Illinois Industrial University,

URBANA, CHAMPAIGN COUNTY, ILL.

1879-80.

INDEX.

LEARNING AND LABOR.

Catalogue and Circular

—OF THE—

Illinois Industrial University,

Urbana, Champaign County, Ill.

1879-80.

CHAMPAIGN:
GEORGE SCROGGS, PRINTER.
1880.

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UNDER LAW OF MAY 7, 1873.

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FACULTY.

JOHN M. GREGORY, LL. D.,
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THOMAS J. BURRILL, M. A.,
Professor of Botany and Horticulture, and Vice-President.

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JOSEPH C. PICKARD, M. A.,
Professor of English Language and Literature.

N. CLIFFORD RICKER, M. Arch.,
Professor of Architecture.

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Professor of Ancient Languages, and Secretary.

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Professor of Chemistry.

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Professor of Agriculture.

OFFICERS AND INSTRUCTORS.

*SELIM H. PEABODY, Ph. D.,
Professor of Mechanical Engineering and Physics.

MRS. LOUISA ALLEN GREGORY,
Professor of Domestic Science, and Preceptress.

FREDERICK W. PRENTICE, M. D.,
Professor of Veterinary Science.

† FERNANDO A. PARSONS, M. L.,
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Professor of Industrial Art and Designing.

‡ MAJOR WILLIAM A. DINWIDDIE,
FIRST LIEUT. 2ND CAVALRY, U. S. A.,
Professor of Military Science and Tactics.

WILLIAM G. WOOD,
SECOND LIEUT. 18TH INFANTRY, U. S. A.,
Professor of Military Science and Tactics.

IRA O. BAKER, C. E.,
Assistant Professor of Civil Engineering and Physics.

MELVILLE A. SCOVELL, M. S.,
Assistant Professor of Agricultural Chemistry.

CHARLES I. HAYS, B. S.,
Assistant in Horticulture and Botany.

*Resigned Feb. 1, 1880. † Resigned March 22, 1880. ‡ Relieved March 7, 1880.

OFFICERS AND INSTRUCTORS.

CHARLES E. PICKARD, B. A.,
Assistant in English and Ancient Languages.

EDWIN L. LAWRENCE,
Head Farmer.

EDWIN E. KIMBALL,
Foreman of Machine Shop.

GEORGE A. WILD, B. S.,
Curator and Taxidermist.

CHARLES HILDEBRAND, Ph. B., M. E.,
Instructor in Right-line Drawing.

HENRY M. BEARDSLEY, B. L.,
First Assistant in Chemical Laboratory.

MRS. JENNIE HOLLISTER,
Teacher of Voice Culture and Singing.

MISS JENNIE C. MAHAN,
Teacher of Instrumental Music.

CHARLES C. BARNES,
Second Assistant in Chemical Laboratory.

NELSON S. SPENCER,
Foreman of Carpenter Shop.

LIST OF STUDENTS.

EXPLANATION.

The course of studies are indicated as follows: Ag'l, Agricultural; Hor., Horticultural; M. E., Mechanical Engineering; C. E., Civil Engineering; Min. E., Mining Engineering; Arch., Architecture; Nat. His., Natural History; Chem. Chemistry; L. & S., Literature and Science; Com., Commercial; Mil., Military; B. C., Builder's Course; D. S., Domestic Science. *Deficient in one or more studies.

RESIDENT GRADUATES.

Beardsley, Henry M	Champaign
Stanton, S. Cecil	London, England
Taft, Lorado	Champaign
Mrs. Coddington, Alice	Champaign
Miss Estep, Ida M.	Rantoul
Miss Falls, Ida	Champaign
Miss Larned, Mary	Champaign
Miss McAllister, Minnette C.	Champaign

SENIOR CLASS.

GENTLEMEN.

NAME.	COURSE.	RESIDENCE.
Barrows, Charles S	M E	Woodstock
*Bills, Charles J	L & S & Mil	Garden Prairie
Bley, John C	M E & Mil	El Paso, Colorado
Briles, Byard S	Ag'l	Neoga
Cook, Charles F	Chem & Mil	Edwardsville
Groves, Charles W	L & S & Mil	Champaign
Hafner, Chris F	L & S & Mil	Oak Park
Harden, Edgar E	L & S & Mil	Dixon
Hatch, Frank W	L & S	English Prairie
*Heidenheimer, Benj	M E & Mil	Chicago
Jones, R D	L & S & Mil	Lacon
Kingsbury, C S	Elective	Bowensburg
Neely, Charles G	L & S	DuQuoin
Parker, W L	M E & Mil	Alton
Robinson, Albert F	Min E	Jacksonville
Robinson, Arthur S	M E & Mil	Jacksonville, Fla
Savage, George Marvin	L & S	Girard
Sondericker, Jerome	C E	Woodstock
Travis, William W	M E & Mil	Chenoa
White, Frank	C E & Mil	Stillman Valley

LADIES.

NAME.	COURSE.	RESIDENCE.
Bacon, Katharine I	L & S	Champaign
Batchelder, Augusta	D S	Harristown
Lucas, Cordi	L & S	Camargo
Parker, Minnie A	L & S	Decatur
Pearman, Ida	L & S	Champaign
Watson, Ella M	D S	DeKalb

JUNIOR CLASS.

GENTLEMEN.

NAME.	COURSE.	RESIDENCE.
Allen, Jonas A	L & S	Elgin
Allison James G	L & S	McKinney, Texas
Armstrong, James E	Nat His	Seneca
Barnes, Charles C	Chem	Champaign
Beach, Bayard E	L & S	Champaign
Birney, Frank L	Chem	Urbana
Boothby, Arthur	M E	Pitsfield
Brereton, J Edwin	L & S	Clement
Bullen, John L	Ag'l & Mil	Moline
*Coddington, Arch. O	L & S	Champaign
Cooper, Fred. E	Chem	Girard
*Davis, A E	L & S	Salem
Dennis, Charles H	L & S & Mil	Decatur
*Doering, Otto L	L & S	Central City
Dressor, John C	Ag'l & Mil	Cottonwo'd Grove
Forsyth, James	Nat His	Springfield
Foster, Charles F	L & S	Curran
*Gaddis, John W	Arch	Olney
Hammett, Frank W	C E & Mil	Camargo
*Harrison, Samuel A	L & S & Mil	Alton
Hewins, Charles F	L & S	Loda
Hill, Frederick L	C E	Paxton
Hill, T Crawford	L & S & Mil	Tolono
Jones, Isaac	Chem & Mil	Sweetwater
Kauffman, Adam E	Chem & Mil	Sterling
Kingman, A H	Chem	Wakefield, Mass
Lowe, Augustus Y	L & S	Jerseyville
McKay, Francis M	L & S	Ottawa
Mansfield, Willis A	L & S	Marengo
Mason, William K	Ag'l	Buda
Miller, Harry A	Arch	Buffalo, N Y
*Miller, John H	Chem	Sheridan
Morse, John H	L & S & Mil	Cazenovia
Peadro, Benjamin F	L & S	Windsor
Pearman, J Ora	Chem	Champaign

NAME.	COURSE.	RESIDENCE.
*Pepoon, Herman S	Nat His	Warren
Pepoon, William A	Ag'l	Warren
Philbrick, Ethan	C E & Mil	Baileyville
Pletcher, Francis M	Nat His	Plattville
Porter, Frank H	L & S & Mil	Garden Prairie
Ross, Sprague D	L & S	Cottonwood
*Scoggin, Charles W	M E	Champaign
Schwartz, Joseph	Chem	Salem
*Seymour, Arthur B	Nat His	Camp Point
Slade, Byron A	Chem & Mil	Sycamore
Stull, Louis	L & S	Marengo
Sturman, James B	L & S	Dahlgren
Talbot, Arthur N	C E & Mil	Cortland
Weston, William S	L & S	Champaign
Williams, Frank H	M E & Mil	Moline
Wilkins, Harvey A	Arch	Champaign
Wilson, Maxwell B.	Ag'l	Paris

LADIES.

Baker, Kittie M	D S	Champaign
Barnes, Bertha E	L & S	Champaign
Carmack, Sarah E	D S	Camargo
Davis, Marietta	L & S	Monticello
Dresser, Gertrude E	L & S	Lindenwood
Elder, Loretta K	L & S	Mattoon
Elliott, Elsie C	D S	Tonica
Hammett, Jennie M	Nat His	Camargo
*Harmon, Ada D	L & S	Champaign
Lawhead, Lucie M	L & S	Champaign
Lawrence, Nettie E	D S	Champaign
Lucas, Anna B	L & S	Camargo
Macknet, Metta M Irene	L & S	Girard
*Mosser, Maggie	L & S	Decatur
Thomas, Darlie	L & S	Champaign
*Victor, Mamie Y	L & S	Champaign
Wright, Jessie A	L & S	Champaign

SOPHOMORE CLASS.

GENTLEMEN.

