AARON H.	Louisville,		
MORRIS, JOHN C. C.	Lincoln,	Elect.	2
MORROW, ANDREW T.	Pittsfield,	C. E. ✓	3
MORSE, MAHLON C.	Belvidere,	Chem. & Mil. ✓	1
MOSS, FRANK C.	Belvidere,	Chem. & Mil. ✓	1
NEBEKER, CORIE A.	Mahomet,		
NEWBY, SAMUEL M.	Mooreville, Ind.,	Agl. ✓	2
OCKERSON, JOHN A.	Elmwood,	Min. E. ✓	3
OHERN, PATT C.	Ellisville,	C. E. ✓	1
PAGE, CALVIN S. H.	Champaign,		
PAIGE, JAMES A.	Brush Valley, Penn.,	C. E. ✓	1
PALMER, WILLIAM F.	Clinton,	Mil.	1
PALMER, FRANK M.	Clinton,	Mil.	1
PANCAKE, GEORGE H.	Mahomet,	C. E. ✓	3
PARKER, CALVIN E.	Philo,	Agl. & Mil. ✓	4
PARKER, GEORGE W.	Wenona,	M. E. ✓	1
PARKS, JAMES H.	Little York,	C. E. & Mil.	1
PARSONS, FERNANDO A.	Waterloo, Iowa,		
PATCH, EMERY	Janesville, Wis.,	M. E. ✓	2
PATON, JOHN	Lincoln,	M. E. ✓	1
PATON, WILLIAM T.	Paxton,	Elect.	1
PAYNE, THOMAS	Oakland,	M. E. ✓	1
PEADRO, BENJAMIN F.	Windsor,	M. E. ✓	1
PEADRO, ROBERT	Windsor,	C. E. ✓	1
PEARCE, WILBUR R.	Flora,	L. & S.	1
PERRY, EDWARD E.	Beaufort, N. C.,	Agl. ✓	2
PERRY, GEORGE M.	Terre Haute,	L. & S.	2
PERRY, JAMES D.	Terre Haute,		
PHENIX, SAMUEL T.	Bloomington,	Hort. ✓	2
PHILLIPS, PARLEY A.	Damascus,	Elect.	3
PICKRELL, WATSON	Mechanicsburg,	Agl. ✓	1
PICKRELL, WILLIAM	Mechanicsburg,	Hort. ✓	2
PLATT, FRANKLIN C.	Warren,	Mil.	2
PLESSNER, HERMAN	Champaign,	Agl. ✓	1

Name.	Residence.	Course.	Years.
POAGE, JAMES S.	Aledo,		
POLLOCK, WILLIAM C.	Mt. Vernon,	Chem. ✓	1
POOLE, FRANK R.	Cobden,	C. E. ✓	1
POPE, BENJAMIN W.	Du Quoin,	Elect.	1
POPE, PEYTON S.	Big Muddy,	Elect.	1
PORTERFIELD, NEWLAN E.	Sidney,	M. E. ✓	3
PRATHER, HAMAR S.	Urbana,	Agl. ✓	1
PRATT, GEORGE D.	Mahomet,	Coml.	2
PRICKATT, CHARLES M.	Ringwood,	Elect.	1
PROUDFIT, SAMUEL M.	McLeansboro,	Elect.	2
PULLIAM, WILLIAM F.	Tolono,		
PUCKETT, RUSSELL T.	Nora,	Agl. ✓	1
PUCKETT, EMERSON R.	Nora,	Agl. ✓	1
REA, RICHARD G.	Urbana,		
REINHARDT, ADOLF	Granville,		
REISS, WILLIS A.	Belleville,	C. E. ✓	4
REYNOLDS, HENRY S.	Urbana,	Agl. ✓	3
REYNOLDS, STEPHEN A.	Belvidere,	L. & S. & Mil.	4
RHODES, JAMES F.	Dwight,	L. & S. & Mil.	1
RHODES, JOSEPH W.	Dwight,	M. E. ✓	1
RICE, WILLIAM O.	South Pass,		
RICHARDS, GEORGE B.	Seneca,	C. E. & Mil. ✓	1
RICKARD, THOMAS E.	Springfield,	Agl. & Mil. ✓	4
RICKER, CLIFFORD N.	La Harpe,	Arch.	3
REIGER, WILLIAM V.	Kansas City, Mo.,	Agl. ✓	2
RISING, RUDOLPH	Champaign,	Coml. ✓	1
ROBARTS, HEBER	Carbondale,		
ROBBINS, HENRY E.	Wenona,	M. E. ✓	3
ROBBINS, SIMEON V.	Wenona,	M. E. ✓	1
ROEMER, WILLIAM C.	Toledo, Ohio,	Elect.	1
ROBINSON, ELNA A.	Janesville, Wis.,	M. E. ✓	2
ROLFE, CHARLES W.	Oswego,	N. S. ✓	4
RUSSELL, SULLIVAN J.	Elmwood,	C. E. ✓	1
SALTER, REMBRANDT R.	Champaign,	Mil.	2
SAMPSON, CHARLES C.	Fair Play, Wis.,		
SATTERLEE, FRANK W.	Batavia,	L. & S.	2
SATTERLEE, LOUIS A.	Batavia,	Elect.	2
SAXTON, JOHN C.	Belvidere,		
SCOTT, GEORGE W.	Champaign,	Elect.	1
SCOVELL, MELVILLE A.	Champaign,		
SCUDDER, CLARENCE O.	Creston,	Chem. ✓	1
SHAW, CHARLES L.	Pittsfield,	Mil.	1
SHAWHAN, GEORGE R.	Sidney,	L. & S.	1
SHELDON, CLARENCE F.	Urbana,	L. & S.	1
SHERIFF, EDWARD W.	Paris,	Elect.	1
SHORT, ALBERT R.	Fairmount,	Agl. ✓	2

Name.	Residence.	Course.	Years.
SILVER, CHARLES W.	Urbana,	Agl. ✓	4
SILVER, HOWARD	Urbana,	Agl. ✓	3
SMITH, CHARLES A.	Mt. Vernon, Ind.,	M. E. ✓	2
SMITH, IRA W.	Burlington,	Agl. ✓	1
SPENCER, HAMILTON	Bloomington,	Agl. ✓	1
SPRADLING, WILLIAM F.	Sheridan,		
STARR, FRANK A. E.	Elsah,	Hort. & Mil. ✓	1
STAYMAN, JOHN M.	Champaign,	Elect.	1
STEVENS, FRANCIS A.	Newton,	Agl. ✓	2
STEVENS, ITHEL S.	Urbana,		
STEVENS, HARMON G.	Homer,	Elect.	2
STONE, EDWIN B.	New Lebanon,		
STORY, GEORGE	Chicago,	C. E. ✓	2
STRAWN, WILDER F.	Odell,	Mil.	1
STRIBLING, EDGAR M.	Du Quoin,	Agl. ✓	
STRIBLING, JOHN B.	Du Quoin,	M. E. ✓	
STULL, WILLIAM	Marengo,	C. E. & Mil.	1
STURGIS, WILLIAM F.	Denmark,		
SWARTHOUT, JAMES P.	West Dresden, N. Y.,	L. & S.	1
SWARTZ, ALEXANDER C.	Fairview,	C. E. ✓	3
SWEET, LEONARD, C.	Champaign,		
TALBOTT, CHARLES W.	Harristown,	Mil.	2
TATE, CHARLES M.	Rushville,	Elect.	2
TERMIS, ISRAEL W.	Vermillion,	Elect.	2
THOMPSON, ALONZO O.	Urbana,	Agl. ✓	1
TICE, CALVIN E.	Champaign,	Coml.	1
TROWBRIDGE, SILAS	Decatur,	M. E. ✓	2
TURNER, ISAAC	Todd's Point,	C. E. ✓	1
VAUSE, WILLIAM H.	Mattoon,	Elect.	1
WARD, HENRY A.	Terre Haute,	M. E. ✓	1
WALKER, EDWIN G.	Monroe City, Mo.,	M. E. ✓	4
WALKER, ENOCH	Clinton,	M. E. ✓	1
WALKLEY, ALBERT	Jacksonville,	Elect.	1
WALTON, ANDREW J.	Decatur,	Agl. ✓	1
WATTS, WILLIAM	Watts,	C. E. & Mil.	2
WELCH, THOMAS J.	Urbana,	Agl. ✓	1
WESTON, CHARLES	Champaign,	Elect.	1
WHARRY, WALTER W.	Sycamore,	Chem. & Mil.	2
WHARTON, JACOB N.	Bement,	Min. E. ✓	3
WHITCOMB, ALONZO W.	Urbana,	Elect.	4
WHITE, ALFRED	Buckley,	L. & S.	2
WHITE, WALLACE	Olney,	M. E. ✓	1
WHITNEY, ALBERT G.	Champaign,	Elect.	2
WHITNEY, LEWIS C.	Champaign,	Elect.	2
WHITZELL, THOMAS J.	Urbana,		

Name.	Residence.	Course.	Years.
WILBER, ALBERT H.	Belvidere,		
WILEY, OSCAR S.	Mason, Mich.,	L. & S.	2
WILEY, EDGAR J.	Mason, Mich.,	Agl. ✓	3
WILLIAMS, LOUIS E.	Montrose, Iowa,	Agl. & N. S. ✓	3
WILLIAMS, THOMAS T.	Sterling,	Mil.	1
WINKLER, JOSEPH	Oakland,	M. E. ✓	1
WINN, GEORGE L.	Woodstock,	Coml.	1
WOOD, LANSING F.	Chicago,	Hort. ✓	1
WOOD, REUBEN O.	Woodburn,	Mil.	3
WOODS, HARVEY C.	Sterling,	Agl. ✓	1
WORRELL, ROBERT J.	Bowen,	C. E. ✓	1
WRIGHT, FRANK E.	Arcola,	C. E. & Mil. ✓	2
WRIGHT, LAWRENCE	Albion, Ind.,	Mil.	1
WYLIE, ROBERT J.	Marissa,	M. E. ✓	1
YOUNG, EDMUND B.	Lula,	Agl. ✓	1
YOUNG, HORACE D.	Gilman,	C. E. & Mil. ✓	2
ZOOK, JOHN W.	Olney,	Agl. ✓	1
ANDERSON, LAURA M.	Champaign,	L. & S.	1
ANDERSON, LUCY	Champaign,	L. & S.	1
ANDERSON, ELLA J.	Champaign,	L. & S.	1
ANGLE, KATE	Champaign,	Elect.	1
AYERS, CHARLOTTE	Urbana,	L. & S.	1
BAKER, ELLA S.	Champaign,	L. & S.	2
BAKER, GENEVIEVE	Champaign,	L. & S.	2
BLASDELL, MARIA	Champaign,	Elect.	1
CAMPBELL, AMANDA	Phil ,	L. & S.	1
CANINE, FRANCES	Champaign,	Elect.	2
CAREY, ELIZABETH B.	Champaign,	Elect.	1
CHASE, ELLA	Urbana,	Elect.	2
CHEEVER, ALICE	Champaign,	L. & S.	2
COFFEEN, SADIE E.	Sidney,	Elect.	2
COLUMBIA, FRANCES M.	Champaign,	Elect.	1
DETMERS, JOHANNA H. M.	Manhattan, Kan.,	Chem. ✓	3
DOUGLASS, SARAH M.	South Richland, N. Y.	Elect.	2
FILLMORE, DELIA M.	Champaign,	Elect.	2
FOLKS, IDA L.	Champaign,	Elect.	1
GOODWIN, FRANCES E.	Urbana,	Elect.	1
GOURLEY, ADA	Springfield,	Elect.	1

STUDENTS.