NAME.	COURSE.	RESIDENCE.
Bacon, Theodore H	C E	Champaign
Boyd, Comma	Agl & Mil	Sheffield
Brady, Clarence E	L & S & Mil	Hardin
Bridge, Arthur M	L & S & Mil	LaMoile
Bringhurst, Henry W	C E	Logansport, Ind
Brown, Albert S	L & S	Champaign

NAME.	COURSE.	RESIDENCE.
Bellamy, Albert	L & S	Girard
Bullard, George W	Arch	Mechanicsburg
Bullard, Benjamin F	L & S	Mechanicsburg
Carman, Augustine S	L & S	Champaign
Carman, William B	Chem & Mil	Champaign
Cole, Edward E	L & S & Mil	Champaign
Cole, Haydn S	L & S & Mil	Kewanee
Conyne, William F	L & S	Warren
*Craig, William P	L & S	Champaign
Curtiss, William G	Agl	Warren
Denton, Gilbert H	C E	Sycamore
Drum, Henry	L & S	Girard
Eaton, William T	C E	Warrensburg
Eichberg, David	L & S & Mil	Atlanta
Eisenmeyer, Andrew J	M E & Mil	Trenton
French, George H	C E	Milton
*Garrett, James H	M E	Ashton
*Gillette, Leslie B	L & S	Buffalo
Hartman, Ferris L	L & S	Chicago
Hogg, James O	Arch	Hannibal, Mo
Huey, Joseph D	Nat His	Clement
Little, H P T	Chem	Champaign
Maltby, Frank B	M E	Champaign
Merritt, Charles H	Nat His	Waterman
Mohr, Louis	M E & Mil	Chicago
Neely, John R	L & S & Mil	Du Quoin
*Noble, Thomas	Chem	Todd's Point
Orr, Robert E	C E & Mil	Champaign
Peabody, Arthur	Arch	Champaign
Palmer, Charles W	L & S	Watseka
Reed, Howard	Agl & Mil	Galesburg
*Rice, George H	C E	Arlington
Richards, George W	Min E & Mil	Quincy
Roberts, Charles N	M E	Jefferson
Rugg, Frederick D	L & S	Champaign
Sharp, Abia J	M E & Mil	East Lynne, Mo
Schlaudeman, Frank	M E	Decatur
Slauson, Howard	L & S	Dwight
Smith, Charles L	L & S & Mil	Champaign
Sparks, Charles F	Chem	Alton
Stevenson, Alexander C	Agl	Greencastle, Ind
Stillwell, Homer A	L & S	Urbana
Taft, Florizel A	Nat His & Mil	Champaign
Todd, James	M E	Elgin
Turner, Herbert	Nat His & Mil	Quincy
Wadsworth, John G	L & S & Mil	Madison, Dak
Williams, Alfred H	Nat His	Moline

LADIES.

NAME.	COURSE.	RESIDENCE.
Andrus, Dora A	L & S	Ashton
Avery, Kittie Clyde	L & S	Champaign
Brown, Lois M	L & S	Elmwood
Coddington, Ella M	L & S	Champaign
Cole, Fronia R	D S	Champaign
Hammond, May E	Chem	Ludlow
Little, L Belle	L & S	Champaign

FRESHMAN CLASS.

GENTLEMEN.

NAME.	COURSE.	RESIDENCE.
Abbott, William L	Com	Union Grove
Alling, Charles A	C E	Champaign
Allison, John W	L & S	Bismark
Angell, George H	M E	Elkhart, Ind
Armstrong, Charles G	Chem	Seneca
Atkinson, Frank E	C E	Harrison
Bailey, Samuel G Jr	Chem	Chicago
Bogardus, Edward F	Elective	Champaign
Bogardus, Charles E	Chem	Champaign
Brainard, Clarence	C E	Buda
Burt, Frank S	L & S	Urbana
Christie, George M	Min E	Atlanta
Claflin, Charles H	M E	Indianapolis, Ind
Coe, Decius Octavius	L & S	Rock Falls
Constant, Robert F	Chem	Buffalo Hart
Davis, Rufus J	L & S	Salem
Davis, Jephtha H	L & S	Monticello
Diffenbaugh, Henry	L & S	Dwight
Donovan, John L Jr	L & S	Watseka
Dougherty, M L	L & S	Mason City
Durfee, Elisha B	L & S	Marion
Ells, Charles S	M E	Champaign
Gates, Alphonso S	C E	Hamilton
Goltra, W F	C E	Bourbonnais Grove
Gray, Nelson A	L & S	Champaign
Gregory, Grant	L & S	Champaign
Haven, Dwight C	C E	New Lenox
Hazlit, John	Nat His	Marengo
Heath, William A	L & S	Champaign
Hewes, George C	Chem	Urbana
Hubbell, Charles S	C E	Altona
Hudgens, Dana	Arch	Sandwich
Huntley, Converse R	Chem	De Kalb

NAME.	COURSE.	RESIDENCE.
Kelso, Elmer L	Chem	Paxton
Kemman, Alphonso H	Ag'l	La Grange
Kenower, John T	Phar	Clement
Kimmel, Daniel L	L & S	Elkville
Kneussl, Otto	M E	Ottawa
Lathrop, John C B	Arch	Belvidere
Leslie, George L	Nat His	Princeton
Lewis, Ralph D	Hor	Champaign
Magoon, William H	L & S	Champaign
McCune, H L	L & S	Ipava
Moore, William D		Chatham
Moore, George L		Chatham
Norris, William L	Ag'l	Arlington
North, Foster	Nat His	Kewanee
Nungesser, John	Chem	Mascoutah
Nye, Charles C	Ag'l	Decatur
Owens, Joseph D	Chem	Urbana
Page, A J		
Palmer, Charles E	C E	Nashville
Peck, John A	L & S	St Louis Mo
Piatt, Silas H	Ag'l	Monticello
Porter, Edward K	Chem	Salem
Postel, Julius	L & S	Mascoutah
Read, Harry J	C E	Chicago
Sawyer, William W	Chem	Paxton
Scotchbrook, George P	C E	Morrison
Shallenberger, Ashton C	L & S	Toulon
Singer, William A	Chem	Peoria
Slauson, Howard	L & S	Dwight
Sondericker, William	L & S	Woodstock
Spencer, Nelson S	Arch	Dixon
Stevenson, Archy A	M E	Rock Island
Swasey, Edward H	L & S	Belvidere
Thayer, George H	C E	Winnebago
Tinkham, Michael D C	Chem	Homer
Trenary, Jasper M	Chem	Urbana
Wallace, Joseph D	M E	Champaign
Warrington, James N	M E	Chicago
Weis, Joseph	Chem	Tonica
Wheeler, John C	L & S	Plano
Whitmire, James H	L & S	Metamora
Whitmore, Jesse K	M E	Dixon

LADIES.

NAME.	COURSE.	RESIDENCE.
Anderson, Ida V	L & S	Champaign
Ashby, Lida M	L & S	Champaign
Barber, Minnie W	D S	Champaign
Cadwell, Eliza A	L & S	Utica

NAME.	COURSE.	RESIDENCE.
Cadwell, Julia E	L & S	Utica
Campbell, Juniata G	L & S	Polo
Carman, Ellen M	L & S	Champaign
Conkling, Anna J	L & S	Champaign
Coddington, Hester	L & S	Champaign
Colvin, Mary S	D S	Mt Palatine
Everett, M Kate	Com	Champaign
Fellows, Clara B	L & S	Farmer City
Gardner, Jessie	L & S	Champaign
Healey, Grace	L & S	Champaign
Hester, Elvira	L & S	St Joseph
Howell, Lemira H	D S	Champaign
Johnson, J G	Elective	Urbana
Knowlton, Lizzie A	L & S	Urbana
Langley, M Celeste	L & S	Champaign
Lewis, C Florence	L & S	Farmer City
Maltby, Helen E	L & S	Champaign
McNeil, Mary A	D S	Pickneyville
Moore, Clara Belle	L & S	Champaign
Raley, Arvilla K	L & S	Granville
Reed, E May	D S	Urbana
Stewart, Ella M	D S	Champaign
Smith, Laura Belle	L & S	Champaign
Wardall, Fannie M	D S	Tolono
Wright, Minnie E	L & S	Champaign

PREPARATORY CLASS.

GENTLEMEN.

NAME.	COURSE.	RESIDENCE.
Aherin, Thomas	L & S	Girard
Allen, Edwin Wright		Harristown
Andrews, William T	M E	Chicago
Ayers, Judson F		Urbana
Adams, Edwin F	Chem	Dwight
Barry, John D	Ag'l	Alton
Bates, Woodville	L & S	Bellefontaine, Mo
Blackburn, Milton A	Ag'l	Paris
Bowen, Aaron L	M E	Savannah
Bunn, Henry C		Bloomington
Baner, Frank A	C E	Mason City
Barmm, Charles E	M E	Chicago
Blakeslee, Clarence E	M E	Du Quoin
Boller, Chester E	Arch	Lexington
Bowman, Richard H	Chem	Champaign
Bills, Frank S	L & S	Garden Prairie
Bing, Louis S	Com	Urbana

NAME.	COURSE.	RESIDENCE.
Brinkmann, Edward	Chem	Edwardsville
Brown, George M	M E	Dixon
Buckworth, Dana L		Le Roy
Burt, Angelo R	M E	Dubuque, Iowa
Carter, Harry L		Humboldt
Casey, Samuel	L & S	Mt Vernon
Clark, E H	L & S	Sadorus
Cole, T E	L & S	Champaign
Collins, T B		
Cornell, Henry M	Com	Champaign
Davis, Harry G		Davis Junction
Dole, Charles E	C E	Mattoon
Dolph, Isaac N	M E	Champaign
Dorsey, Richard E	L & S	Gillespie
Dustin, William		Lincoln
Estabrook, Louis K	C E	Atlanta
Earle, Charles T	Chem	Cobden
Eberlein, Frederick W	Chem	Champaign
Eyman, Isaac R	Ag'l	Belleville
Ferguson, Charles W	M E	Rockford
Fitch, Edward	L & S	Albion
Foster, Eugene E		Curran
Fuller, Victor G	L & S	Toulon
Goodsmith, W P	Chem	Chicago
Gray, Basil S	Com	Vienna
Hoxie, John B	L & S	Tonica
Haas, Solomon I	Arch	Savanna
Halberstadt, D E		
Hatch, Henry D	L & S	Plainfield
Hennan, David	C E	Highland
Hibbard, Henry P	M E	Alton
Howard, Homer D	L & S	Le Roy
Inman, Ira F	Phar	Anna
Jackson, Samuel A	Com	Vienna
James, Justin C		Mattoon
James, F Porter		Mattoon
Johnston, John	Elective	Carlyle
Keith, Albert J	Arch	Paxton
Keenan, Arthur J	Com	Le Roy
King, D S		
Kirk, James B	M E	Faribault, Minn
Lawrence, Philip E	L & S	Galesburg
Lavely, John A	L & S	N Bethlehem, Pa
Mansfield, John R	Com	Greenwood
McBroom, Alexander	Elective	Geneseo
McClaughry, Charles C	M E	Joliet
McCluer, George M	Elective	Farina
McClure, Charles E	C E	Mattoon
McCoy, Joseph S		French Grove
McDowell, Malcohn Jr	Chem	Chicago