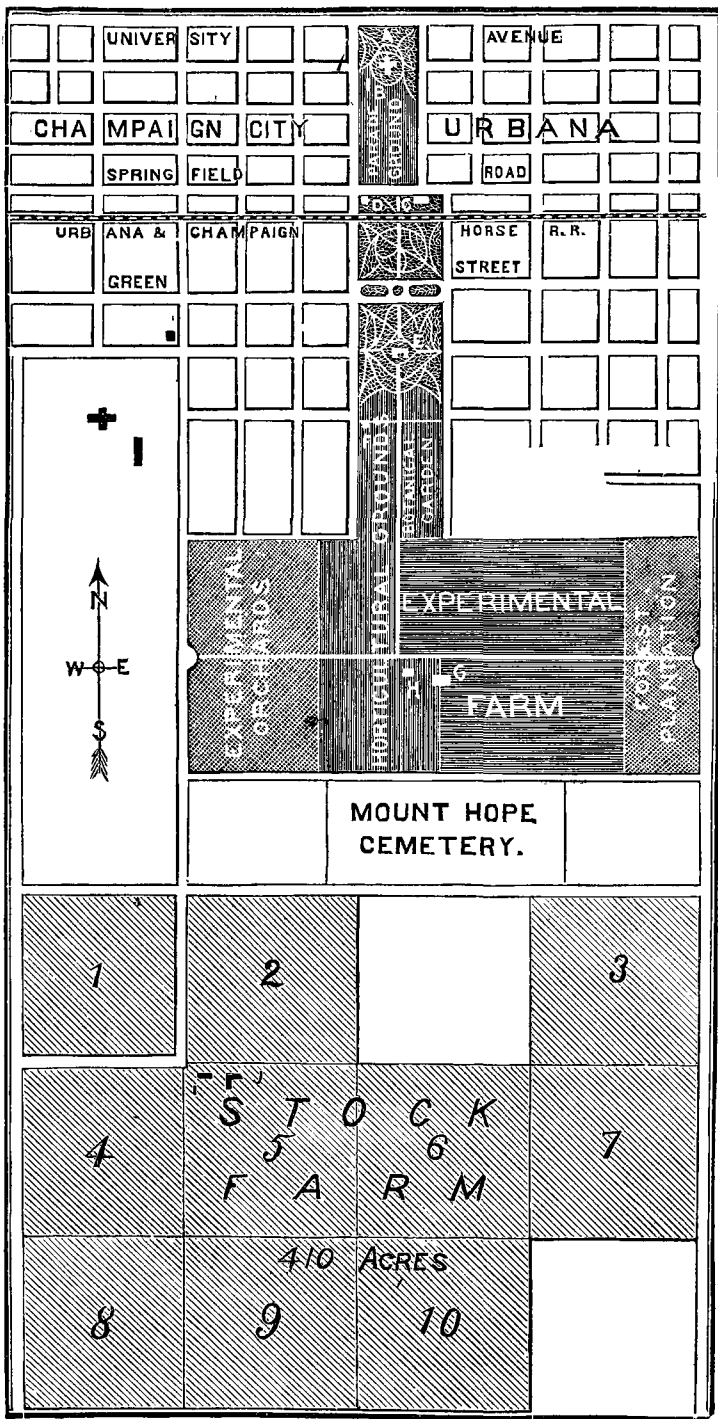
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Name.	Residence.	Course.	Years
GREGORY, MARY E.	Champaign,	L. & S.	4
GREGORY, HELEN B.	Champaign,	L. & S.	1
GREUZARD, EUGENIE.	Champaign,	Elect.	1
HALL, ABBY G. L.	Champaign,	Elect.	1
HILL, SARAH	Urbana,	Elect.	1
HOLTON, MARTHA G.	Champaign,	Elect.	1
IVERS, MARY A.	Champaign,	Elect.	1
KARIHER, KATE	Champaign,	Elect.	1
KELLOGG, FLORA L.	Woodville,	Elect.	2
LEE, ALICE M.	Champaign,	Elect.	1
McCULLOUGH, MARY A.	Paris,	Elect.	1
McWILLIAMS, ANNA	Urbana,	Elect.	1
MERRIMAN, RILLA	Champaign,	Elect.	1
MERRIMAN, EMMA M.	Champaign,	Elect.	1
POTTER, ADELA F.	Champaign,	L. & S.	2
RAYMOND, JENNIE	Sidney,	Elect.	2
REA, AUGUSTA M.	Urbana,	Elect.	2
REYNOLDS, MARY A.	Belvidere,	Elect.	1
ROMINE, MARY F.	Urbana,	Elect.	2
ROOTS, ANNETTE C.	Champaign,	Elect.	1
STEELE, MARY C.	Urbana,	Elect.	1
STEVENS, LOTTIE J.	Urbana,	Elect.	1
STEWART, EMMA	Champaign,	Elect.	2
STEWART, MAGGIE E.	Champaign,	Elect.	1
SUMMERS, CHARLOTTE	Springfield,	Elect.	1
THOMAS, ELIZABETH	Champaign,	L. & S.	1
VICTOR, CAROLINE D.	Champaign,	Elect.	1
WALKER, EVA M.	Champaign,	Elect.	1
WHITCOMB, ABBY	Urbana,	Elect.	2
WHITCOMB, EMMA S.	Urbana,	Elect.	2
WHITCOMB, MARY E.	Urbana,	L. & S.	1
YEASLEY, MARY	Urbana,	Elect.	1

327 L
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 327
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MAP OF FARMS, BUILDINGS, GROUNDS, ETC.



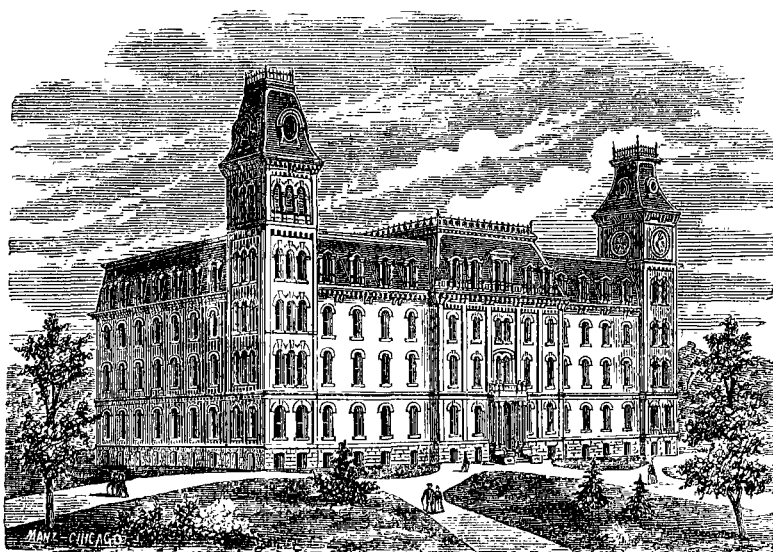
LOCATION.

The University is situated in the city of Urbana, adjoining the limits of the city of Champaign, in Champaign county, Illinois. It is 128 miles from Chicago, on the Illinois Central Railroad. The Indianapolis, Bloomington & Western Railway passes near the grounds. The County is one of the most beautiful prairie regions in the West. The two contiguous cities, constituting, really, only one community, have together a population of nearly 9,000, well supplied with churches and schools, and affording boarding facilities for a large body of students.

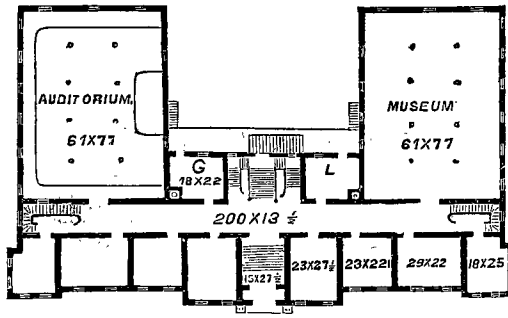
BUILDINGS AND GROUNDS.

The domain occupied by the University, and shown on the foregoing map, embraces about 623 acres, including stock farm, experimental farm, orchards, gardens, nurseries, forest plantations, arboretum, botanic garden, ornamental grounds and military parade ground.

The old University Building now occupied partly by class rooms, library and laboratory, contains, some seventy 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. This building was donated by Champaign county. A cut of it will be found on the last page of cover.



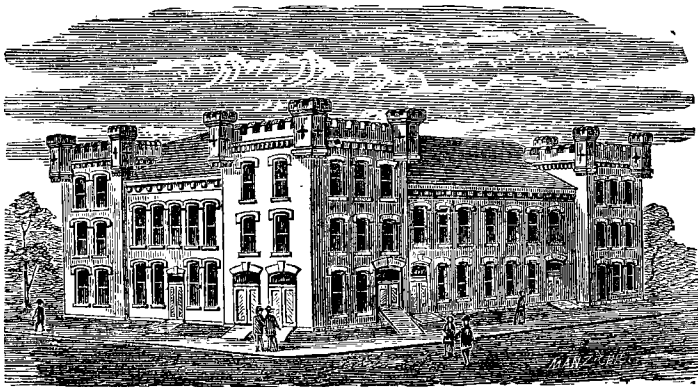
NEW UNIVERSITY BUILDING.



MAIN FLOOR.

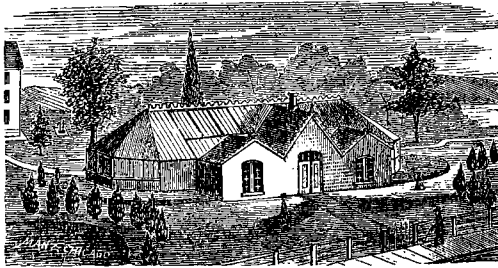
The new University Building is one of the most spacious and convenient to be found on this continent. It is 214 feet in length, with a depth on the wings of 122 feet. The above cuts exhibit a perspective view, and the plan of main floor.

This building is designed wholly for public use. The library wing is fire proof and contains five large halls devoted to the library and various cabinets and museums. The chapel wing affords a large physical laboratory and lecture-room, and spacious draughting rooms. In the main part are thirty class rooms of good size, and also cloak and wash rooms for both sexes, store rooms, and several large halls for students' Literary Societies. This building is expected to be completed in September next.



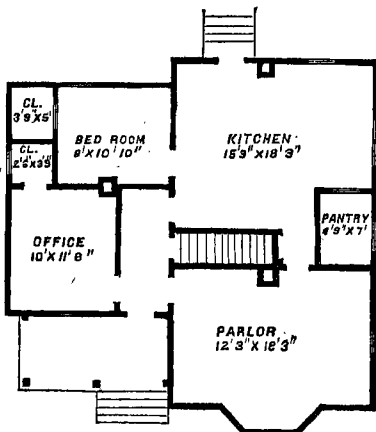
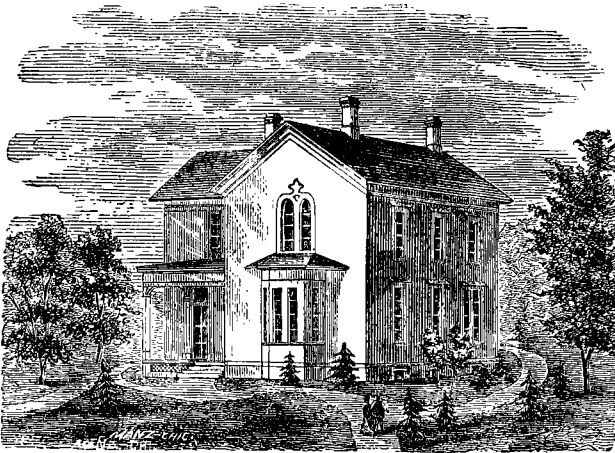
The new Mechanical Building and Drill Hall, shown in the above perspective view, is of brick, 128 feet in length by 88 feet in width. It contains a boiler and forge room; a machine shop, furnished with steam engine, lathes, and other machinery; pattern and finishing shop, and shops for carpentry, cabinet work, wood working machinery, paint rooms, printing rooms, draughting rooms, and rooms for models, finishing, &c.

In the second story a 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.

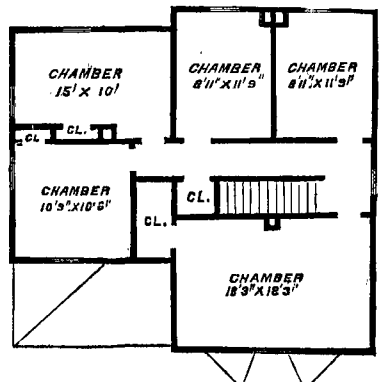


The Green House shown here is 70 feet by 24, exclusive of wing, containing potting, seed and furnace rooms. There is, besides, another green house 12 feet by 35 feet.

The University has two large and valuable barns belonging to the stock and experimental farms and gardens, and four dwelling houses for the Superintendents. Views and plans of some of these are here presented.



FIRST FLOOR.



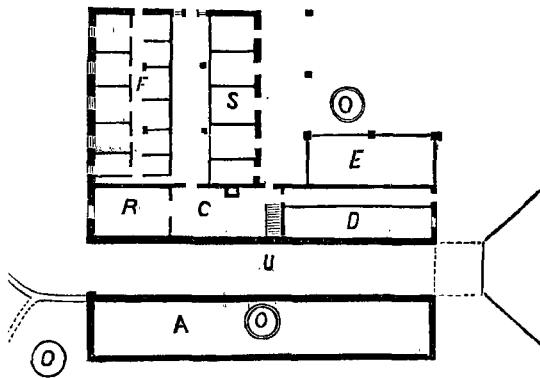
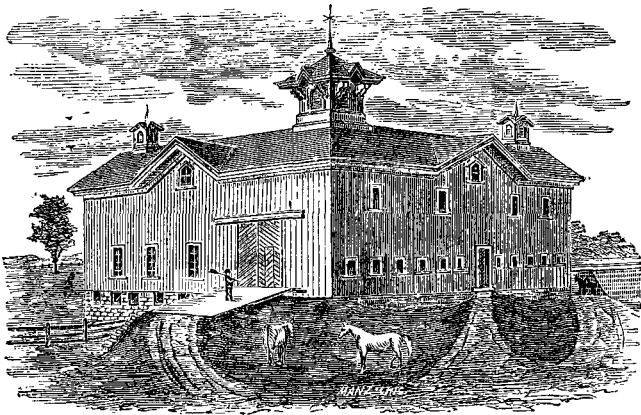
SECOND FLOOR.

The Farm House shown here, and recently built on the Horticultural grounds, is designed to afford a fair model for a farmer's house. It is tasteful in appearance, economical in cost, and compact and convenient in arrangement.

A cellar under the whole, walled with hard brick and having a cement floor, affords a laundry, a large cistern and an ample cellar, in two compartments, one of which may be given to dairy uses, and the other to vegetables.

The front door is sheltered by a pleasant verandah, and the front hall or entry affords direct admission to office, parlor and kitchen. The "office," a small room which the intelligent farmer will find abundantly useful for his business affairs, will also serve as a library and reading room on wet days, and in the evenings. The "parlor" is a spacious apartment, and rendered doubly pleasant by the bay window. The "kitchen" is also of good size, as many farmers' families make this the "living room," as they call it, where the cooking and eating are both done and the family work goes on. A lean-to, serving as a summer kitchen, and well room, has been added since the building was first erected.