NAME.	COURSE.	RESIDENCE.
McFall, Howard M	Chem	Mattoon
McEathron, William J	C E	Lena
McIlduff, Thomas E	Com	Dwight
Miller, John A		Buffalo N Y
Montezuma, Charles	L & S	Urbana
Morrison, Edgar G	Elective	Taylorville
Mortland, John F	L & S	Hardin
Minis, Andrew C		Parkville
Nelson, Harry A	M E	Aneida
Norman, Charles C	Elective	Carlyle
Primm, James L Jr	Ag'l	Pickneyville
Page, Milo K	Chem	Metamora
Palmer, Arthur W	Chem	Springfield
Peart, George K	C E	Braidwood
Philbrick, Solon	L & S	Baileyville
Porterfield, Melvin W	L & S	Mt Erie
Powers, Eugene A	Chem	Olney
Randolph, Thurston F		Canton
Rea, Frederic S	L & S	Urbana
Rollins, G Edward	Chem	Kewanee
Secrest, Daniel C	M E	Watseka
Smalley, Francis A	L & S	Girard
Shaw, Alvin A	L & S	Annawan
Smith, E E	Ag'l	Davis
Smith, Henry O	Nat His	Yorkville
Smith, Frank L	Com	Morrison
Smith, Tracy A	Elective	Wilmington
Speidel, Ernst	Chem	Rock Island
Spencer, Howard M		Dixon
St Vrain, Savinien	Com	Chester
Thomas, E A	L & S	Pleasant Valley
Tennant, George B	L & S	Chicago
Thomas, Harry C	Com	Malta, Ohio
Vial, Edmund R	Ag'l	Western Springs
Wade, Harry M	L & S	Watseka
Whitman, Marcus F	C E	Como
Womacks, Wilson E	L & S	Champaign
Watson, William S	L & S	Ludlow
Whitmore, Jervis J		Springfield, Vt
Wilcox, Alfred R	L & S	Minonk
Wright, Robert W	L & S	Belvidere
Woodrow, Charles N	Ag'l	Green Valley
	LADIES.	
Babb, Nellie E	L & S	Champaign
Bailhache, Adaline	Elective	Washington, D C
Carmack, Mary E	D S	Camargo
Castle, Clara A		Ridge Farm
Castle, Lucy		Ridge Farm

NAME.	COURSE.	RESIDENCE.
Clark, Lucy J		Champaign
Ellis, Lola D		Canton
Hubbart, Mary F	L & S	Monticello
Hewett, Rose E	Com	Irvington
Krause, Josephine		Chicago
Lufkin, Adele	Com	Anna
Lowry, Susie F		Monticello
McLean, Susie E		
Morris, Ida M		Pesotum
O'Brien, Mary		Groveland
Ross, Della	L & S	Avon
Randolph, Flora F		Canton
Romine, Lou		Champaign
Scoggin, M Alice	L & S	Champaign
Wells, Anna L	Elective	Western Springs
Williams, Ella	L & S	Monticello
Wilson, Rachel S	D S	Paris

SPECIAL STUDENTS.

AGRICULTURE.

Booth, J. McR.....Claytonville Mo.
Brenneman, Edward.....Peru.
Dressor, James R.....Cottonwood.
Ramsay, George H.....Trenton.
Smith, Henry P.....Edwardsville.

CHEMISTRY.

Cutter, Cyrus H.....Oswego.
Simpson, W. C.....Vienna.
Chamberlain, Miss A. E.....Milwaukee, Wis.

DRAWING AND PAINTING.

Chase, M. E.....Champaign.
Hunter, C. R.....De Kalb.
Ray, Victor.....Urbana.
Miss Dunlap, L.....Savoy.
Miss Hopkins, A. K.....De Kalb.
Miss Peabody, Kate F.....Champaign.
Mrs. Hays, C. I.....Champaign.
Mrs. Ricker, N. C.....Urbana.

MUSIC.

Clark, Minnie	Sadorus.
Conkle, Maggie	Urbana.
Erwin, Ella	Camargo.
Gibson, Emily	Champaign.
Hammond, Ida	Champaign.
Hollister, Minnie	Urbana.
Hollister, Mrs. Flora	Urbana.
Hollister, Mrs. H	Urbana.
Hollister, Frankie	Urbana.
Hinkle, Mrs. V	Bondville.
Irwin, Ella	Camargo.
Kaucher, Kate	Urbana.
Kennedy, C. Dell	Champaign.
Loucks, Lydia F	Tolono.
Morse, Hattie	Gifford.
Moury, Aggie	Philo.
Peadro, Laura	Windsor.
Rea, Fannie	Urbana.
Weaver, Kate	Urbana.
Webb, Amie	Urbana.

SUMMARY.

Resident Graduates	Gentlemen	3	
	Ladies	5	8
Seniors	Gentlemen	20	
	Ladies	6	26
Juniors	Gentlemen	53	
	Ladies	17	70
Sophomores	Gentlemen	52	
	Ladies	7	59
Freshmen	Gentlemen	75	
	Ladies	29	104
Preparatory	Gentlemen	109	
	Ladies	22	131
Special	Gentlemen	10	
	Ladies	26	36
Total			434

Illinois Industrial University.

HISTORY.

The Illinois Industrial University, the State University of Illinois, had its origin in a movement for the higher education of the industrial classes, begun in 1851, and resulting in the congressional grant of lands for this purpose, made to the several States in 1862, and amounting in this State to 480,000 acres. The University was chartered in February, 1867, and opened to students in March, 1868. In addition to the endowment from the land grant, over $400,000 were donated by Champaign County in bonds, buildings, and farms. The State has also made large appropriations for fitting up and stocking the farms, for library and apparatus, and for buildings, including the large Main Building erected in 1872 and 1873, the Mechanical Building and Drill Hall, and the Chemical Laboratory. Successive Colleges and Schools have been added as required, till four Colleges, including twelve distinct Schools, have been organized.

The whole number matriculated as students since the opening is 1485. The number graduated from the several Colleges, including the class of 1879, is 227. In 1871 the University was opened for lady students, on the same terms as to gentlemen. In 1874 a fine Art Gallery was established. In 1876 the University received from the centennial exposition at Philadelphia, three diplomas and a medal. In 1878 its exhibit at the Paris International Exposition gained the gold medal.

LOCATION.

The University has a beautiful and healthful situation on the high grounds between the cities of Champaign and Urbana, and within the corporate limits of the latter. It is one hundred and twenty-eight miles south from Chicago, at the junction of the Illinois Central railroad and the Indiana, Bloomington and Western railway. The county is a region of beautiful rolling prairies,

with large belts of timber along the streams, and is one of the richest farming districts in the State.

BUILDINGS AND GROUNDS.

The domain occupied by the University and its several departments embraces about 623 acres, including stock farm, experimental farm, orchards, gardens, nurseries, forest plantations, arboretum, ornamental grounds, and military parade ground.

The University buildings, fifteen in number, include a grand Main Building for public use, one large and two small Dormitory Buildings, a spacious Mechanical Building and Drill hall, a large Chemical Laboratory, a Veterinary Hall, a small Astronomical Observatory, three dwellings, two large barns, and an ample Green-house.

The Mechanical Building and Drill Hall is of brick, 126 feet in length and 88 feet in width. It contains a boiler, forge and tank room; a Machine Shop, furnished for practical use, with a steam engine, lathes, and other machinery; a pattern and finishing shop, shops for carpentry and cabinet work, furnished with wood-working machinery; paint and draughting-rooms, and rooms for models, storage, etc. In the second story is the large Drill Hall, 124 by 80 feet, sufficient for the evolutions of a company of infantry, or a section of a battery of field artillery. It is also well supplied with gymnastic apparatus. One of the towers contains an armorer's shop and military model room, an artillery room and a band room. The other contains a printing office and editor's room.

The large Dormitory Building is 125 feet in length and five stories in height. It affords 80 private rooms for students. Two smaller Dormitory Buildings contain eight rooms each. The new Chemical Building, erected in 1878, at a cost, including furniture, of $40,000, contains five laboratories, and is one of the best and largest in the United States.

PROPERTY AND FUNDS.

Besides its lands, buildings, furniture, library, etc., valued at $470,000, the University owns 25,000 acres of well-selected lands in Minnesota and Nebraska. It has also endowment funds invested in State and County bonds amounting to $319,000, besides other property and avails, valued at $33,000. The State has appropriated $25,000 to the Agricultural Department for barns, tools, stock, etc.; $25,000 to the Horticultural Department for

green-house, barns, drainage, tools, trees, etc.; $25,000 for Mechanical and Military Building, machinery, etc.; $127,000 toward the erection of the Main Building, and furnishing the same; $10,500 for Chemical Apparatus; $25,000 for Library; $5,000 for the Apparatus of a Physical Laboratory; $3,000 for a Veterinary Hall, Stable and Apparatus; $40,000 for Chemical Building; besides smaller amounts for agricultural experiments, etc.