A glance at the second floor will show a goodly number of sleeping rooms, all but two of which are supplied with closets.

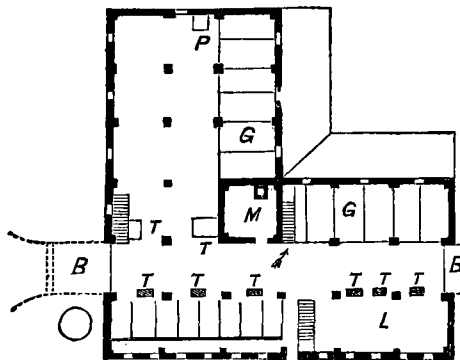


BASEMENT PLAN.

We present here the perspective and the plans of the basement and first floor of the barn recently erected on the Stock Farm of the Industrial University. The barn has a north and west front 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 plan*, the space marked R is a root cellar. C the cook room, furnished with a steam

boiler to steam food, and a small engine to furnish power for grinding, threshing and cutting. D is a set of hog pens, and E another set of pens or yard under the shed which extends along both sides of the barn in the angle. S represents a set of bull stalls for the several breeds. F a series of stalls for fine breeding cows, with calf pens in the rear of each. O O shows the place of the large cisterns taking the water from the roofs.



MAIN FLOOR.

Above the main floor are ample hay lofts.

In the plan of the first floor, B B are bridges. T T T show trap doors in the rear of horse stalls to allow droppings to be thrown into manure pit. L shows a series of box stalls for breeding mares. G G grain bins. M a harness room. P a large ventilating tube or flue, leading from cattle room below to the cap above the roof. There are doors in the sides of this flue, through which hay can be thrown down for feeding the cattle.

PROPERTY AND FUNDS.

Besides the lands and buildings already described, which are, with furniture, library, &c., valued at \$300,000, 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 \$364,000, besides other property and avails valued at \$33,000. The State has appropriated \$25,000 to the Agricultural Department for barns, tools, stock, &c., \$20,000 to the Horticultural Department for green house, barns, drainage, tools, trees, &c.; \$25,000 for Mechanical and military building, machinery, &c.; \$75,000 to begin the erection of the main building, which is to cost \$150,000; \$10,500 to furnish the Chemical Laboratory; and \$20,000 for library and apparatus.

LIBRARY.

The library which has been carefully selected with reference to the scientific studies required in the several practical courses, includes now about 8,000 volumes. The large library hall is fitted up as a reading room, and is open every day and evening 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, monthlies, quarterlies, &c. The following is a list of the periodicals regularly received at the library:

AGRICULTURAL.

AMERICAN AGRICULTURIST.
 CAROLINA FARMER.
 COLMAN'S RURAL WORLD.
 CULTIVATOR AND COUNTRY GENTLEMAN.
 CALIFORNIA FARMER.
 CHEMISCHE ACKERSMAN. (German.)
 HEARTH AND HOME.
 JOURNAL D'AGRICULTURE. (French.)
 MASSACHUSETTS PLOUGHMAN.
 MICHIGAN FARMER.
 NATIONAL LIVE STOCK JOURNAL.
 NORTHWESTERN FARMER.
 PRAIRIE FARMER.
 RECONSTRUCTED FARMER.
 RURAL NEW YORKER.
 SOUTHERN PLANTER AND FARMER.
 SOUTHERN CULTIVATOR.
 WESTERN RURAL.
 WESTERN FARMER.
 WILLIAMETTE FARMER.
 WESTERN AGRICULTURIST.

HORTICULTURAL.

GARDENER'S MONTHLY.
 HORTICULTURIST.
 LA PROPOGATION. (French.)
 REVUE HORTICOLE. (French.)

ENGINEERING.

AMERICAN BUILDER.
 ARCHITECTURAL REVIEW.
 LE MONITEUR DES ARCHITECTS. (French.)
 MINING JOURNAL. (London.)
 MANUFACTURER AND BUILDER.
 RAIL ROAD GAZETTE.
 PUBLICATION INDUSTRIELLE. (French.)
 SCIENTIFIC PRESS.
 SCIENTIFIC AMERICAN.
 THE BUILDER. (London.)
 THE WORKSHOP.
 VAN NOSTRAND'S EGL. ENG. MAGAZINE.

NATURAL SCIENCE.

ANNALEN DER PHYSIC. (German.)
 AMERICAN NATURALIST.
 AMERICAN JOURNAL OF SCIENCE.
 BRITISH JOURNAL OF SCIENCE. (London.)
 BRITISH MICROSCOPIC JOURNAL. (London.)
 COMPTES RENDUS. (French.)
 GEOLOGICAL MAGAZINE. (London.)
 JOURNAL OF FRANKLIN INSTITUTE.
 NATURE. (London.)
 PHILOSOPHICAL MAGAZINE. (London.)

EDUCATIONAL.

CHICAGO SCHOOLMASTER.
 ILLINOIS TEACHER.
 MAINE JOURNAL OF EDUCATION.
 MICHIGAN TEACHER.

LITERARY.

ATHÆNEUM. (London.)
 ATLANTIC MONTHLY.
 BLACKWOOD'S MAGAZINE.
 EDINBURG REVIEW.
 LONDON QUARTERLY.
 NORTH BRITISH REVIEW.
 NORTH AMERICAN REVIEW.
 REVUE DES DEUX MONDES. (French.)
 SCRIBNER'S MAGAZINE.
 ST. PAUL'S MAGAZINE.
 THE NATION.
 WESTMINSTER REVIEW.

LANGUAGE.

ARCHIV FUR DAS STUDIUM DER NEUEREN
 SPRACHEN UND LIT.

NEWS.

ILLINOIS STAATS ZEITUNG.
 UNIVERSE ILLUSTRÉ. (French.)
 CENTRALIA SENTINEL.
 CHAMPAIGN GAZETTE.
 CHICAGO POST.



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 or 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 :

1. *Scientific Agriculture*, embracing Soil Culture in all its varieties, and, for all Crops, Animal Husbandry, Stock Breeding, Feeding, etc., Veterinary Science, Agricultural Chemistry, Rural Engineering and Drainage of lands.

2. *Horticulture*, including Market Gardening, Fruit Growing, Management of Nurseries, Forests, Green Houses, Propagating Houses, and Ornamental Grounds.

3. *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.

4. *Civil Engineering*, including Land and Government Surveys, Railroads Canals, Bridge Building, Topographical Surveys and Leveling.

5. *Mining Engineering*, embracing Mine Surveys, Sinking and Tubing of Shafts, Driving of Adits, and Methods of Working; Assaying Treatment of Ores, and Metallurgy.

6. *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.

7. *Analytical Chemistry*. Chemistry applied to the Arts; Laboratory Prac-

tice with reagents, blow-pipe, and spectroscope. A full course to fit students to become chemists, druggists and pharmacutists.

8. *Architecture.* Architectural Drawing, Styles of Building, Plans, Materials Estimates, Ornamentation.

9. *Military Tactics.* Manual of Arms, Squad, Company and Battalion Drill, Brigade and Division Evolutions, Bayonet and Sword Fencing, Military Arms, Roads and Fortifications.

10. *History and Social Science,* General and Special History, Political Economy, Rural and Constitutional Law.

11. *Mental and Moral Philosophy,* and Logic.

12. *Modern and Ancient Languages.* French, German, Latin and Greek.

13. *Commercial Science,* Book-keeping, Commercial Law, &c.

14. *Mathematical Science,* Pure and Applied, Natural Philosophy, Astronomy.

15. *Natural History,* Botany, Zoölogy, Geology, Physical Geography.

16. *Drawing,* Free Hand, Projection. &c.

FREEDOM AND CHOICE OF STUDIES.

The University being designed, not for children but for young men and women who may chaim 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, or the convenience in teaching, requires. 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 in the terms in which they are taught in course.

It is expected that each student shall have three distinct studies, affording three class exercises each day. But on special request to the Faculty, he may be allowed 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.

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.

COLLEGES AND SCHOOLS.

The University embraces the following Colleges and Schools. A College, it will be observed, is designed to provide a combined course of instruction made up of the several branches of learning needful for some one profession, or class of professions. A school is a subdivision of a College.

I. THE COLLEGE OF AGRICULTURE.

Subdivided into two Schools, as follows :

1. *School of Agriculture Proper.*
2. *School of Horticulture and Fruit Growing.*

II. THE COLLEGE OF ENGINEERING.

Subdivided into four Schools, as follows :

1. *School of Mechanical Science.*
2. *School of Civil Engineering.*
3. *School of Mining Engineering.*
4. *School of Architecture.*

III. THE COLLEGE OF NATURAL SCIENCE.

Subdivided into two Schools, as follows :

1. *School of Chemistry.*
2. *School of Natural History.*

IV. THE COLLEGE OF LITERATURE AND SCIENCE.

Subdivided into two Schools, as follows :

1. *School of English and Modern Languages.*
2. *School of Ancient Languages and Literature.*

Also a *School of Commerce*, a *School of Military Science*, and a *School of Domestic Science and Arts*.

Under the head of the several Colleges and Schools, 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, or of the equivalents allowed in it, will be required to entitle the student to graduate.

A student desiring to pursue any given branch of study further than is provided for in the courses in the Schools, will find a statement of the extent and course of instruction given in such branch under the head of the proper Department of Study.

COLLEGE OF AGRICULTURE.

FACULTY.

THE REGENT.

DR. MANLY MILES, Professor of Agriculture.

T. J. BURRILL, Professor of Horticulture and Botany.

A. P. S. STUART, Professor of Chemistry.

S. W. SHATTUCK, Professor of Agricultural Engineering.

D. C. TAFT, Professor of Geology and Zoölogy.

DR. H. J. DETMER, Lecturer on Veterinary Science.

HON. W. C. FLAGG, Superintendent of Agricultural Experiments.

ADMISSION.

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

1st. In ENGLISH GRAMMAR—In the formation of words, the parts of speech, properties of nouns and pronouns, the declensions, conjugations, &c., and in the analysis and syntax of sentences and use of modifying words and connectives.

2d. In GEOGRAPHY—Form, size, motions and circular divisions of the Earth; latitude, longitude and zones; the continents and their 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.

3d. ARITHMETIC—Decimal system of notation and numeration, the four grand rules or operations, with clear explanations of processes, reasons and proofs, classifications of numbers, reduction, denominate numbers, fractions, reduction of fractions, addition, subtraction, multiplication and division of fractions, decimal fractions, operations in decimals, per centage, interest, ratio, proportions, involution and evolution.

4th. ALGEBRA—Definitions, notation by letters and signs, simple operations, changes of signs and reasons, algebraic fractions, equations, transformations of equations, solutions of problems, methods of elimination, calculus of radicals.

5th. HISTORY OF THE UNITED STATES—Discovery and settlement of the several States, Indian and other wars, struggle between France and England for possession, the early history of Illinois and the West, the revolutionary war.

Students entering any time after the beginning of the first term must pass examinations in the studies already pursued by the class.

ADMISSION IN 1873—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 the College of Agriculture in the University, in the Fall of 1873, and thereafter, must be prepared in the elements of Human Physiology, in Botany and in Natural Philosophy, in addition to the studies heretofore required.

CANDIDATES FOR PARTIAL and ELECTIVE courses of study will also be admitted upon the above conditions.

RECOMMENDED COURSES OF STUDY.

SCHOOL OF AGRICULTURE.

SCHOOL OF HORTICULTURE.

FIRST YEAR.—Same in both Schools.

- 1st Term. PLANE GEOM.; CHEM.; ENGLISH OR LATIN; HIST., two lectures a week.
 2d Term. BOTANY; CHEM., LAB. PRAC.; ENGLISH OR LATIN; HIST., two lectures a week.
 3d Term. BOTANY; ANALYT. CHEM.; ENGLISH OR LATIN.

SECOND YEAR.—Same in both Schools.

- 1st Term. SOILS and FERTILIZERS; CRYPT. BOT. and VEG. PHYS.; TRIG. and SURV.; FR. or CHEM.
 2d Term. CHEM'L TREAT. OF SOILS AND MANURES. DRAW. and MAP.; ZOOLOGY; FR. or PHYSICS.
 3d Term. MECH. TREAT. OF SOILS AND DRAINAGE; ENTOMOL.; FR. or CHEM. or PHYSICS.

THIRD YEAR.

- 1st. FRUIT GROWING, ORCHARDS, etc.
ANATOMY and PHYSIOLOGY.
GERMAN or HISTORY.
- 2d. ANIMAL HUSBANDRY.
GEOLOGY.
GERMAN or HISTORY.
- 3d. AGR'L BK-KEEPING, FARM RECORDS.
RURAL LAW and ECONOMY.
GERMAN or HISTORY.

FOURTH YEAR.

- 1st. DAIRY FARM'G and FARM MANUF'S.
MENT. PHIL. or CONST. HIST.
HIST. OF ENGL. and AM. LITERATURE.
- 2d. VETERINARY SURGERY.
PHYS. GEOG. and MINERALOGY.
RURAL ARCHITECTURE.
- 3d. LANDSC. GARD'G; HIST. OF AG.
GEOL. OF ILL.; POLIT. ECONOMY.
HIST. OF PHILOSOPHY or LOGIC.

THIRD YEAR.