MUSEUM AND COLLECTIONS.

The Museum already contains collections illustrating the several departments of science, unusually rich and equalled at few, if any, of the Colleges of the west. Among these collections are included the following:

Fossils.—Casts of the most remarkable fossils hitherto discovered in the various geological formations, illustrating the general progress of life in the molluscs, fishes, reptiles and mammals, from the oldest paleozoic time to the present. Also a fine set of fossils obtained from Germany, besides collections of fossils of this and other States, well illustrating the different formations, and suitably arranged for practical study.

Conchology.—A large collection of shells fully illustrating the principles of conchology, as to growth, form, habits, etc., representing all the classes and orders by their typical genera and species. The fluviatile shells of the State are fully exhibited, while the specimens of marine and land shells are also abundant.

Osteology.—The skeletons include mounted specimens of all the orders of birds and mammals, with the single exception of the order of proboscidea; also typical representatives of the amphibious reptiles and fish.

The Mammals comprise an unusually large and complete collection of the ruminants of our country, including male and female elk, bison, deer, antelope, etc. Also some of the larger carnivors and fur bearing animals, and numerous rodents.

Ornithology.—The collection of stuffed birds is very large, including representatives of all the orders, and embracing most of the families of North America, as also a number of characteristic tropical forms.

Entomology.—The collection includes about three thousand species of insects, illustrating all the orders, and giving types of numerous families.

Botany.—The herbarium contains about one thousand species of plants, indigenous to Illinois, including nearly complete

sets of the grasses and sedges. There are besides many other North American plants and some exotics. A collection of Fungi includes examples of those most injurious to other plants, causing rusts, smuts, moulds, etc.

A collection of wood specimens from two hundred species of North American trees, well illustrates the variety of native wood. The trees and shrubs of Stephenson County, Illinois, are represented by another collection.

Plaster casts of fruits represent many of the leading varieties, as well as interesting specimens, showing peculiarities of growth, effects of cross fertilization, etc.

Lithology.—This collection embraces the principal kinds of metamorphic and volcanic rocks; examples of stratification in the limestone and fragmental kinds, with many samples of such rocks as are found most valuable for building purposes.

Mineralogy.—The specimens of minerals show all the groups, and all the important and typical species. All the metals are represented, also many of their most important combinations. Many of the specimens are finely crystallized, with which, and a complete set of imported models. Crystallography is fully illustrated.

Agricultural.—A large collection of soils from different portions of Illinois, and other States; samples of some hundreds of varieties of corn, wheat, and other cereals and seeds; specimens illustrating the official State Inspection of grains at Chicago, showing the quality of the different grades recognized; a collection of grains, seeds, nuts, etc., from Brazil; some hundreds of models of agricultural inventions; models illustrating modes and materials for drains; cast of ancient plows; engravings, lithographs and photographs of typical animals of noted breeds.

The Farms give good illustrations of farm buildings, implements, machinery, modes of culture, and of domestic animals of various classes.

Physics.—The Cabinets of the Physical Laboratory contain a collection of apparatus from the most celebrated European and American makers, costing over $5,000, and illustrating the subjects of Mechanics, Pneumatics, Optics, Heat and Electricity. Ample facilities are afforded to the students for performing experiments of precision by which the theories of Physical Science may be tested and original work may be done.

The Mechanical Laboratory is provided with a Steam Engine, Engine and hand lathes, planer, drill presses, and the

requisite hand tools, benches, vices, anvils, etc., for pattern shop, blacksmith shop, moulding room, and bench work. Its cabinets contain several hundred models of elements of mechanism and machines from Schroeder, Riggs, the patent-office, and from the work shops of the University.

Mining Engineering is illustrated by a valuable series of models, obtained from Freiburg, at a cost of $2,000, illustrating sections of mines, machinery for elevating and breaking ores, with furnaces and machinery for metallurgical processes.

ART GALLERY.

The University Art Gallery is one of the largest and finest in the West. It was the gift of citizens of Champaign and Urbana. It occupies a beautiful hall, 61x79 feet, and the large display of Art objects has surprised and delighted all visitors. In Sculpture, it embraces thirteen full size casts of celebrated Statues, including the Laocoon Group, the Venus of Milo, etc. Forty Statues of reduced size and a large number of Busts, ancient and modern, bas reliefs, etc., making over 400 pieces. It includes also hundreds of large Autotypes, Photographs and fine Engravings, representing many of the great master-pieces of painting of nearly all the modern schools. Also a Gallery of Historical Portraits, mostly large French Lithographs of peculiar fineness, copied from the great National Portrait Galleries of France. The value of this splendid collection, as a means of education, is already showing itself in the work of the School of Drawing and Design of the University.

LIBRARY.

The Library, selected with reference to the literary and scientific studies required in the several courses, includes over 12,000 volumes, and additions are being made every year. During the year ending June 1, 1880, over 600 volumes have been added and an equal increase may be expected the coming year.

The large Library hall, fitted up as a reading room, is open throughout the day for study, reading and consultation of authorties. It is intended that the use of the Library shall largely supplement the class-room instruction in all departments. Constant reference is made in classes to works contained in the Library, and their study encouraged or required. The reading-room is

well provided with American, English, French, and German, papers and periodicals, embracing some of the most important scientific and art publications. The following periodicals are regularly received:

AGRICULTURAL AND HORTICULTURAL.

Prairie Farmer.
Western Rural.
Rural New Yorker.
Country Gentleman.
New England Farmer.
American Dairyman.
California Farmer.
Land and Home.
Practical Farmer.
Farmer and Fruit Grower.
Agricultural Gazette, *London.*
Gardner's Chronicle, *London.*
Journal d'Agriculture Pratique, *Paris.*
Revue Horticole, *Paris.*
American Agriculturist.
Western Agriculturist.
Live Stock Journal.
Horticulturist.
Western Farmer.
Wallace's Monthly.
Farmers' Review.
Veterinarian, *London.*
Recueil de Medicine Veterinaire, *Paris.*

ENGINEERING.

Encyclopedie d'Architecture, *Paris.*
Engineering, *London.*
Building News, *London.*
Builder, *London.*
Skizzen-buch, *Berlin.*
Scientific American.
Engineering News.
Engineering and Mining Journal.
Scientific American Supplement.
VanNostrand's Engineering Magazine.
The Workshop.
American Architect.
Western Manufacturer.
Gazette of Patent Office.

SCIENTIFIC.

Annales des Sciences Naturelles, *Paris.*
Nature, *London.*
Grevillea, *London.*
Comptes Rendus, *Paris.*
Chemical News, *London.*
American Journal of Chemistry,
Polytechnisches Journal, *Augsburg.*
Jahrbericht der Chemie, *Giessen.*
Annalen der Chemie, *Leipsic.*
Berichte der Deutschen Chemischen Gesellschaft, *Berlin.*
Sanitarian.
Lancet, *London.*
Popular Science Monthly.
American Journal of Mathematics.
Quarterly Journal of Microscopal Science.
American Journal of Science and Art.
American Naturalist.
Journal of Franklin Institute.
Mathematical Quarterly.

LITERARY AND NEWS.

New Englander.
International Review.
Edinburg Review.
London Quarterly Review.
British Quarterly Review.
North American Review.
Atlantic Monthly.
Scribner's Monthly.
Library Journal.
Literary World.
American Journal of Educafion.
Magazine of American History.
Legal Adviser.
Revue des Deux Mondes, *Paris.*
Deutsche Rundschau, *Berlin.*
Princeton Review.
United Service Magazine.
Nation.
Congressional Record.
Champaign County Gazette.
Champaign County Herald.
Champaign Union.
Champaign Times.
Danville News.
The Watchman, *Boston.*
Paxton Record.
Chicago Weekly Journal.

The exchanges of the *Illini*, over thirty in number, are also free to Students in the Library.

AIMS OF THE UNIVERSITY.

The University being both State and National in origin, its aims are defined by the following extracts from the laws of Congress and of the State Legislature:

"Its leading objects 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 Legislature of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."—*Act of Congress*, 1862. *Sec.* 4.

"The Trustees shall have the power to provide the requisite buildings, apparatus, and conveniences, to fix the rates of tuition, to appoint such professors and instructors, and establish and provide for the management of such model farms, model art, and other departments and professorships as may be required to teach, in the most thorough manner, such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and practical studies."—*Act of General Assembly*, 1867, *Sec.* 7.

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

ORGANIZATION OF THE UNIVERSITY.

COLLEGES AND SCHOOLS.

The Institution is a University in the American sense, though differing designedly in the character of some of its Colleges from the older Institutions of this country. It embraces four Colleges,

which are subdivided into Schools. A School is understood to embrace the course of instruction needful for some one profession or vocation. Schools that are cognate in character and studies, are grouped under the same College. The following are the Colleges and Schools :

I. COLLEGE OF AGRICULTURE.

II. COLLEGE OF ENGINEERING.

School of Mechanical Engineering. School of Architecture.

School of Civil and Mining Engineering.

III. COLLEGE OF NATURAL SCIENCE.

School of Chemistry. School of Natural History.

School of Domestic Science.

IV. COLLEGE OF LITERATURE AND SCIENCE.

School of English and Modern Languages. School of Ancient Languages.

V. ADDITIONAL SCHOOLS.

School of Military Science. School of Art and Design.

Vocal and Instrumental Music, Elocution, Telegraphing and Photography are also taught, but not as parts of the regular courses.

CHOICE OF STUDIES.

It has been a favorite aim of the University from the outset, to allow as much freedom as possible in the selection of studies.

A University is designed not for children, but for men and women, who may claim to know something of their wants, powers and tastes. It is not useful to require every student, without regard to his capacity or practical wants, to take entire some lengthened "course of study." Each student should weigh carefully his own powers and needs and counsel freely with his teachers as to

the branches he may need to fit him for his chosen career, and then should pursue them with earnestness and perseverance, without faltering or fickleness.

It is necessarily required, 1st. That the student shall be thoroughly prepared to enter and keep pace with the classes in the chosen studies; and 2nd, That he shall take these studies in the terms in which they are taught; 3rd, Candidates for a degree must take the course of studies prescribed for that degree.

Each student is expected to have three distinct studies, affording three class exercises each day. On special request, the Faculty may allow less or more.

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

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.

REQUIRED STUDIES.

To secure the diffusion of the sciences relating to the great industries, the State Legislature, in 1873, prescribed that each student should be taught some of those sciences.

The Trustees accordingly require that each student shall take, each term, one study at least from the following list:

Physics, Chemistry, Mineralogy, Physical Geography, Anatomy and Physiology, Botany, Zoology, Geology, Entomology; Drawing and Designing, Mathematics, Surveying; Elements of Agriculture and Horticulture, Vegetable Physiology, Agricultural Chemistry, Agricultural Engineering and Architecture, Animal Husbandry, Rural Economy, Landscape Gardening, History of Agriculture, Veterinary Science; Architectural Drawing and Designing, Elements of Construction, Graphical Statics, History and Aesthetics of Architecture, Estimates, Mining Engineering, Metallurgy, Analytical Mechanics, Geodesy, Principles of Mechanism, Hydraulics, Thermodynamics, Strength of Materials, Prime Movers, Mill Work, Machine Drawing, Roads and Railroads, Construction and Use of Machinery, Modeling and Patterns, Bridges, Stone Work, Astronomy; Military Science, Domestic Science and Political Economy.

EXAMINATIONS FOR ADMISSION.

Examinations of candidates for admission to the University, or any of its departments, are held at the University itself, the day previous to the opening of each term. These examinations embrace the following studies:

1. English Grammar, Arithmetic, Geography and History of the United States, for all the Colleges. These examinations are as thorough as those required for second-grade certificates for teachers in the public schools.

2. Algebra, including equations of second degree and the calculus of radical quantities; Geometry plain and solid. These are required also for all the Colleges.

3. Physiology, Botany, Natural Philosophy, Book-Keeping, single and double entry; English Rhetoric and Composition. These are required additional to 1 and 2 for candidates for the Colleges of Agriculture, Engineering and Natural Science.

4. Physiology, Botany, Natural Philosophy and Latin Gram mar and Reader. Cæsar, Cicero and Virgil, Latin Prose, additional to 1 and 2 for School of English and Modern Languages.

5. Latin (as in 4) and Greek Grammar and Reader, four books of Xenophon's Anabasis, and Greek Prose Composition, additional to 1 and 2, for candidates for School of Ancient Languages.

For further information concerning terms of admission, see "*Admission*" under the several Colleges; also "*Preliminary Year.*"

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

COUNTY SUPERINTENDENT'S CERTIFICATES.

County Superintendents of Schools will be furnished with questions and instructions for the examinations of candidates in the four common branches, Arithmetic, Geography, English Grammar and History of the United States; those who pass creditably will, when they present the Superintendent's certificate to that effect, be admitted to the Preliminary Classes.

COLLEGE OF AGRICULTURE.

SPECIAL FACULTY.

THE REGENT.

PROFESSOR MORROW, Dean. | PROFESSOR PRENTICE,
PROFESSOR BURRILL, | PROFESSOR SCOVELL,

C. I. HAYS.

ADMISSION.

Candidates for admission to the College of Agriculture must be at least fifteen years of age, and must pass satisfactory examinations in the common school branches, and in the studies of the preliminary year. While by law, students may be admitted at fifteen years of age, in general it is much better that they shall be eighteen or twenty. It will be well if candidates shall have pursued other studies besides those required for admission. The better the preparation the more profitable the course.

OBJECT OF THE COLLEGE.

The aim of this College is to educate scientific agriculturists and horticulturists. The frequency with which this aim is misunderstood, demands that it shall be fully explained. Many, who look upon agriculture as consisting merely in the manual work of plowing, planting, cultivating, and harvesting and in the care of stock, justly ridicule the idea of teaching these arts in a college. The practical farmer who has spent his life in farm labors, laughs at the notion of sending his son to learn these from a set of scientific professors. But all this implies a gross misunderstanding of the real object of agricultural science. It is not simply to teach *how* to plow, but the reason for plowing at all—to teach the composition and nature of soils, the philosophy of plowing, of manures, and the adaptation of the different soils to different

crops and cultures. It is not simply to teach *how* to feed, but to show the composition, action and value of the several kinds of food, and the laws of feeding, fattening, and healthful growth. In short, it is the aim of the true Agricultural College to enable the student to understand thoroughly, all that man can know about soils and seeds, 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 its phenomena—this is the true aim of agricultural education. Agriculture involves a larger number of sciences than any other human employment and can not be regarded as an unfit end of a sound collegiate training.

The steady aim of the trustees has been to give to the College of Agriculture the largest development practicable, and to meet the full demand for Agricultural education, as fast as it shall arise Agricultural students are especially invited to the University.

Boards of Agriculture, Agricultural and Horticultural Associations, State and County, are invited to co-operate with the University in its efforts to awaken a more general appreciation of the value of education, and to add, by the establishment of scholarships, or other means, to the number of those who avail themselves of its facilities for instruction.

INSTRUCTION.

The instruction unites, as far as possible, theory and practice —theory explaining practice and practice illustrating theory. The technical studies are mainly taught by lectures, with careful readings of standard agricultural books and periodicals, and frequent discussions, oral and written, by the students, of the principles taught. These are also illustrated by demonstrations and observations in the fields, stables, orchards, gardens, plant-houses, &c.

SPECIAL STUDIES.

AGRICULTURE.

Elements of Agriculture.—Outline of the general principles underlying Agriculture in its theory and practice, introductory to the other technical and scientific studies of the course.

Agricultural Engineering and Architecture.—Arrangement of the Farm; its improvement by mechanical means, as Drainage

and Irrigation; its Divisions, Fences, Hedges, etc.; its Water Supply; the construction of Roads; arrangement, planning and construction of Farm Buildings; the construction, selection, care, and use of Farm Implements and Machinery.

Animal Husbandry.—Principles of breeding and management of our domestic animals; description of all important breeds and varieties, giving their history and adaptations.

Rural Economy—Relations of agriculture to other industries and to national prosperity; influences which should determine the class of farming to be adopted; comparisons of special and general systems; uniting of manufacturing with farming; culture of the various farm crops—cereals, grasses, etc., farm accounts.

History of Agriculture—Progress and present condition in this and other countries. Influence of Climate, Civilization and Legislation in advancing or retarding. Agricultural Literature and Organizations.

Rural Law.—Business Law; Laws especially affecting Agriculture—tenures of Real Estate; Road, Fence, Drainage Laws, etc.

HORTICULTURE.

Elements of Horticulture.—The following topics are discussed: Orchard Sites, the Age of Trees to Plant, the Season to Plant, How to Plant, What to Plant, the Management of the Soil, Pruning and Care of Trees, Gathering and Preserving Fruit, Diseases and Injuries, the Nursery, Ornamental Trees and Shrubs, Flower Gardens, Vegetable Gardens, including Propagating Beds and Houses, the Vineyard and Small Fruits, and Timber Tree Plantations. Students have instruction and practice in grafting, budding, propagation by cuttings, etc. Each student has usually grafted from two hundred to one thousand root-grafts of apples.

Landscape Gardening.—Lectures are given upon the general principles of the art, the history and styles, the kinds and uses of trees, shrubs, grass and flowers, the introduction and management of water, the construction and laying out of drives and walks, fences, buildings, etc. The class draw first from copy, then, after the actual study of some locality with its environments, design and draw full plans for its improvement, indicating position of all prominent objects, including the kinds and groups of trees and other plants. These plans with specifications, are to be deposited in the library of the College. Excursions are made when found practicable for the study of public and private grounds.

The three following studies constitute a year's work designed for those who wish to prepare themselves for specially horticultural pursuits and may be taken as substitutes for agricultural or veterinary studies:

Floriculture.—The study of the kinds, propagation, growth and care of flowering and other ornamental plants. Each student has practice in propagating by cuttings and otherwise, in potting and shifting, and care of plants requiring various treatments. Insects and diseases with the remedies are thoroughly treated, and the means of securing vigor of growth, or abundance of flowers, are studied and illustrated by practice.

Pomology and Forestry.—Much of the first half of the term is spent in the orchards, nurseries, and forests, making observations and collections, and in laboratory work, determining species, varieties, etc. A large collection of apples, pears, grapes, peaches, etc., is made each year, and the chief characteristics of each pointed out. Practice is also had in making drawings and plaster casts. Written descriptions of the fruits are carefully made and compared with those given in the books, and systems of analysis and classification put to practical test. Students see and perform the skilled operations usually practiced in the propagation and growth of trees. Pruning and training by various methods, especially of grapes, are discussed in the class-room, and illustrated upon the grounds. Students also study the injurious insects and fungi which cause or accompany diseases of trees and fruits, and the methods of preventing or diminishing their ravages. The native forests of the vicinity and of the country at large are studied as a foundation for the lessons upon the influence and value of timber and other trees, and their artificial culture. For the latter, the forest tree plantation on the University grounds, and the arboretum, afford practical illustration.