- 1st. FRUIT GROW'G, ORCHARDS, etc.
ANATOMY and PHYSIOLOGY.
GERMAN or HISTORY.
- 2d. PROPAGATION OF PLANTS, NURSERIES, etc.
GEOLOGY.
GERMAN or HISTORY.
- 3d. SMALL FRUITS and VEGETABLES.
RURAL LAW and ECONOMY; BK-KEEPING.
GERMAN or HISTORY.

FOURTH YEAR.

- 1st. GREEN HOUSES and G. H. PLANTS.
MENT. PHIL. or CONST. HIST.
HIST. OF ENGL. and AM. LITERATURE.
- 2d. GARDEN ARCHITECTURE.
PHYS. GEOG. and METEOROLOGY.
HIST. OF CIVILIZATION.
- 3d. LANDSCAPE GARDENING.
GEOLOGY OF ILL., POLIT. ECON'Y.
HIST. OF PHILOSOPHY or LOGIC.

I. THE SCHOOL OF AGRICULTURE.

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, looking upon agriculture as consisting merely in the manual work of ploughing, 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 these 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 plough, but the reason for ploughing at all—to teach the composition and nature of soils, the philosophy of ploughing, 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—of the great natural laws of the farm and of all its phenomena—this is the true aim of agricultural education. And when it is recollected that agriculture involves 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.

The instruction unites as far as possible, Theory and Practice—Theory explaining Practice, and Practice illustrating and enforcing Theory.

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.; and fine stock of several breeds of neat cattle, embracing Short Horns, Herefords, Devons, Ayrshires, and Jersey Cattle. It also has several breeds of swine and sheep to illustrate the problems of breeding and feeding.

An Experimental Department, aided by a special appropriation, has also been organized. It includes 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 of 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. At a meeting held at Chicago, in August, 1871, the representatives of a dozen or more of these institutions agreed to co-operate in this work, and to make experiments in common, as well as others peculiar to their several States.

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.

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. In the fertile soils and favorable climate of our State, with our rapidly increasing population and easy transportation, this department of human industry, always

of prime importance, is becoming more and more prominent, more lucrative to the successful grower, and more essential to the comforts and enjoyments of home. The enhanced price of land, the competition of numbers, the increasing depredations of insects, and the ravages of vegetable diseases, render imperative increased knowledge and skill on the part of the cultivator, while the demand of the age calls loudly for general intellectual and moral culture fully equal to that given to the other pursuits and professions of life.

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, &c., as a part of their regular education. So, in connection with the studies of ornamental plants and grounds, the care of the green houses, &c., constitutes an essential feature of the student's work. Ladies and gentlemen alike engage in the studies and exercises of the course.

APPARATUS.

To furnish the practical portions of the course of instruction, the school is well provided, and the means of illustration are fast accumulating.

Of 130 acres of land devoted to its use, twenty are planted with forest timber trees, including nearly all the valuable kinds, both native and introduced. An apple orchard of 1,200 varieties is just coming into bearing, nearly 400 varieties of pears are growing upon the horticultural grounds, 25 varieties of cherries, 40 of grapes, and many kinds of raspberries, blackberries, strawberries, currants, gooseberries, &c. 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, so far as practicable. Twenty acres are devoted to the building and ornamental grounds, where much pains are taken to make both summer and winter ornamentation attractive and pleasing. A fine green house 24 by 70 feet, exclusive of wing, is filled with a rich collection of plants, many of which are choice and valuable kinds. Two other structures afford ample room for the propagation of a large stock of plants, and illustrate the different modes of heating. The cabinets contain many illustrative specimens, and the library has hundreds of volumes of the best horticultural literature known to the world.

CONTRIBUTIONS.

Besides the amounts appropriated from the general fund of the University, the State has granted, by special act of the Legislature, at two separate sessions, \$23,000 for the use of the School of Horticulture, and individuals have often favored it by liberal donations of plants, machinery, &c. Further aid is promised, and appeal is now made to friends everywhere for assistance in furnishing the fruit and tree plantations with the fullest possible stock, in the building and furnishing of green houses and conservatories, and in the enlargement of the scientific collections in the arboretum and botanical garden. A catalogue of the plants now in the houses and upon the grounds is ready for the printer, and when finished, will be forwarded to parties wishing to exchange or contribute.

COLLEGE OF ENGINEERING.

FACULTY.

THE REGENT.

S. W. ROBINSON, Professor of Mechanical Engineering.

J. BURKITT WEBB, Professor of Civil Engineering.

HAROLD HANSEN, Instructor in Architecture and Drawing.

S. W. SHATTUCK, Professor of Mathematics.

A. P. S. STUART, Professor of Chemistry.

DON CARLOS TAFT, Professor of Geology and Zoölogy.

ADMISSION.

Applicants should be at least eighteen years of age; and none will be admitted under fifteen. They will be examined in the following branches: English Grammar, Geography, History of the United States, Arithmetic, and Algebra to the equations of the second degree; also in Plane Geometry.

Applicants for admission in September, 1873, will be examined in Algebra through Powers and Roots of any degree, Calculus of Radicals, and Quadratic Equations, and in Natural Philosophy. For admission in September, 1874, the examination will include all of Geometry, and the elements of Botany and Physiology.

Students will find it much to their advantage to present themselves at the opening of the Fall Term, and commence their studies with the regular classes.

Advanced students will be received into the First, Second or Third Year Class, upon passing satisfactory examinations on all the previous studies of the class.

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 preparation in this branch will be of great advantage. Neatness and exactness of execution should be acquired as a habit. Sufficient preparation in Free-hand and Geometrical Drawing will also make room for an additional term in Botany or Chemical Analysis.

PAPER.

Regulated sizes and quality will be adhered to in College exercises, they are as follows :

5 in. by 8 in. Commercial Note size, with half inch margins, for Problems and First and Second Vacation Journals.

8 in. by 10 in. with three-quarter inch margins, for other manuscript and small drawings.

10 in. by 15 in. with "sight" 8 in. by 13 in., Patent Office size, for drawings.

Larger sizes will be allowed when deemed necessary by the Professor in charge.

SPECIMENS.

Friends of science and of this institution, merchants and manufacturers, graduates and students, are earnestly desired to contribute specimens of material, machinery and manufactures. It is particularly desired to obtain specimens of ores with their partially and completely manufactured products; specimens, 5 in. by 5 in. by 1 in., of natural and artificial building stones, showing the different styles of finish. Photographs of machinery, and of bridges and other engineering works, both finished and in process of construction; working and finished drawings of engineering constructions, and of machines, architectural designs, engravings and photographs. Also, the illustrated circulars and price lists of manufacturing firms.

These specimens will be labelled with the names of the donors, and placed in the cabinets of the College for the inspection of students and the illustration of lectures.

SCHOOLS.

The College of Engineering consists of four schools, as follows :

- I. *School of Mechanical Engineering.*
- II. *School of Civil Engineering.*
- III. *School of Architecture.*
- IV. *School of Mining Engineering.*



COURSES OF STUDY OF THE

FIRST YEAR.—The Studies of this year are the same in all the Courses.

1st Term. ENGLISH or FRENCH. SOLID GEOMETRY and ALGEBRA commenced.

2d Term. ENGLISH or FRENCH. ALGEBRA continued.

3d Term. ENGLISH or FRENCH. TRIGONOMETRY, Plane and Spherical.

MECHANICAL ENGINEERING.**SECOND YEAR.**

- 1st. GERMAN.
DESCRIPTIVE GEOMETRY continued.
DESIGNING AND DRAWING. 10.
- 2d. GERMAN.
ANALYTICAL GEOMETRY.
SHOP PRACTICE AND DRAWING. 10.
- 3d. GERMAN.
CALCULUS.
SHOP PRACTICE. 10.

THIRD YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. CALCULUS.
CHEMISTRY, Principles.
PRINCIPLES OF MECHANISM.
- 2d. PHYSICS.
ANALYTICAL MECHANICS.
SHADES, SHADOWS, PERSPEC. 10.
- 3d. PHYSICS.
ANALYTICAL MECHANICS. 6 weeks.
DESCRIPTIVE ASTRONOMY. 5 weeks.
CHEMISTRY, Laboratory Practice. 10.

FOURTH YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. GEOLOGY or MENTAL PHILOSOPHY.
THERMODYNAMICS; PNEUMATICS.
HYDRAULICS. 4 weeks. [10 wks.
STRENGTH OF MATERIALS; TRUSSES.
- 2d. HIST. OF CIVILIZATION.
PRIME MOVERS; MILLWORK.
FINISHED MACHINE DRAWINGS. 10.
- 3d. POLITICAL ECONOMY.
MILLWORK AND MACHINES.
DESIGNS AND ESTIMATES. 10.
THESIS.

CIVIL ENGINEERING.**SECOND YEAR.**

- 1st. GERMAN.
DESCRIPTIVE GEOMETRY continued.
SURVEYING and DRAWING. 10.
- 2d. GERMAN.
ANALYTICAL GEOMETRY.
LETTERING and DRAWING. 10.
- 3d. GERMAN.
CALCULUS.
SURVEYING and DRAWING. 10.

THIRD YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. CALCULUS.
CHEMISTRY, Principles.
RAILROAD SURVEYING. 10.
- 2d. PHYSICS.
ANALYTICAL MECHANICS.
SHADES, SHADOWS; PERSPEC.
- 3d. PHYSICS.
ANALYTICAL MECHANICS. 6 wks.
DESCRIPTIVE ASTRONOMY. 5 wks.
CHEMISTRY, LABORATORY PRACTICE. 10.

FOURTH YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. GEOLOGY or MENTAL PHILOSOPHY.
PRACTICAL ASTRONOMY; GEODESY.
HYDRAULICS. 4 weeks. [10 wks.
STRENGTH OF MATERIALS; TRUSSES.
- 2d. HIST. OF CIVILIZATION.
BRIDGE CONSTRUCTION.
FINISHED ENGINEERING DRAW'G. 10.
- 3d. POLITICAL ECONOMY.
STONE WORK. 8.
ARCHITECTURAL DRAWING. 8.
THESIS.

COLLEGE OF ENGINEERING.

EXPLANATION.— { The figure following a branch indicates the number
of hours required per week.

DESCRIPTIVE GEOMETRY and DRAWING, 10.
FREE-HAND DRAWING, 10. •
BOTANY.

HISTORY, two lectures per week.
HISTORY, two lectures per week.
HISTORY, two lectures per week.

MINING ENGINEERING.

SECOND YEAR.

- 1st. GERMAN.
DESCRIPTIVE GEOMETRY continued.
SURVEYING and DRAWING. 10.
- 2d. GERMAN.
ANALYTICAL GEOMETRY.
LETTERING and DRAWING. 10.
- 3d. GERMAN.
CALCULUS.
SURVEYING and DRAWING. 10.

THIRD YEAR.

- 1st. CALCULUS or GERMAN.
CHEMISTRY, Principles.
SURVEYING; DRAWING. 10.
- 2d. PHYSICS.
ANALYTICAL MECHANICS.
CHEMISTRY, Laboratory Prac. 10.
- 3d. PHYSICS.
MINERALOGY; CRYSTALLOGRAPHY.
DESCRIPTIVE ASTRONOMY.
CHEMISTRY, Laboratory Prac. 10.

FOURTH YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. GEOLOGY of MENTAL PHILOSOPHY.
PRACTICAL ASTRONOMY; GEODESY.
HYDRAULICS. 4 weeks. [10 wks.
CHEMISTRY, Laboratory Prac. 10.
- 2d. MINING ENGINEERING.
ASSAYING.
METALLURGY.
- 3d. GEOLOGY of MINING DISTRICTS.
METALLURGY.
MINING DRAWINGS. 10.
THESIS.

ARCHITECTURE.

SECOND YEAR.

- 1st. GERMAN.
DESCRIPTIVE GEOMETRY continued.
JOINERY AND DETAIL DRAW'g. 10.
- 2d. GERMAN.
ANALYTICAL GEOMETRY.
HIST. OF ARCHITECTURE; DRAW'g. 10.
- 3d. GERMAN.
CALCULUS.
HIST. OF ARCHITECTURE; DRAW'g. 10.

THIRD YEAR.

- 1st. CALCULUS or SURVEYING.
CHEMISTRY, Principles.
HIST. OF ARCHITECTURE; DRAW'g. 8.
- 2d. SHADES, SHADOWS; PERSPEC.
ANALYTICAL MECHANICS.
HIST. OF ARCHITECTURE; DRAW'g. 8.
- 3d. CRAYON DRAWING from Casts. 8.
MECHANICS and ASTRONOMY or
MINERALOGY.
HIST. OF ARCHITECTURE; DRAW'g. 8.

FOURTH YEAR.

- VACATION JOURNAL and MEMOIR.
- 1st. GEOLOGY of MENTAL PHILOSOPHY.
HIST. OF ARCHITECTURE; DRAW'g.
CRAYON DRAWING from Casts. 8.
STRENGTH OF MATERIALS; TRUSSES.
- 2d. PHYSICS.
ARCHITECTURAL DESIGNING. 8.
COMPLETE DRAWINGS. 8.
- 3d. PHYSICS.
STONE WORK. 8.
SPECIFICATION; ESTIMATES. 8.
THESIS.

SCHOOL OF MECHANICAL ENGINEERING.

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, but who, guided by correct principles, shall be found fully competent to invent, design, construct, or manage machinery, in the various industrial pursuits. The instruction, while severely scientific, is also thoroughly practical, aiming at a clear understanding and mastery of all mechanical principles and devices. Practice in the Mechanical Laboratory is counted as one of the studies of the course, and is combined with the theoretical training.