Plant Houses and Management.—This study includes garden and landscape architecture, the methods of construction, heating and ventilation and general management, so as to secure, under the different circumstances, the best plant growth. The class-room work consists of lectures and architectural designing and drawing. Illustration and practice are afforded by the plant-houses of the University.

VETERINARY SCIENCE.

This science is taught during the third year. In the first term the Anatomy and Physiology of the Domestic Animals is

taught by lectures, demonstrations and dissections. Post-mortems of healthy and diseased animals are made, so that the student may become practically acquainted with the tissues in health and in disease. The first six weeks of the second term are devoted to the study of Veterinary Medicines, their action and uses; the remainder of the term to lectures on the Principles and Practice of Veterinary Science. During the third term, practical instruction is given in clinical work, as cases present themselves, at the veterinary infirmary, where animals are treated or operated on free of charge, for the instruction of the students. Lectures are also given on Veterinary Sanitary Science and the Principles and Practice of Veterinary Surgery.

Students desiring to pursue the study of Veterinary Science, further than is laid down in the Agricultural course will find ample facilities for so doing.

Text Books and Books of Reference.—Williams' Principles and Practice of Veterinary Medicine; Williams' Principles and Practice of Veterinary Surgery. Veterinary Medicines; their Action and Uses, by Finlay Dun; Dobson on the Diseases of the Ox; Fleming's Veterinary Obstetrics; Fleming's Veterinary Sanitary Science; Chauveau's Anatomy of the Domestic Animals; Law's Farmer's Veterinary Adviser.

Laboratory Work.—Experiments and Special Investigations by each student. A *Thesis* is required embodying the results of original observation and research.

For details as to the study of Botany, Chemistry, Zoology, Entomology, Geology and Meteorology, see statements in College of Natural Science.

APPARATUS.

The College has for the illustration of practical agriculture, Stock Farm of 410 acres, provided with a large stock-barn fitted up with stables, pens, yards, etc.; also an Experimental Farm of 180 acres, furnished with all necessary apparatus. It has also fine specimens of neat cattle, Short-Horns and Jerseys. Also several breeds of swine, to illustrate the problems of breeding and feeding. The Experimental Department exhibits field experiments, in the testing of the different varieties and modes of culture of field crops, and in the comparison and treatment of soils. It includes also experiments in agriculture and horticulture, under the direction of the Professors of Agriculture and of Horticulture and of the Farm Superintendent, and experiments

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

The Barn on the Stock Farm has north and west fronts of 80 feet each. Each limb, or L, is 40 feet wide. It is of the kind known as the side-hill barn. The Barn on the Experimental Farm is of less size, but is fitted up with great convenience, and is supplied with a mill for grinding feed, run by a large wind-mill.

A Veterinary Hall and Stable has been provided, and a Clinic is held to illustrate the lectures on Veterinary Science. The department has Dr. Auzoux' celebrated complete model of the horse in 97 pieces, exhibiting 3,000 details of structure; also *papier-mache* models of the foot and teeth of the horse at different ages.

Surveying and Drainage are illustrated by field practice, with instruments, and by models. Agricultural Chemistry is pursued in connection with laboratory practice, in the analysis of soils, fertilizers, foods, etc. The College also has fine collections of soils, seeds, plants, implements, skeletons of domestic animals, plants, charts, and other apparatus, including a large number of models of agricultural machinery from the Patent Office.

Upon the grounds devoted to the use of the College, there are: 1. A very large specimen apple orchard planted in 1869, and containing above 1,000 varieties,—many varieties of pears, cherries, grapes and small fruits. 2. A nursery of young trees, in which students have regular work in propagation, etc. 3. A forest-tree plantation embracing the most useful kinds of timber. 4. An arboretum in which all hardy indigenous and exotic trees are planted as fast as they can be secured, and now containing nearly 100 varieties. The ornamental grounds which surround the University building, embrace about twenty acres, and are kept in neat and attractive style. These, with all the adjuncts of trees and flowering shrubs, lawn and beds of flowers and foliage plants, walks of different material and styles of laying out, give illustration to the class-room work in landscape gardening. A spacious green-house, recently much enlarged, contains a collection of plants of great value for the classes in floriculture and landscape gardening, besides furnishing students with practice in hot-house and green-house management. The library contains the best literature upon these subjects.

The cabinet contains a series of colored plaster-casts of fruits prepared at the University; *models clastiques* of fruits and flowers by Auzoux of Paris; collections of seeds of native and exotic plants; of specimens of native and foreign woods; of beneficial and injurious insects and specimens showing their work; numerous dry and alcoholic specimens and preparations; maps, charts, diagrams, drawings, etc.

The College is well supplied with compound microscopes and apparatus, and students have abundant opportunity to learn their use, and to make practical investigations with them. The herbarium is rich in specimens of useful and noxious plants, including many of the fungous parasites which cause disease to cultivated crops.

AGRICULTURAL COURSE.

Required for the Degree of B. S. in College of Agriculture.

FIRST YEAR.

1. Elements of Agriculture, Chemistry, Trigonometry, Algebra and Adv. Geometry. Shop Practice (optional).
2. Elements of Horticulture, Chemistry, American Authors, or Free Hand Drawing.
3. Vegetable Physiology, Chemistry, Rhetoric.

SECOND YEAR.

1. Agricultural Chemistry, (Soils and Plants), Botany, German.
2. Agricultural Chemistry (Tillage, Fertillzers, Foods), Botany, German.
3. Economic Entomology, Zoology, German.

THIRD YEAR.

1. Agricultural Engineering and Architecture, Animal Anatomy and Physiology, Geology or Ancient History.
2. Animal Husbandry, Veterinary Science, Physics or Mediæval History.
3. Landscape Gardening, Veterinary Science, Physics or Modern History.

FOURTH YEAR.

1. Meteorology and Physical Geography, Mental Science, History of Civilization.
2. Rural Economy, Constitutional History, Logic.
3. History of Agriculture and Rural Law, Political Economy, Laboratory Work, Graduating Thesis.

N. B.—Students in Horticulture will take the special branches in Horticulture described on page 30.

FARMER'S COURSE.

Students who cannot give the time necessary for the full course, and yet desire to better fit themselves to be successful farmers, may give exclusive attention to the technical Agricultural studies, including Veterinary Science, and complete these in one year. The studies of the second or winter term of this course are arranged so as to be profitably studied by those who can be in attendance only during that term. Students will be admitted to this course on passing a satisfactory examination in the common school branches, but they will receive greater benefit from it if they have made better preparation, especially if they have a good knowledge of Botany and Chemistry. They should not be less than eighteen years of age. The studies are taught in the following order:

1. Elements of Agriculture, Agricultural Engineering and Architecture, Animal Anatomy and Physiology, Shop Practice.
2. Animal Husbandry, Rural Economy, Veterinary Science.
3. History of Agriculture and Rural Law, Veterinary Science, Practical Entomology or Landscape Gardening.

COLLEGE OF ENGINEERING.

SPECIAL FACULTY.

THE REGENT,

PROFESSOR RICKER, Dean.	PROFESSOR WEBER,
PROFESSOR SHATTUCK,	PROFESSOR BAKER,
PROFESSOR PEABODY,	PROFESSOR ROOS,

CHARLES HILDEBRAND.

SCHOOLS.

MECHANICAL ENGINEERING, ARCHITECTURE,
CIVIL AND MINING ENGINEERING.

ADMISSION.

Applicants should be at least eighteen years of age. None are admitted under fifteen. The requirements for admission embrace the common school branches and the studies of the preliminary year. The examinations in Mathematics are especially thorough.

Those who make further preparations than that required before entering, can make their courses more extensive and profitable. The following suggestions are offered to such as wish to make thorough work: French and German, are pursued at least one year each. Some preparation in Latin will be of great assistance in these languages. The engineer and architect should be adepts in the various departments of drawing, and some previous study of this branch will be of great advantage. "Warren's Draughting Instruments" may be used as a text-book, and the drawings made on smooth paper, eight by ten inches.

REGULATION PAPER.

The following sizes and qualities of paper will be required in all the College Exercises:

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

For Problems, Exercises, Vacation Journals, Lecture Notes, Theses and other Manuscripts, and for Geometrical Projection, Topographical, Railroad, Typographical and Construction Drawings, paper 8x11½ inches, the size of the plate being 8x10 with 1½ added for binding. If Bristol board is used it must be cut 8x10 inches, and the binding margin hinged on with muslin.

CONTRIBUTIONS.

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

THESES.

In all the schools of this College a Thesis is required as a condition of graduation. It must be an original composition of suitable length, upon a subject appropriate to the school, and approved by the Professor in charge. The student must be prepared to explain and defend it before his class. It must be illustrated with such photographs, drawings and sketches as may be needed, and embellished with a title page neatly designed and printed with India ink, or colors. It must be upon Regulation Paper and securely bound. It will be prepared during the latter part of the fourth year and presented at the close of the course, after which it will be deposited in the Library of the University.

These papers, and also the practical exercises mentioned in each course, will be credited upon the diploma, and no course of the College will be accounted complete without them.

SCHOOL OF MECHANICAL ENGINEERING.

OBJECT OF THE SCHOOL.

This school seeks to prepare students for the Profession of Mechanical Engineering. It aims to fit them to invent, design, construct and manage machinery for any branch of manufactures. The State needs men who, to a thorough knowledge of the principles of machinery and of the various motors, add the practical skill necessary to design and construct the machines by which these motors are made to do work.

INSTRUCTION.

The instruction, while severely scientific, is thoroughly practical. It aims 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.

In PRINCIPLES, instruction is imparted by lectures, illustrated plates and by text books. Examples are also given, showing the application of the theories and principles taught. Experiments in the testing of machines and motors are undertaken by the student.

In PRACTICE, elementary forms are produced and Projects are executed, in which the student constructs machines, or parts thereof, of his own designing, and from his own working drawings.

In DESIGNING, the student begins with elements, and proceeds with progressive exercises till he is able to design and represent complete machines.

INSTRUCTION IN MECHANICAL ART AND DESIGN.

An elementary course of shop practice has been carefully arranged, the object of which is to familiarize the student with the forms of the parts of machines, and the mode of producing them He is made familiar with all the ordinary cutting tools for iron and wood ; the form and condition for most effective work ; the machines and appliances by which they are put into action, and the instruments by which desired dimensions of product are

obtained. This practice is carried on in the Mechanical Laboratory, and represents five different shops, viz:

1—PATTERN MAKING.

2—BLACKSMITHING.

3—MOULDING AND FOUNDING.

4—BENCH WORK FOR IRON.

5—MACHINE TOOL WORK FOR IRON.

In the 1st, the practice consists of planing, turning, chiseling, etc., in producing true surfaces of various forms in wood, and also of combining pieces by glue joint, etc., preliminary to correct pattern making. Patterns are finally made from which are cast pieces in iron, brass, etc., to be worked in the subsequent shops.

In the 2d, the student uses the forge and performs the various elementary operations, such as drawing, upsetting, bending, welding, etc.

In the 3d, several pieces are moulded in sand and cast, some of which are useful in the succeeding shops.

In the 4th, there is first a course of free-hand bench work, where the cold-chisel and file are the only tools. After the hand and eye are sufficiently trained, fitting is begun, and the square, bevel, rule, compasses and other auxiliary bench tools are used. Pieces are then fitted together by the file, with surfaces carefully finished.

The 5th shop involves the use of the ordinary machine tools of the machine shop. The first practice employs these machines with their cutting tools or bits, in the common operations, such as turning cylinders, disks, grooves and fillets; boring, drilling, hand-turning, milling, planing, etc. Following this is a course of practice in fitting and finishing, in which calipers, rules, etc., are introduced, and many of the various fittings employed in machinery are produced. Polishing and finishing of surfaces are also practiced.

Lectures are given in which the most favorable forms and manipulation of cutting tools and auxiliary appliances are explained.

Previous to the shop work, the pieces are drawn by the stu-

dent, and the exact thing to be done is indicated, thus avoiding mistakes, and facilitating practice.

The designing of such machine elements as pulleys, journal boxes, cranks, stuffing boxes, etc., cultivates a knowledge of proportion, and of its proper representation on paper. This practice in designing and drawing is a leading feature in the course of instruction.

This course of elementary practice fits the student for the advanced shop practice in designing and construction of complete machines undertaken later in the course.

STUDIES.

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

PURE MATHEMATICS.

Advanced Geometry.—Applications of Algebra to Geometry; Transversals; Harmonic Proportions, etc. *Trigonometry.*—Analytical and Plane. Relations between the functions of an arc; Formation and use of Tables; Solution of plane triangles. *Analytical Geometry.*—Construction of equations; Discussion, in a plane, of the point, right-line, circle, ellipse, parabola and hyperbola; Higher plane curves, cycloid, cissoid of Diocles, etc.—*Differential Calculus.*—Differentials of algebraic and transcendental functions; Maclaurin's Theorem; Taylor's Theorem; Maxima and Minima of functions of one variable; Equations of tangents, normals, sub-tangents, sub-normals, etc.; Differentials of lines, surfaces of volumes. *Integral Calculus.*—Integration of elementary forms and of rational fractions; Rectification of plane curves; Quadrature of plane areas and surfaces of revolution; and Cubature of solids of revolution.

SECOND YEAR.

Advanced Algebra.—Binomial Theorem; Properties and summation of series. Exponential quantities, Logarithms. General theory and methods of solving equations. *Analytical Geometry.*—Loci in space; Surfaces of the second order. *Differential Calculus.*—Differentials and Maxima and Minima of functions of two or more variables; Osculatory curves; Radius of curvature;

Evolutes, involutes and envelopes; Discussion of algebraic and transcendental curves and surfaces; Tangent and normal planes; Partial differentials of surfaces and volumes. *Integral Calculus.*—Integration of transcendental and irrational differentials; Differentials of higher orders; Differential equations; Rectifications, quadrature and cubature in general. *Spherical Trigonometry.*—General Formulas; Solution of Spherical Triangles. *Calculus of Variations* will be taught to advanced students.

PHYSICS.

The course in Physics is complete and thorough, embracing the four kinds of work following:

1. Recitations, five exercises a week, in which a text book is used as a guide.

2. Experiments in Physical Laboratory one day each week, in which the student uses the instruments in testing the principles taught.

3. Illustrated experiments once each week, in which the more costly apparatus is used before the whole class, in such experiments as are difficult to perform, and which are most effective when prepared for an audience.

4. Higher physical experiments by advanced classes, consisting either of researches, or of reviews of careful and elaborate experiments previously worked up by others.

The department of Physics is amply provided with illustrative apparatus for use in the lecture-room, and an extensive Physical Laboratory. The collection of instruments, costing over $5,000, embraces Acoustic apparatus from R. Koenig, of Paris; apparatus for Heat and Molecular physics from J. Salleron, of Paris; for Light, Optics and Electricity from Stoehrer, of Leipsic, and Browning and Newton, of London; Pneumatic and Electrical apparatus from E. S. Ritchie, of Boston; and a large number of pieces prepared at the Mechanical Shops of the University. It includes, also, Browning's Electric Lamp; and from Eliot Bros., London, Resistance Coils, Galvanometers, etc., for higher researches in Electricity.

TECHNICAL STUDIES.

Cinematics, and Principles of Mechanism.—Relative Motion of points in a system of connected pieces; Motion independent of Force; Velocity ratio; Investigation of motion of elementary parts of machines, as Friction and Noncircular Wheels in rolling

contact, Cams and Curves in sliding contact; Correct-working Gear Teeth; Gearing Chains; Escapements; Link-Work.

Analytical Mechanics.—Equations of Equilibrium; Moments; Virtual Velocities; Centers of Gravity; Mechanical Powers; Friction; Dynamics.

Hydraulics.—Amount and Center of Pressure upon submerged surfaces; Flow of Liquids through Orifices, Weirs, Pipes and Channels; Distribution of water in cities. Forms and arrangement of orifices for fountains.

Thermodynamics.—The Laws and complete Theory of Thermodynamics as required in the study of all kinds of heat engines, including the deportment of perfect gases during expansion, and also steam and other fluids not perfect gases; action of heat in changes of state, and in confined fluids.

Resistance of Materials.—See School of Civil Engineering.

Prime Movers.—The theory and useful effects of Turbine Water-wheels, and best form of the parts for high efficiency. Other Water-wheels and Wind-wheels. Application of Thermodynamics in the study of Heat Engines. Relative Economy of different engines.

Mill-work and Machinery.—Trains of Mechanism, studied with reference to their Resistance and Efficiency. Best forms for transmission of power for short and great distances. Forms of the parts for securing desired results in power and velocity; Elastic and ultimate strength of parts.

DRAWING.

Projection Drawing.—Use of Instruments in applying the Elements of descriptive Geometry; Use of Water Colors; Isometrical Drawing; Shades and Shadows; Perspective.

Free-Hand Drawing.—Sketches of Machinery; Ornamentation; Lettering.

Machine Drawing.—Working Drawings of Original Designs; Finishing in Water Colors, and in Line-shading; Details for Shop Use according to the practice of leading manufacturers.

PROJECTS AND PRACTICE.

The Shop Practice of the first year has already been described. The second year practice will have for its object the production

of some model or machine. The students under the immediate direction of teachers, carefully determine the dimensions and shapes best suited for the parts of some machine, reduce them to neat and accurate working drawings and make tracings for shop use. No student will commence his advanced shop practice without working drawings. The designs are such as require executions in iron, brass and wood, for the purpose of giving breadth of practice. The student is required to make the patterns and castings, finish the parts, and put them together in accordance with the working drawings and the required standard of workmanship. This acquaints him with the manner in which the Mechanical Engineer carries his designs into execution, and teaches him to so shape, proportion and dispose the parts of a machine as to secure the greatest economy of construction and durability in use. The practice of the third year will include the careful construction of mechanical movements, strictly in accordance with the theoretical determination of the form of the parts.

Besides these practical exercises, students of sufficient skill may be employed in the Commercial work which is undertaken by the shop. For this work they receive compensation. This work includes all kinds of machine building and repairing, and will serve to extend and confirm the practical experience of the student.

Experiments and Practical Problems.—Experiments in the testing of Prime Movers and other machines, are undertaken by each student. They take Indicator Diagrams from the engine of the Mechanical Laboratory and in factories in the adjoining towns, and determine from them the power developed with different degrees of expansion, and the defects of valve movement in distribution of steam.

In strength of materials the student determines the modulus of rupture and coefficient of elasticity of about six kinds of building material. In Hydraulics the flow of water through orifices of different form are studied experimentally. In Mechanism each student works out and reports on an original problem involving mechanical movements.

APPARATUS.

This school is provided with plates and a cabinet of models illustrating mechanical movements and elementary combinations of mechanism. This collection is rapidly increasing by our own

manufacture, and by purchase from abroad. It includes many of Riggs' models, and others from the celebrated manufactory of J. Schrœder, of Darmstadt, Germany. About two hundred valuable models from the United States Patent Office are also included in the Cabinet.

The State has provided a large Mechanical Laboratory and Workshop.