PLAN OF INSTRUCTION.

Instruction in this school is two-fold: First, Principles; and Second, Practice.

The instruction in Principles is imparted by lectures, and recitations from text books combined with the use of plates and illustrative models. Numerous examples are also given, showing the application of the theories and principles taught. Experiments in the testing of machines and motors are also undertaken by the student.

The Practical Instruction consists mainly in the execution of *Projects*, in which the student is required to produce machines, or parts thereof, of his own designing, and from his own working drawings. The students, in class exercises, use the machinery and tools of the Machine and Pattern Shops and Foundry, under the eye of a competent teacher, and according to the most approved methods of Machine Shop Practice (see details of Projects below).

The Practical instruction is not intended to teach the trade merely, but is added as a necessary adjunct of the theoretical training.

COURSE OF STUDIES.

The Course is given by the year and term in the tabular view of the several courses of the College. The order of the studies there indicated should be followed as closely as possible, that the student may avoid confliction in the times of recitation.

The following is a detailed view, by Branches, of the Technical studies of the Course.

PURE MATHEMATICS.—See Department of Pure Mathematics as far as Calculus of Variations.

APPLIED MATHEMATICS.—*Cinematics, and Principles of Mechanism.*—Relative Motion of points in any system of connected lines or pieces; Motion considered independent of force; Velocity-ratio; Investigation of the motion of different elementary parts of machines, such 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*—Equations of Equilibrium; Movements; Virtual Velocities; Center of Gravity; Mechanical Powers; Friction; Relation of Motion, Force and Mass. *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; Expansive action of heat in fluids and solids; Absolute Temperature; Laws of Thermodynamics; Thermal Lines; Change of temperature and pressure attending sudden Expansion or Compression of gases; Convertibility of Heat and Work; Internal and External work accompanying changes of State and Condition of fluids. *Pneumatics*.—Flow of Gases through Orifices and Pipes; Density and Inertia of Gases; Distribution of street gas in cities.

NATURAL SCIENCE. *Physics*.—See Department, of Physics and Astronomy. *Chemistry*.—Inorganic Chemistry and Qualitative Chemical Analysis. *Geology*.—Elements of Physiographic, Lithological, Historical and Dynamical Geology. *Descriptive Astronomy*.—See Department of Physics and Astronomy.

DRAWING.—*Projection Drawing*.—Use of Drawing Instruments in the application of the elements of Descriptive Geometry to the representation of Objects on Paper; Use of Water Colors in giving actual external appearance; Isometrical Drawing; Determination of Shade lines and Shadows, Finished Perspective, or Pictures. *Free Hand Drawing*.—Sketches of Machinery; Ornamental Forms; Lettering. *Machine Drawing*.—Working Drawings of Original Design; The same completely Finished in water colors and in line shading, and Detailed for the work shop, as is done in the leading manufactories of the country.

ENGINEERING.—*Projects*.—The Proportions, Dimensions and Customary Forms of Machinery; Designing and Detailing; Constructions 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, Steam, Hot Air and Electric Engines; their Economy and Efficiency. *Mill-work and Machinery*.—Principles of Mechanism applied in determining the correct forms of the moving parts of Machines; Machinery of Transmission; Manufacturers' Machinery; Engineers' Machinery; Elastic and Ultimate strength, and stability of heavy machinery.

PROJECTS AND THESIS.

The Designing, Drawing and Shop Practice, will always have a definite practical purpose. The students under the immediate direction of teachers, carefully determine the dimensions and shapes best suited for all the parts of some machine assigned as a subject, and reduce them to neat and accurate working drawings. In the fourth year, the drawings will be completely finished with shading and colors, and detailed according to the best methods in the practice of modern Engineers. Tracings of these will be taken for shop use, and finally left for the further use of the School. No student is expected to commence his shop practice without his working drawings. The designs are intended to be such as require execution in iron, brass and wood, for the purpose of giving some 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. He thus performs the difficult as well as the easy portions of the work, often repeating pieces several times until up to the required standard of workmanship.

The practical instruction will acquaint the student with the manner in which the Mechanical Engineer carries his designs into execution, and teach him to so shape, proportion and dispose all the parts of a machine as to secure the greatest economy in construction, and durability in use.

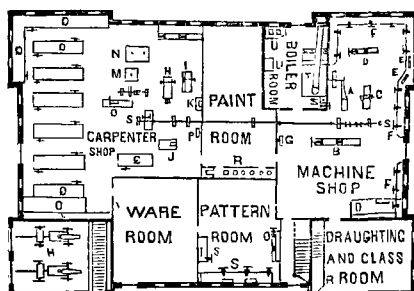
Experiment in the testing of Prime Movers and other machines will be undertaken by the classes. Every class in Prime Movers will take Indicator Diagrams from the engine of the Mechanical Laboratory and determine from them the power developed by the steam while working with different degrees of expansion.

Journals of Travel are required to be kept during the summer vacations by those students who complete the course of studies of the School. Entries should be made as often as once a week, and consist of notices of Manufactories; and especially of their peculiar mechanical methods, or peculiar machines employed or produced. Dimensions of large or otherwise important machinery, such as large stationary engines of water works, blowing or hoisting engines, and machinery in use in mining or other operations, may also form the subject of record. The Journals of the first vacation are to be read and discussed in connection with the class of Designing and Shop Practice; and those of the second vacation in connection with the class of Cinematics and Principles of Mechanism.

Reports or Memoirs upon visits and observations of the third vacation, will be expected instead of journals, to be read in the class of 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 of zinc, copper and brass ware; manufacture of saws, &c. These reports will be placed on file, or bound for use in the library of the School. They should therefore be illustrated by ample sketches and drawings. The journals should also be illustrated by sketches reproduced upon the blackboard when the journal is read.

A *Thesis* will be required at the end of the fourth year, of those who complete the studies of the Course. It will consist of a written memoir or discussion, illustrated by drawings, when necessary, upon some allowed subject of Mechanical Engineering. The thesis is to be read and defended by the student before the class.

MECHANICAL LABORATORY.



The plan shows the arrangement of the Mechanical Laboratory, its rooms, machinery, tool cases, benches, etc. The Draughting and Class room is in the lower story of the tower; O O small rooms for the storage and safe keeping of bench and hand tools; R in the paint room is a small room for paints, oils, etc.

In the Boiler Room, T is a Root's Sectional Safety Boiler of 33 horse power,

which supplies steam for the engine, and for warming the whole Building. The Forge and Furnaces U U are in 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 Stilwell 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 horse power. It is regulated by a Variable Cut-off of entirely new design by Professor Robinson, and very simple construction; one eccentric giving positive movements, without noise, to two valves by means of a link and two valve rods. It was made entirely by the students of the University, with the exception of the balance wheel. A Richard's Indicator of the most approved construction is fitted for attachment at any time 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 4 feet, which were made by students. At F F F is a stretch of about 100 feet of 4 by 18 inches Oak Plank Benches, fitted up with vises, drawers, tool cases, etc. The Steam Heating Coils of this room are under the benches extending their whole length. At G is the Grind Stone.

In the Pattern Shop are four complete sets of tools, benches and vises, each sufficient for any pattern maker. This room has also a small Buzz-saw for the light work of the Pattern room.

In the Carpenters and Wood Workers' Room, H is a Whitney planer, I a Moulding machine, J a Tenoning machine, M a Jig-saw, O a cutting off saw, S a Buzz-saw. There are also a Morticing Machine, a Turning Lathe, and about 10 Work Benches and vises.

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 purchases from abroad. A supply of Riggs' models has lately been added, and more are ordered from the celebrated model manufactory of J. Schröder of Darmstadt, Germany. About two hundred valuable models have lately been received from the U. S. Patent Office.

SCHOOL OF CIVIL ENGINEERING.

Those who desire a preparation for this profession 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.

PLAN OF 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 studies peculiar to the course are not commenced until the second year.

The instruction is as usual given by Lectures, Text-books and Reading, to which are added numerous practical exercises, and instruction by example, 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.

GENERAL VIEW OF THE COURSE.

The Complete Course occupies four years. The studies of the first three will prepare a student for undertaking many Engineering Operations, such as the Building of Railroads, Canals, Embankments, etc. The fourth year is intended for those who wish to fit themselves for the higher Engineering constructions, such as 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 time is divided among the different branches nearly as follows :

Languages,	6	Terms,	1	Recitation	daily.
Pure Mathematics,	6	"	1	"	"
Drawing of all kinds,	7	"	2	Hours	"
Special Engineering Lectures, with Mathematical Analysis,	3	"	1	Lecture	"
Surveying,	2	"	8	Hours	weekly
Physics, Mechanics, Hydraulics, Astron- omy, Geology, Chemistry, Mental Philosophy, Logic, Political Econ- omy, History; each,	1	"			
Journals of Vacation pursuits and Travels,	3	"			
Memoirs on Engineering subjects,	2	"			
Projects in Engineering Construction, ...	2	"			
Thesis at close of Course.					

COURSE OF STUDIES.

A tabular view of the course is given on page (32).

The following is a view in detail of the Technical Branches of Study in the Course of the School of Civil Engineering :—

PURE MATHEMATICS.—For details see the Department of Pure Mathematics to the end of the Integral Calculus.

APPLIED MATHEMATICS:—*Descriptive Geometry.*—Problems on the Point, Right line, and Plane; Angles; Curved Lines and Surfaces; Tangent Lines and Planes; Intersections; Spherical Projections; Spherical Triangles; Warped Surfaces; Parallel and True Perspectives; Shades and Shadows; Practical Problems and Applications. *Analytical Mechanics and Hydraulics.*—See Department of Mechanical Engineering. *Practical Astronomy.*—The Observatory; Equatorial Telescope; Transit Instrument; Altitude and Azimuth Instrument; Sextant; Micrometer; Astronomical Clock, and Chronometer; Chronograph; Adjustments of the Instruments; Determination of Time, Latitude and Longitude by various Approved Methods; Practical Exercises in the use of Instruments and Reduction of the Observations. *Geodesy.*—Determination of the Figure of the Earth; Methods of Extended Surveys of the Earth's

Surface; Ordinary Methods of Measuring Base Lines; Methods of the United States Surveys for Bases, Parallels and Meridians.—Surveying Calculation of Areas and Inaccessible Distances; Supplying Omissions; Correcting Measurements; Standard Units of Measure; Metrical System of Weights and Measures; Barometric Measurement of Altitudes; Refraction; Curvature of the Earth; Theory of the Compass, Plane Table, Transit, Theodolite, Level, Stadia, &c.; Adjustments of the Instruments; Simple, Compound, Reversed, and Parabolic Railroad Curves; Turnouts; Crossings; Passing Obstructions; Setting Slope Stakes; Calculation of earth work by various methods; Grades; Curvature of Rails; Coning of Wheels; Calculation and use of Tables.

DRAWINGS.—*Projection Drawing.*—Elementary Problems in Descriptive Geometry applied to the Projection of Objects; Use of Drawing Instruments and Water Colors; Isometric Drawing; Parallel Perspective; Projection of Shades and Shadows, Finished Drawings in Colors; Drawings of Bridges; Right and Oblique Arches. *Free-hand Drawing.*—Landscapes, Buildings, etc.; Course of Lettering and Ornamental Work. *Topographical Drawing.*—Sketching; Ink Drawings; Colored Drawings; Conventional Signs, etc. *Mapping.*—Railroad Mapping, Profiles, Alignments, Sketching, etc.; City and County Maps; Plats of Ground; Building Lots. *Architectural Drawing.*—Designing and Drawing of Engineering Structures. *Perspective Drawing.*

NATURAL SCIENCE.—*Physics.*—See Department of Physics and Astronomy. *Botany.*—See Department of Agriculture. *Chemistry.*—Principles of Inorganic Chemistry; Chemical Physics; Stoichiometry; Qualitative Analysis. *Geology.*—Elements of Physiographic, Lithological, Historic and Dynamical Geology. *Descriptive Astronomy.*—See Department of Physics Astronomy.

ENGINEERING.—*Road Engineering.*—Location of Roads and Railroads; Dimensions; Materials; Pavements; Drainage; Grades; Gauges, Rails, Chairs, Frogs, Switches; Turn Tables, Tunnels, Rolling Stock; &c. *Resistance of Materials.*—Laws and Coefficients of Elasticity; Work of Elongation, and Time of Oscillation; Set; Viscosity; Modulus of Strength, Safe Limits; Tension and Compression; Strength of Columns; Theories of Flexure and Rupture, Neutral Axis; Shearing Stress; Flexure of Beams and Columns; Strength of Beams and Columns; Standard Beams; Tension; Shocks, Crystallization; Experiments; Practical Formulæ. *Stability of Frames.*—General Principles; Joints; Fastenings; Analysis of a variety of Roofs and Frames, with various Methods for obtaining the strains on the different Parts. *Bridge Construction.*—King and Queen Post Trusses; Warren's, Howe's, Long's, Pratt's, Linville's, Post's, Whipple's, Finck's, Bollman's, etc.; Trusses; Tubular Bridges; Suspension Bridges; Draws; Arches; etc. *Building Materials and Masonry.*—Stone; Bricks; Limes, Cement, Mortars; Metals; Coverings. Foundations; Retaining Walls; Relieving Arches; Settling; Temperature. *Projects.*—See School of Civil Engineering.

VACATION WORK.

A journal is required to be kept by each student during vacation. It must be written as often as once a week, and will contain an account of his travels and occupations, with special reference to matters pertaining to his chosen profession, and general attention to all scientific and industrial facts. It will be pre-

sent at the opening of the Fall Term, and will be examined, interesting facts discussed, and marked and credited as a study 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 end of the second and third years of their courses, can obtain certificates to this effect from the Professor in charge.

PROJECTS, MEMOIRS AND THESIS.

Projects. During the Spring Term of the second year, an accurate Topographical Survey of a locality is made by the class with reference to the execution of a Project in Railroad Engineering, which is then given to the class for consideration and discussion, but which is executed in the Fall Term of the next year.

The Project consists of—

I. Memoir, II. Location, III. Drawings, IV. Estimates.

I. The Memoir will propose a location for a Railroad to fulfil certain exact requirements, and will state the reasons for the choice with the necessary calculations and estimates. It will be presented at the opening of the Fall Term. Different memoirs will be compared, and one or two routes decided upon for the class to work up.

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

III. The Drawings will include—

I. Alignment, II. Profile, III. Plans of Structures.

IV. The Estimates will give the cost of ground, earthwork, structures, rolling stock, etc; expenses of operating the line, and estimated income.

A Memoir will also 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.

A Thesis upon an approved subject, either separate or in allowed connection with the fourth year project, will be required at the close of the course.

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 specialities and access to the Cabinets of the other Departments. To facilitate the practice in Trigonometrical and Land Surveying, it has a specially prepared area, in which the difficulties of plain 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 positions 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.

SCHOOL OF ARCHITECTURE.

This School is designed for those who desire to fit themselves for the profession of Architect and Builder.

The specialities of the Course are taught upon the same general plan as in the European Art Schools, by a graduate of the National School of Architecture of Norway, and a State Scholar of the Berlin College of Architects. Students of Architecture will find rare advantages here.

APPARATUS.

Besides the use of apparatus connected with other schools, the School of Architecture has a fine set of one hundred and fifty plaster casts, embracing copies from the antique, statuary, capitals and architectural ornaments, from the celebrated establishment of Christian Lehr, of Berlin, to be used as drawing models, and a numerous and costly collection of German and French plates as copies in all departments of Architectural and Landscape drawing and coloring. It is provided also with a large number of the best books on Architecture and of the best periodical publications, American, English, French and German, illustrating the progress of Architecture at home and abroad.

COURSE OF STUDIES.

The Course for the first year agrees with that of the School of Civil Engineering. In the other years there will be found the following special studies.

DRAWING.—*Projection Drawing.*—*Free-hand Drawing.*—Landscapes, Ornamentation, the Human Figure in pencil and crayon. Drawing from Casts and Models.—*Architectural Drawing.*—Elements of the Greek, Roman and Gothic styles, Drawing of buildings in the principal styles, with plans, elevations, sections and details. Exercises in Original Design, embracing problems in Architecture, Architectural Details and Ornamentation. Working drawings for Stone Cutters, Masons and Carpenters. *Perspective Drawing.*—Drawing of Perspective from Orthographic Projections and objects. Finished drawings, with the Pen and in Color.

ARCHITECTURE—*Resistance of Materials, Stability of Frames and Building Materials and Masonry.*—See Civil Engineering. The History of Architecture is taught by Lectures during the Second and Third years, and will be arranged so as to give Carpenters, Builders and Masons, not able to take a full Architectural Course, the opportunity of getting the whole history of Architecture in one year, besides instruction in Architectural Drawing. The principles of the different styles of Architecture will be taught partly by lectures, but chiefly by drawing exercises.

The course will also embrace practical exercises in making estimates for buildings; in the preparation of full and accurate specifications; instruction in the form of Builders' Contracts; and in the legal liabilities and rights of Builders and Mechanics.

The full course of recommended studies for this School will be found in the tabular view of courses for the several Schools in the College of Engineering.

VACATION WORK.

Three Vacation Journals, and two Memoirs upon Architectural subjects will be expected of each student during his course. These should be accompanied with sketches or drawings of the objects mentioned in them.

SCHOOL OF MINING.

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 blowpipe analysis; of assaying and metallurgy; and of the engineering operations of mining.

The course is the same as for Civil Engineering, for the first two years. Afterwards, the following specialities are introduced. *Qualitative and Quantitative, Chemical and Blowpipe Analysis. Assaying and Metallurgy.*—Lectures on the processes in use in this and other countries. Laboratory Practice with the ores of various metals. *Geology of Mining Districts.*—Theory of mineral veins and seams. Deposits of gold, silver, copper, iron and other metals, and of coal, peat, petroleum, salt, cements, &c. *Drawing.*—Sections of strata; of mines, showing the galleries, winzes and machinery; of shafts lined with stone, wood, and metal tubing. *Engineering Operations.*—Determination of the dip and position of veins and seams, by trenches and borings; boring and drilling tools; blasting with powder and nitro glycerine; use of compressed air in subterranean workings; methods of exploitation or of working out mineral deposits of all kinds; sinking of shafts and winzes; running of levels and adits.

Journals of travel, projects and thesis upon mining topics, will be required of those who complete the course, similar to those in the other Schools of this College.

Models, apparatus and plates are used in the lectures, for illustrating to the eye the principles and methods taught. Engineering instruments are used for ideal mine surveys, and results calculated from observed data.

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



COLLEGE OF NATURAL SCIENCE.

FACULTY.

THE REGENT

A. P. S. STUART, Professor of Analytical Chemistry.

T. J. BURRILL, Professor of Botany.

D. C. TAFT, Professor of Geology and Zoölogy.

This College embraces the following Schools :

1. *The School of Chemistry.*
2. *The School of Natural History.*

ADMISSION.

The terms for admission are the same as those in the College of Agriculture.

In 1873 the requirements will be advanced to include the elements of Natural Philosophy, Botany, Zoölogy, Human Anatomy and Physiology. It will also be found advantageous to secure some knowledge of the Latin and Greek languages, as the nomenclature of the Natural Sciences is so largely borrowed from these languages.

SCHOOL OF CHEMISTRY.

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.

Each student who takes a complete course in this School 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. 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 speciality may require.

RECOMMENDED COURSES OF STUDY.

SCHOOL OF NAT. HIST.

FIRST YEAR.

Terms.

- 1st. *CHEM. and CHEM. PHYSICS.
GEOMETRY; U. S. HIST.
ENGLISH or LATIN.
- 2d. BOTANY; U. S. HIST.
SOLID GEOM. and ADV. ALGEBRA.
ENGLISH or LATIN.
- 3d. BOTANY.
TRIGONOMETRY.
ENGLISH or LATIN.

SECOND YEAR.

- 1st. CRYPTOGAMIC BOTANY.
ANATOMY and PHYSIOLOGY.
FRENCH.
- 2d. ZOOLOGY.
ANALYTICAL CHEMISTRY.
FRENCH; DRAWING.
- 3d. SPEC'L ENTOMOLOGY.
ANALYTICAL CHEM.
FRENCH; DRAWING.

THIRD YEAR.

- 1st. COMPARATIVE ANATOMY.
MINERALOGY.
GERMAN.
- 2d. GEOLOGY.
PHYSICS.
MED. HIST. of GERMAN.
- 3d. LITH. GEOLOGY.
DESCR. ASTRONOMY.
MOD. HIST. of GERMAN.

FOURTH YEAR.

- 1st. HIST. of GEOLOGY.
PRACT. ASTRONOMY.
MENTAL PHILOSOPHY.
- 2d. METEOROLOGY; METALLURGY.
PHYSICAL GEOGRAPHY.
HIST. of CIVILIZATION.
- 3d. GEOLOGY of ILL., EXCURSIONS.
POLITICAL ECONOMY.
LOGIC.

SCHOOL OF CHEMISTRY.

FIRST YEAR.

Terms.

- 1st. PLANE GEOMETRY.
INORG. CHEM. and CHEM. PHYSICS.
ENGLISH.
- 2d. SOLID GEOM. and ADV. ALGEBRA.
ORG. CHEM. and AGL. CHEM.
ENGLISH; LABORATORY PRACT.
- 3d. TRIGONOMETRY.
CRYSTALLOGRAPHY and MINERALOGY.
ENGLISH; LABORATORY PRACT.

SECOND YEAR.

- 1st. ANATOMY and PHYSIOLOGY.
ANALYT. CHEM.; GERMAN.
DETERMIN. MINERALOGY.
- 2d. ANALYT. GEOMETRY.
ANALYT. CHEM.; GERMAN.
BOTANY.
- 3d. ENTOMOLOGY or CALCULUS.
ANALYT. CHEMISTRY.
BOTANY; GERMAN.

THIRD YEAR.

- 1st. COMPARATIVE ANATOMY.
PRACT. CHEM.; FRENCH.
VEGETABLE PHYSIOLOGY.
- 2d. PHYSICS.
PRACTICAL CHEMISTRY.
FRENCH or MED. HIST.
- 3d. GEOLOGY.
PRACTICAL CHEMISTRY,
FRENCH or MOD. HIST.

FOURTH YEAR.

- 1st. GEOLOGY.
PRACTICAL CHEMISTRY.
MENTAL PHILOSOPHY.
- 2d. PALÆONTOLOGY.
PRACTICAL CHEMISTRY.
HIST. of CIVILIZATION.
- 3d. GEOLOGY of ILL.
THEME.
POLITICAL ECONOMY.

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 suite of accompanying apparatus; a Geissler's Mercurial Air Pump; a so-called Hoffman'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 Haeuy'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, &c., have been ordered, and are expected at an early date.

In addition, should also be mentioned complete sets of standard scientific works, with which the library of the School has recently been enriched; among which are the *Annalen der Chemie und Pharmacie*; the *Jahresbericht über die Fortschritte der Chemie*; *Dingler's Polytechnic Journal*; the *Handwörterbuch der Chemie*; *Percy's Metallurgy*; *Silliman's Journal*, and many other smaller works. Various foreign journals are also taken, giving the student access to the most recent discoveries and views in this department of science.

TEXT BOOKS.—Roscoe's Chemistry; Wills' 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*.

SCHOOL OF NATURAL HISTORY.

The aim of this School is to afford a thorough education and preparation for Practical Geologists, Collectors and Curators of cabinets and museums of Natural History, and for Superintendents of scientific explorations and surveys.

The several departments are being rapidly provided with illustrative collections and other apparatus. The *Botanical* department has a large Herbarium of dried plants, collected by the Powell expeditions, which has been largely increased from other sources. It has a Lignarium exhibiting woods in section, also *papier mache* flowers, and fruits of gigantic size, made by the celebrated Auzoux, of Paris, a pink, a papilionaceous flower, a cherry, a strawberry, a pea pod with peas, a vetch legume, a grain of wheat, &c. These gigantic specimens

are dissected so as to exhibit clearly even the most minute organs and tissues. The Green Houses, and the Arboretum and Botanical Garden, for which preparations are already made, afford also opportunities for examining the living plants in process of growth.

The *Zoological* department has a human skeleton, purchased in Paris; a manikin made by Dr. Auzoux; skeletons of a cow and other mammals and birds; stuffed preparations of a large number of birds, mammals, fishes, reptiles, &c., embracing bears, wolves, foxes, beavers, wolverines, prairie dogs, &c., birds of prey, songsters, &c.; a dissected horse's leg and hoof, a dissected eye, a trachea and vocal apparatus, in *papier mache*, with numerous French anatomical plates of great beauty. It has also collections of shells, fossils and insects, and a full suite of Entomological specimens is in preparation by Dr. Le Baron, the State Entomologist, who is required by the law of the State to make such collections for the University.

The Geology is illustrated by a full suite of specimens from the State Geological Survey. It has still larger collections in Mineralogy and Palæontology, etc., received or purchased from several sources, with preparations of ores, etc.

The College has also a large double camera, or magic lantern, with apparatus for dissolving views, with a large collection of fine paintings for the illustration of Astronomy, Geology, Zoölogy and History. The collections and apparatus are constantly increasing by purchases, donations and manufacture.

VACATION WORK.

Besides excursions made under the charge of the Professors, Journals and Memoirs of observations will be required as in the other Colleges.



COLLEGE OF LITERATURE AND SCIENCE.

FACULTY.

THE REGENT, Professor of Philosophy and History.
 WM. M. BAKER, Professor of English Language and Literature.
 EDWARD SNYDER, Professor of German Language.
 J. F. CAREY, Professor of Ancient Language and History.
 A. P. S. STUART, Professor of Chemistry.
 T. J. BURRILL, Professor of Botany.
 S. W. SHATTUCK, Professor of Mathematics.
 DON CARLOS TAFT, Professor of Geology and Zoology.
 I. D. FOULON, Instructor in French.

The College comprises at present two Schools.

1. *The School of English and Modern Languages.*
2. *The School of Ancient Language and Literature.*

ADMISSION.

Candidates for admission to either of these Schools must have the qualifications prescribed under the College of Agriculture. They must also be prepared to sustain an examination in Plane Geometry (the first five books of Legendre).

For the School of Ancient Language, in addition to the above, candidates will 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. In Greek, Grammar, Xenophon's Anabasis (3 books), and Arnold's Greek Prose Composition (24 exercises).

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, or as Teachers in the higher institutions, or for the transaction of public business.

Students in the Agricultural and other technic Schools often desire to educate themselves as teachers, writers, and professors in their special departments, and 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.

The library is well supplied with works illustrating the several periods of English and American Literature.

A monthly paper—THE STUDENT—is edited and published by the students of the several Colleges, each of which is appropriately represented in its columns.

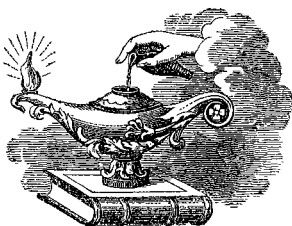
A printing office has been provided for in the new mechanical building, and a press with the requisite supply of type is expected this summer.

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, reviews, proof reading, and other work intended to illustrate the studies and exercise the students' own powers. Voice culture, and a training in elocutionary practice are designed to be given to all students.

VACATION WORK.

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 ; also a Thesis on some philological subject.



RECOMMENDED COURSES OF STUDY.

SCHOOL OF
ENGLISH & MODERN LANGUAGES.

FIRST YEAR.

Terms.

- I. ORIGIN OF ENG. LANGUAGE, COMPOSITION.
SOLID GEOMETRY; ALGEBRA.
CHEM.; U. S. HIST., 2 lect. a week.
- II. ADV. GRAM; PHILOG'G ANAL.
ALGEBRA; FREE-HAND DRAW'G.
CHEM.; U. S. HIST., 2 lect. a week.
- III. GRAM. and STUDY OF AUTHORS.
TRIGONOMETRY, or CHEMISTRY.
BOTANY; BOOK-KEEPING.

SECOND YEAR.

- I. ENG. LITERATURE, AUTHORS, &c.
FRENCH; DESCRIPTIVE GEOMETRY.
ANATOMY and PHYSIO'Y.
- II. ENG. LITERATURE, AUTHORS, &c.
FRENCH; ZOÖLOGY of
ANALYTICAL GEOMETRY.
- III. HIST. OF ENG. LITERATURE, or CALCULUS.
FRENCH.
MINERALOGY and ENTOMOLOGY.

THIRD YEAR.

- I. HIST. OF ENG. and AM. LITERATURE.
GERMAN; COMP. ANAT. and PHYS'Y.
ANCIENT HISTORY and DRAW'G.
- II. RHETORIC.
GERMAN.
MEDIÆVAL HIST. of GEOLOGY.
- III. CRITICISM, PRIN. OF TASTE.
GERMAN.
GEOLOGY of MODERN HIST.

SCHOOL OF
LATIN & GREEK LANGUAGES.

FIRST YEAR.

Terms.

- I. CICERO DE AMICITIA.
SOLID GEOMETRY; ALGEBRA.
ANABASIS (4TH BOOK) of CHEMISTRY.
LAT. and GR. PROSE COMPOSITION.
- II. LIVY and ROMAN HIST.
ADV. ALG.; HERODOTUS of CHEM.
LAT. and GR. COMP. continu'd.
- III. HORACE (ODES); PROSO'DY; RO. HIST.
TRIGONOMETRY of CHEMISTRY.
THUCYDIDES of BOTANY.

SECOND YEAR.

- I. HORACE (SATIRES and ARS. POET)
DESCRIP. GEOM. of ANAT. and PH'Y.
ILIAD and GREEK PROSO'DY.
- II. JUVENAL.
ANALYT. GEOM. of ZOÖLOGY.
ILIAD.
- III. QUINTILIAN.
CALCULUS of MINER.; ENTOM.
DEMOSTHENES DE CORONA.

THIRD YEAR.

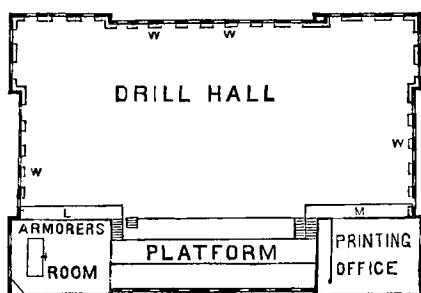
- I. CICERO DE OFFICIIS.
ANC. HIST. of COMP. ANA. and PH'Y.
SELECTIONS FROM GR. TRAGEDY.
- II. TACITUS.
MEDIÆVAL HIST. of GEOL.
XENOPHON'S MEMORABILIA.
- III. TACITUS.
GEOL. of MOD. HIST.
PLATO and GR. PHILOSOPHY.

FOURTH YEAR.—Same in both Schools.

- I. MENTAL SCIENCE; CONST. HIST. of GEOLOGY; PRACTICAL ASTRONOMY.
- II. MORAL PHILOSOPHY; LOGIC; PHYS. GEOG. or PHYSICS; HIST. of CIV. and THE ARTS.
- III. HIST. of PHILOSOPHY; LOGIC; POL. ECONOMY; CONSTITU'L LAW of PHYSICS.

SCHOOL OF MILITARY SCIENCE.

The teaching of military tactics is required of the University both by the law of Congress and by the State law. No complete course of related studies has yet been adopted, as the aim of the School is not to make professional soldiers, but simply to teach to all students the tactics, and to such as desire it, the leading principles of military science.



The apparatus of instruction includes the Drill Hall, above represented, 124 x 75 feet, 350 rifle muskets ranged in racks around the Hall, cavalry swords, fencing swords and muskets, an armory with a growing collection of arms, models of arms and projectiles for the purpose of practical instruction. The library includes quite a number of books on military science, military history and engineering.

For the present the course is confined to two years instruction, until further facilities and teaching force can be obtained.

The Trustees have adopted the rule, that all students shall, unless excused for sufficient cause, take part in military exercise, as aggregation of numbers is a paramount necessity to render such instruction effective.

The instruction in this Department will be given in two sub-divisions, arranged as follows ;

1. Practical instruction in Military Tactics (for the present confined to the infantry arm), to all able-bodied 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.

2. Military Science. There will be taught a class in Military Science and Art, as far as it is necessary for duties as officers of the line. Students will be admitted into this class after having participated at least two terms in the general military exercises, and shown such proficiency and ability as may secure a utilization of the instruction thus received.

The instruction, theoretical and practical, is to occupy not to exceed five hours each week, and is so arranged as not to interfere with any courses of study,

making it possible for the member of any other course to engage in it as an optional study.

The members of this class will officer the companies, and act as drill sergeants and instructors for the lower classes.

FIRST YEAR.—*First Term.*—School of the company; bayonet fencing. *Second Term.*—Battalion and skirmish drill; Bayonet fencing. *Third Term.*—Brigade and division evolutions; target practice, and theoretical instruction on fire arms.

SECOND YEAR.—*First Term.*—Military administration; reports and returns; army regulations and military laws; sword fencing. *Second Term.*—Outpost and picket duty (Mahon's); sword fencing. *Third Term.*—Art of war; strategy and grand tactics; organization of armies.

THIRD YEAR.—*First Term.*—Artillery practice; field artillery; drill at the cannon. *Second Term.*—Military engineering; Cavalry tactics, theoretical. *Third Term.*—Military fortifications; field and permanent bridges and roads; military history and statistics.

There is formed now a battalion of six companies, officered by the students of the military class, and battalion and skirmish drill, also bayonet exercise are practiced.

SCHOOL OF COMMERCE.

Candidates for this School must pass the examinations required for admission to the College of Agriculture.

The course in this School will occupy one year, the first term of which 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.

Studies recommended for this purpose, would be: The English and German Languages, Mathematics, one or two terms of Chemistry (for druggists, etc.) and History, Political Economy and Commercial Law.

First Term.—Book-keeping by single and double entry; theory of mercantile accounts, and the several principal and auxiliary books. Penmanship; commercial calculations.

Second Term.—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.



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 food, animal and vegetable, for the healthful, and for invalids; the chemistry of cooking; the uses, construction, materials 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 all the topics named and whatever else may pertain to domestic economy.

The instruction in this school will begin with the next college year, and will be developed as fast as practicable. The full course will very nearly correspond with that in the School of English and Modern Languages, except that in the second and third years lectures on the foregoing topics of domestic economy will take the place of the mathematical studies.

Other schools, especially adapted to the wants of women, will be opened as fast as the means in the possession of the University will permit. Young ladies have free access to all the colleges and schools in the University, and several are already pursuing studies in the Schools of Chemistry, Horticulture, Architecture and commerce.

Schools of Wood Engraving, Printing, Telegraphing, Photography and of Designing, it is hoped, will be added at an early day.

Drawing, both free hand and projection, is now taught by a master of great excellence, and painting and music will be provided for those who desire them, at a reasonable extra charge.



DEPARTMENTS OF STUDY.

A department of study embraces a single branch of learning, and is designed to show the course and extent of the instruction given at the University in that branch. Students desiring to pursue any branch of learning further than is provided for in the courses in the several colleges, will consult the course laid down under the following exhibit of the departments.

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. For a statement of the full course of science involved in Agriculture see the article headed "College of Agriculture."

The years in this Department coincide with the last three years of the course in the College of Agriculture.

FIRST YEAR—*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.

SECOND YEAR—*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. Agricultural book-keeping—Farm book, herd book, etc. *Rural Law*—of tenures and conveyances of land, of highways, of cattle, of fences, of noxious weeds, etc. Laying out estates.

THIRD YEAR.—*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 will be aided 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 process of ploughing, 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.

FIRST YEAR—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.

SECOND YEAR.—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.

THIRD YEAR.—Care of hot and green houses; propagating house; conservatories; floriculture; garden architecture; ornamentation; green house work; landscape gardening; ancient and foreign horticulture.

MECHANICAL SCIENCE, CIVIL ENGINEERING, ARCHITECTURE AND MINING.

The specialities in these departments have already been fully detailed under the several schools in the College of Engineering.

CHEMISTRY.

To accommodate those who have a special object in view, this department has three special courses of Laboratory work arranged.

I. *Agricultural.*

First Year.—Inorganic, Organic, and Agricultural Chemistry; Qualitative and Quantitative Analysis of Salts; Chemical Physics.

Second Year.—Analysis of Clays, Marls, Mineral Waters, Manures, Soils and Vegetable Products.

Third Year.—Isolation of Organic Acids and Bases; Estimation of Hydrogen, Carbon, Sulphur, &c., Sugar, Tannin, &c.

Fourth Year.—Analysis of Air, Illuminating Gas, &c., and the Study of Poisons.

2. *Technical and Pharmaceutical.*

First Year.—The same as AGRICULTURAL, except Agricultural Chemistry.

Second Year.—Quantitative Analysis of Dolomite, Marl, Silicates and Ores; Preparation of Acids, Alkalies and Salts.

Third Year.—The same as in AGRICULTURAL, with Electroplating, Bleaching, Dyeing, Tanning, and Assaying.

Fourth Year.—Same as AGRICULTURAL, with Photography.

3. *Metallurgical.*

First Year.—Inorganic Chemistry; Chemical Physics; Qualitative and Blow-pipe Analysis of Alloys, &c.

Second Year.—Analysis of Gold, Silver, Copper and other Ores; also, Slags of Furnaces; Assays of Bullion, and Ores of Zinc, Antimony, Tin, &c.

Third Year.—Analysis of Iron, Steel, Nickel, Cobalt, &c.; Fuel; Electro-Metallurgy; Preservation of Wood, Lime, Mortar and Cements.

Fourth Year.—Same as in AGRICULTURAL.

NATURAL HISTORY.

The studies in this important department of science, extended through nearly four years, beginning with the second term of the first year 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.

The following is an exhibit of the special studies of the department:

FIRST YEAR.—BOTANY.—Beginning with the opening of the winter term in January, the different essential parts of plants, and their various modifications to form the root, stem, leaves, flowers, fruits, &c., will be studied, together with the laws of morphology and required terminology. During the year, structural, physiologic, and systematic Botany, will receive careful attention, so as to acquaint students with microscopic vegetable anatomy, with the life-work of plants and with the classification, distribution and names of the flowering plants. Each student is expected to present a certain number of named plants to the University cabinets.

SECOND YEAR.—During the first term of this year, the study of the flowerless plants will be prominent, and special attention will be given to such as illustrate the anatomy and physiology of the higher plants and those causing injury and disease, as the Fungi. Lectures upon vegetable physiology continued. Practical work with microscopes continued through the term; constant reference is made throughout the study to living and dried plants, and to drawings and plates. Lectures introductory to the study of Natural History, illustrating the connection of the sciences, means of study, habits of observation, &c. The principles of Human Anatomy and Physiology will be taught and applied to the preservation and promotion of health; this subject will be illustrated by skeleton and manikin. Systematic Zoölogy; Principles of Classification; Characteristics of

Departments, Classes, Orders, &c. Special Entomology will have reference to those insects which are particularly injurious or beneficial.

THIRD YEAR.—*Comparative Anatomy.*—This subject is designed to illustrate the 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, &c.

Geology.—Will commence with those forces known to produce observed phenomena in the crust of the earth; proceeding with the characteristics of the rocks, stratified and unstratified, constituent elements, crystalline structure, &c. This will be followed by a discussion of the Historic Development of the Earth, as revealed by Palæontology, or the entombed Fossils of the primeval inhabitants.

FOURTH YEAR.—*Lectures.*—History of the origin and progressive phases of Geological Science.

Physical Geography and Meteorology.—These point out and explain the principles that underlie the phenomena manifest in the Life of the Earth, or in the Earth's Physiology. The Topography and Geology of Illinois, with excursions for observation and practical work.

Specimens for Museum.

The University would respectfully solicit of all students, and all friends of Natural History, specimens for this department, embracing good specimens of Rocks, Concretions, Fossils animal and vegetable. All rare and curious birds, mammals, reptiles and fishes. All rare plants and insects. Anything that will illustrate the Sciences of Natural History.

Indian implements and relics are solicited for the cabinet.

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.

Instruction is given by the aid of text books, and by lectures. Weekly essays, forensics, plans and criticisms are required.

FIRST YEAR.—Sources and History of the English Language; Punctuation, Use of Capitals, Principles of Compositions, Primary Rhetoric, Advanced Grammar, Philological and Grammatical Analysis of Authors, History of their times and Contemporaries.

SECOND YEAR.—Reading and Analysis of Shakspeare and the early Dramatists, Spenser, Chaucer, Gower, &c. History of their times and Contemporaries; Chronological History of English Literature begun.

THIRD YEAR. History of English and American Literature; Rhetoric; Elements of Criticism; Principles of Taste; Methods of Philological Study, &c.

Instruction in Anglo-Saxon will be given to those who desire.

GERMAN LANGUAGE AND LITERATURE.

This language being of quite practical value to the farmer and artisan of this country, will be taught thoroughly in a two years' course. The first year aims to enable a student to read such German scientific works as his course demands. The second year completes the course, and makes the student thoroughly acquainted with the language.

FIRST YEAR.—Worman's Complete German Grammar, to lesson 28. Etymology completed; Conversational Reader commenced. Syntax; Reader completed.

SECOND YEAR.—Review of Etymology, Classic Reader. Review of Syntax; Schiller's "Jungfrau von Orleans;" Goethe's "Iphigenia." Heise's Leitfaden der Deutschen Sprache (in German), German Composition and Conversation. Lectures on the German Language and Literature. Reading of German Papers through the second and third terms of this year.

Whenever demand may arise, a third year of German Rhetoric and Composition, Literature and History will be added to this course.

Books of reference: Becker's deutsche Grammatik; Grimm, deutsche Sprache; Grimm's and Sander's Dictionaries.

FRENCH LANGUAGE AND LITERATURE.

The course of instruction in French will extend through two years, but students who desire to pursue the language only far enough to enable them to read the scientific works which they may find it necessary to consult, are expected to acquire sufficient for this in a single year. The reading room is well supplied with French Agricultural and Scientific journals, and much of the best French literature.

FIRST YEAR.—Etymology. Oral exercises in French pronunciation; written exercises in translating English into French. Select readings. Syntax. Translating; French composition; *conversazioni*, weekly.

SECOND YEAR.—Review of Grammar; classic French Literature. Modern French Literature, novels, comedies, etc.; composition. History of French Literature; written criticisms of the French authors by the class weekly. *Conversazioni*, weekly.

LATIN LANGUAGE AND LITERATURE.

Students will not be admitted to this department who are not prepared to enter at once upon the reading of Cicero.

FIRST YEAR.—Orations of Cicero; Latin prose composition begun and continued through the course; selections from Virgil; Latin prosody.

SECOND YEAR.—Selections from Livy; Horace; Juvenal.

THIRD YEAR.—Cicero de Officiis; Cicero de Oratore; lectures on the origin and structure of the Latin Language; Frieze's Quintilian. Other authors will occasionally be substituted in the place of some of the above.

GREEK LANGUAGE AND LITERATURE.

This course will resemble that in the Department of Latin.

FIRST YEAR.—First three books of Xenophon's Anabasis; Herodotus; Greek prose composition begun and continued throughout the course.

SECOND YEAR.—Demosthenese; Thucydides; Homer's Iliad.

THIRD YEAR.—Xenophon's Memorabilia of Socrates. Selections from Plato and the Greek poets.

Select portions of Smith's History of Greece will be read in course, and lectures given on Greek history and philosophy.

HISTORY AND SOCIAL SCIENCE.

The studies in this department are designed to afford a general view of the history of mankind, and of the phenomena of the social organization and progress of the race. They will also embrace the history of the Arts and Sciences, 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 the lectures with systematic readings of specified authors, connected with the study of historical geography and chronology.

The course will occupy eight terms, two in the first year, and three each for the third and fourth years of the course.

FIRST YEAR.—*First Term.*—Discovery, settlement and colonial history of the United States, with notices of other American States; American geography. Two lectures (or lessons) a week. *Second Term.*—History of the United States from the time of the Revolution. Two lectures (or lessons) a week.

SECOND YEAR.—History is intermitted this year in the college courses.

THIRD YEAR.—Ancient history of Greece and Rome, with notices of other ancient nations; ancient geography. Mediaeval history. Modern history; general European history; European geography.

FOURTH YEAR.—Constitutional history of England, and of the United States. Two lectures a week. History of Civilization; analysis of historical forces and phenomena; notices of the history of the arts and of the inductive sciences. Constitutional and international law. Political economy.

PHILOSOPHY AND LOGIC.

The studies of this department extends through the last year of the full courses, and are taught chiefly by lectures, with readings of specified authors and written essays. The course is as follows:

First Term.—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. The philosophy of education.

Second Term.—Moral Philosophy (three lectures a week). Theory of con-

science; nature of moral obligation; moral feeling; the Right; the Good. Practical ethics; Duties. Formation of character. Logic, formal and inductive (two lectures a week, alternating with Moral philosophy).

Third Term.—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.

The studies in this Department are as follows:

FIRST YEAR.—*Geometry*,—elementary principles, circle and measurement of angles, measurement and properties of polygons and the area of the circle, planes, polyedral angles, the prism, pyramid, cone and sphere, area of a spherical polygon of a lune, measurement of spherical angles.

Higher Algebra,—formation of powers binomial theorem, extraction of roots of any degree, radicals of any degree, properties and summation of series, exponential quantities, logarithms, general theory of equations.

Trigonometry,—plane, spherical and analytical, formation and use of tables, solution of right angled and oblique angled triangles, relation between the circular functions of any arc.

SECOND YEAR.—Analytical Geometry; geometrical construction; point and right line on a plane; properties and measurement of the circle, ellipse, parabola and hyperbola; higher plane curves; the cycloid, cissoid of diocles, etc. Differential Calculus; differentials of algebraic functions of a single variable; Maclauren's Theorem; Taylor's Theorem; differentials of transcendental functions; maxima and minima of functions of a single variable; equations of tangent and normal; expressions for sub-tangent, sub-normal, etc.; differentials of an arc, plane area, surface and volume of revolution. Integral Calculus; integration of monomials of particular binomials of rational fractions; applications in the rectification and quadrature of curves, in the quadrature of surfaces of revolution, and in the cubature of volumes of revolution.

THIRD YEAR.—Analytical Geometry; curves in space; discussion of the surfaces of the second order. Differential Calculus; differentials of functions of two or more variables; maxima and minima of functions of two or more variables; tendency of curves to coincide; osculatory curves; radius of curvature; evolutes and involutes; envelopes; construction and discussion of algebraic curves, the logarithmic curve, the cycloid, spirals; general surfaces; equations of a tangent plane and a normal line; partial differentials of a surface and of a volume. Integral Calculus; integration of the differentials of circular functions and of circular arcs; of certain irrational differentials; of differentials containing transcendental quantities; of the differentials of the higher orders and of differential equations; rectification and quadrature of curves; cubature of volumes in general. Calculus of Variations. Method of Least Squares.

PHYSICS AND ASTRONOMY.

These important branches of science are taught by lectures and text books, and fully illustrated by a fine set of valuable apparatus. The following are the chief topics of the course.

Physics.—Properties of matter; liquids and gases; laws of falling bodies; Atwood's Machine; weight in different latitudes; molecular forces; elasticity and compressibility; theory of undulations and vibrations; musical instruments; light; solar spectrum and mode of ascertaining the composition of the sun, stars and nebulae. Correction of the aberration of lenses for microscopes, telescopes and other optical instruments.

Heat.—Intensity, quantity and effects; latent and specific heat; steam heating apparatus; ventilation and warming of buildings; heating power of fuel; mechanical equivalent of heat. Magnetic dip, declination, variation, intensity, etc.; convertibility of magnetism and electricity; identity of lightning and the electric spark; proper form of lightning rods; electric telegraph.

Descriptive Astronomy.—Relative size and position of the Earth as compared with other heavenly bodies, and its movements among them; relative mass and density of the different bodies of the solar system; parallax aberration and velocity of light; precession nutation; physical constitution of the sun, planets, comets, stars, nebulae, etc.

A special course of lectures on chemical physics is given to the students of chemistry by the Professor in that department.

CERTIFICATES AND DIPLOMAS.

Under the law, any student 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 Diploma of the University will be given only to those who have satisfactorily completed a *four years* course in some one of the colleges. Each diploma will state the college and course pursued, the actual studies taken, and the number of terms, and 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.

EXAMINATIONS.

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

A regular examination of all the classes is made at the close of each term. A record is kept of the standing of each student at all the examinations, and from this his final certificate of graduation is made up.

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 gray 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 ornamented with the initials I. I. U., surrounded by a silver wreath in front. Students will wear their uniform always on parade, but in their rooms and at recitation may wear other clothing.

DORMITORIES AND BOARD.

There are in the University building about seventy private rooms, which are rented to the students who first apply. Each room is designed for two students. These rooms, fourteen feet long and ten feet wide, are without furniture, it being deemed best that the students shall provide their own furniture.

Private boarding houses are springing up around the University, where either day board, or board and rooms can be obtained, with the advantages of the family circle. Boarding clubs are maintained by the students, which furnish meals at a cost of from \$1.50 to \$2.50 per week. Coal is purchased at wholesale, and furnished to students at cost.

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, arithmetic, grammar, geography, history of the United States, and algebra to equations of the second degree, and such other studies as you find marked under qualifications for "admission," under 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 an examination upon the studies of the classes you wish to enter.

LADIES' BOARDING HALL.

It is expected that the old University building will be thoroughly refitted and devoted to the use of lady students, and to the Schools of Domestic Science and other schools for women, when the new building is fully prepared and occupied. But a year must elapse before the transfer can be effected. To meet the demand for a Boarding House, where young ladies may find suitable accommodations and care, arrangements are in progress to open near the University a large Boarding Hall, which will afford good rooms for about 40 students, with parlor, dining room, kitchen, laundry and music room. The whole to be under the charge of a competent Steward and Matron.

The boarders will share the expense of the provisions as in the young men's boarding clubs, and, under the direction of the Matron, will perform the labors of the house, thus receiving valuable lessons in Domestic Arts, and diminishing their expenses.

The private rooms, designed for two Students each, will be furnished with a bedstead, wardrobe, washstand, table and stove. All other furniture must be provided by the occupant. It can be procured at reasonable rates in the towns.

The charges and average expenses for room and Board will be nearly as follows for each student :

Room rent, per week (according to size of room).....	65c to	85c
Table expense, for provisions.....	75c to	\$1 25c
Fuel and lights.....	20c to	40c
Services of Steward and Matron	50c to	50c
<hr/>		
Total per week.....	\$2 10 to	\$3 00,
Total per year.....	\$75 00 to	\$108.

Payment must be made monthly *in advance, in all cases.*

As the number who can be accommodated is limited, all who desire rooms should apply early to the Regent. No rooms will be reserved after the opening of the term.

L A B O R .

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

Educational labor is designed as practical instruction, and constitutes a part of the course in the several schools. Students are credited with their proficiency in it as in other studies. Nothing is paid for this class of labor, the instruction given being regarded as a full compensation,

Remunerative labor is such as is prosecuted for its products, and is paid for at rates proportioned to the skill, fidelity and efficiency of the labors. The maximum rate of wages on the farm and garden, and in the shops, is *ten cents per hour*. The maximum rate about the Buildings and Ornamental Grounds is *eight cents per hour*. Students of superior skill and previous practice are allowed work by the piece, and may thus by diligence secure larger rates.

Students desiring work are required to join the *Labor Classes*, which go out to labor four hours each alternate day. Students can often obtain labor for extra hours, if found faithful and efficient as workers.

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 paying more than one half their expenses by working*, and even this will require *much economy* in the use of money. If the student can find profitable employment during his vacations, he can often supply all the lack, and provide for his clothing.

CALENDAR.

The University year is divided into three terms, the first of which is fourteen weeks, and the other two of eleven weeks each.

Students are expected in all cases to be present on the first day of the term. Those unavoidably delayed will be required to make up all lessons which their classes have passed over in their absence.

1872.

- Jan. 2, EXAMINATION FOR ADMISSION.
- Jan. 3, WINTER TERM OPENS.
- Mar. 26, EXAMINATION FOR ADMISSION.
- Mar. 27, WINTER TERM CLOSES.
- Mar. 28, SPRING TERM OPENS.
- June 6, SPRING TERM CLOSES.
- June 6, COMMENCEMENT.

SUMMER VACATION.

- Sept. 10, EXAMINATION FOR ADMISSION.
- Sept. 11, OPENING OF FALL TERM.
- Dec. 18, FALL TERM CLOSES.

VACATION OF TWO WEEKS.

1873.

- Jan. 1, EXAMINATION FOR ADMISSION.
- Jan. 2, OPENING OF WINTER TERM.

EXPENSES.

Tuition free in all departments.

Term fee.....\$5 00

Room rent in University building for each student, per term..... 4 00

Each student is required to pay a matriculation fee of \$10 on first entering the institution. This entitles him to a membership till he completes his studies.

All bills due the University must be paid, and the Treasurer's receipt be shown to the Regent before the student can enter the classes.

The annual expense of a residence at the University, exclusive of books and clothing, will be nearly as follows :

Room rent and term fee.....\$27 00 to \$27 00

Board, from.....54 00 to 180 00

Fuel and lights, from.....10 00 to 15 00

Washing, 75 cents per dozen.....10 00 to 15 00

Total.....\$101 00 to \$237 00

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