The Pattern Shop is furnished with complete sets of tools, benches and vises for Pattern-makers. In a separate building are forges, a moulder's bench with sand, and brass and iron furnaces sufficient for the castings ordinarily required. Additional sets of tools are provided for the special use of students in the shop-practice classes.

MECHANICAL ENGINEERING COURSE.

Required for Degree of B. S. in School of Mechanical Engineering.

FIRST YEAR.

1. Plane Trigonometry, Algebra and Adv. Geometry; Projection Drawing; French.
2. Analytical Geometry; Descriptive Geometry and Lettering; Shop Practice; French.
3. Calculus; Free Hand Drawing, Shop Practice; French.

SECOND YEAR.

1. Designing and Construction of Machines; Advanced Algebra and Analytical Geometry; German.
2. Advanced Calculus; Designing and Construction of Machines; German.
3. Advanced Calculus; Astronomy; German.

THIRD YEAR.

1. Mechanism and Mechanical Laboratory; Advanced Descriptive Geometry; Chemistry and Laboratory Practice.
2. Analytical Mechanics ; Chemistry and Laboratory Practice; Physics.
3. Analytical Mechanics; Modern History; Physics.

FOURTH YEAR.

1. Resistance of Materials and Hydraulics; Geology; Mental Science.
2. Prime Movers; Constitutional History; Construction Drawing.
3. Mill Work; Designing and Laboratory Practice; Political Economy; Graduating Thesis.

SCHOOL OF CIVIL ENGINEERING.

OBJECT OF THE SCHOOL.

The School is designed to furnish a course of theoretical instruction, accompanied and illustrated by a large amount of practice, which will enable students to enter intelligently upon the various and important duties of the Engineer.

INSTRUCTION.

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

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

COURSE OF STUDIES.

The complete Course occupies four years. The tabular view shows the arrangement of the subjects. The studies of the first three years will prepare students for undertaking many engineering operations, such as making land and topographical surveys, building railroads, canals, embankments, etc. The fourth year is intended to fit them for the higher engineering operations, such as making geodectic surveys, building arches, trussel bridges and supporting frames of all kinds.

Each year consists of thirty-six working weeks, divided into Fall, Winter and Spring Terms. The four years are divided among the different branches nearly as follows: Languages, 360 recitations; Pure Mathematics, 360 recitations; Drawing of all kinds, 360 hours; Lectures with Mathematical Analysis, 200 hours; Surveying, recitations, drawing and field practice, 300 hours; Physics, Mechanics, Hydraulics, Strength of Materials, Astronomy, Geology, Chemistry, Mental Philosophy, Logic, Political Economy, History, altogether 680 lectures, recitations, and exercises; Practice in the Chemical Laboratory, 110 hours; Engineering Projects, 240 hours. Besides the above, there are various special exercises requiring time, the amount of which cannot

be assigned. Each recitation requires one hour in the class-room, and to its preparation should be given an average time of three hours.

The studies are given by the year and term in the tabular view of the course, the order there indicated should be closely followed, so that the student may avoid interference of hours of recitation and besides, the studies are there given in that order which best meets the preparation of the student. The following is a detailed view:

NATURAL SCIENCE.

Physics.—See School of Mechanical Engineering. *Chemistry.*—Inorganic Chemistry and Qualitative Analysis. *Geology.*—Elements of Physiographical, Lithological, Historical and Dynamical Geology.

DRAWING.

Projection Drawing.—Use of Instruments in applying the Elements of Descriptive Geometry; Use of Water Colors; Isometrical Drawing; Shades, Shadows and Perspective; Drawings finished in colors and by right-line shading; Bridges; Right and Oblique Arches. *Free Hand*—Landscapes; Buildings; Lettering and Ornamental Work. *Topographical*—Sketching; Ink Drawings; Conventional Signs, etc. *Mapping*—Railroad and City and County Maps. *Architectural*—Designing and Drawing of Engineering Structures.

TECHNICAL STUDIES.

Astronomy.—Descriptive Astronomy is given by lectures with a text book. The Equatorial Telescope is in constant use during the favorable weather. Practical Astronomy is given by lectures and practical work with the Astronomical Transit, Sextant and Engineer's Transit adapted to astronomical work; and by astronomical calculations. It includes, the instruments and their adjustment, the determination of time, latitude, longitude and azimuth.

Bridges.—Calculation of the strains in the King Post, Queen Post, Warren's, Howe's and other trusses, by analytical and graphical methods; and the designing of bridge and roof trusses.

Descriptive Geometry.—Problems on the Point, Right-Line

and Plane; Warped Surface; Perspective; Shades and Shadows; Practical Problems.

Geodesy.—Spirit, Barometrical and Trigonometrical Levelling; Base Lines, Stations and Triangulation; Parallels and Meridians; Magnetic Elements; Figure of the Earth; Projection of Maps.

Hydraulics and Mechanics.—See School of Mechanical Engineering.

Land Surveying.—Areas; Distances; Omissions and Corrections; Metrical System; Methods of U. S. Public Land Surveys.

Mathematics.—For pure Mathematics see School of Mechanical Engineering.

R. R. Surveying.—Economic Location; Curves; Turnouts; Crossings; Slope Stakes; Earthwork; Grades; Curvature of Rails; Coning of Wheels.

Strength of Materials.—Elasticity; Safe Limits; Shearing Stress; Flexure and Strength of Beams and Columns; Practical Formulæ.

Stone Work.—Stone, Brick, Lime, Mortar, Cement; Foundations; Retaining Walls; Arches, etc.

Topographical Surveying.—Stadia; Plane Table; Level; Contours; Soundings, etc.

Theory of Engineering Instruments.—Examination of Workmanship and Design; Testing Instrument Maker's Adjustments; Engineer's Adjustments.

PROJECTS.

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

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

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

The Location will consist in running the line over the route decided upon, with all the necessary measurements and calcula-

tions for establishing the grade, setting slope stakes, determining the amount of earthwork, etc.

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

The estimates will give the cost of ground, earthwork structures, superstructure, etc.

A project in Geodesy, or Higher Engineering, will be executed during the Senior year.

APPARATUS.

The School is provided with both English and American Instruments for the different branches of Engineering Practice, and for the Astronomical work of Higher Surveying. It has numerous models for illustration of its specialties, and access to the cabinets of the other Schools. To facilitate the practice in Trigonometrical and Land Surveying, it has a specially prepared area, in which the difficulties of plane surveying are presented to the beginner as he is able to meet them, and where 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 position of the "corners" by various methods, and to calculate the enclosed areas. Other problems are given in determining inaccessible distances, passing obstacles, avoiding local attractions, etc., for which the ground is prepared. The number of divisions is so large that no two students need have the same problem, and so accurately laid out that the correctness of the student's work can at once be determined.

An Astronomical Observatory for meridian observations, and of suitable size for the practical exercises in Astronomy, has been erected and is in use. An Equatorial telescope has also been mounted for the use of the students.

The library is well supplied with the latest and best books upon engineering subjects.

CIVIL ENGINEERING COURSE.

Required for Degree of B. S. in School of Civil Engineering.

FIRST YEAR.

1. Plane Trigonometry; Algebra and Adv. Geometry; Projection Drawing; French.
2. Analytical Geometry; Descriptive Geometry and Lettering; French.
3. Calculus; Free-Hand Drawing; French.

SECOND YEAR.

1. Advanced Algebra and Analytical Geometry; Land Surveying; German.
2. Advanced Calculus; Topographical Drawing, and Theory of Instruments; German.
3. Advanced Galculus and Spherical Trigonometry; Topographical Surveying; German.

THIRD YEAR.

1. Advanced Descriptive Geometry; Chemistry and Laboratory Practice; Railroad Surveying*.
2. Analytical Mechanics; Chemistry and Laboratory Practice; Physics.
3. Analytical Mechanics; Astronomy; Physics*.

FOURTH YEAR.

1. Resistance of Materials and Hydraulics; Mental Science; Geodesy and Practical Astronomy*.
2. Bridges*; Constitutional History; Geology.
3. Stone Work; Political Economy; Bridge Construction*; Graduating Thesis.

MINING ENGINEERING.

Students in Mining Engineering will take the course in Metallurgy (see School of Chemistry) in place of the studies marked with a * as above. The geological and mineralogical cabinets are well furnished with specimens of minerals, ores and rocks. In the new Chemical Laboratory, provision is made for metallurgical and assaying laboratories, with stamp mill, furnaces and other apparatus required for practical instruction in this department.

SCHOOL OF ARCHITECTURE.

OBJECT OF THE SCHOOL.

The School prepares students for the profession of Architecture. For this a thorough knowledge of scientific principles applied to building, ability and correct taste in design, and a technical knowledge of the various building trades, with skill in the use of tools, are necessary, and are prominent objects of the course of instruction.

INSTRUCTION.

The course embraces the knowledge of theory and principles, of constructive detail and of the ordinary routine work of office

practice, so far as these can be successfully taught in a technical school. The technical instruction is given chiefly by lectures, with references to text-book, and is illustrated by sketches, engravings, photographs and models, and practical applications are immediately made by students.

Drawing is practiced throughout the course, and, as far as possible, original work is executed. Drawing from casts and modeling in clay, give facility in sketching details and correct knowledge of form.

In shop practice, joints in carpentry and joinery, cabinet making, turning, metal and stone-work are executed, also models at reduced scale of roof and bridge trusses, ceilings, domes and stairs.

The course in Mathematics, Mechanics, Physics, etc., is nearly identical with that in the other schools of Engineering.

TECHNICAL STUDIES.

Drawing from Casts—Outline sketches and finished drawings in pencil, crayon and charcoal.

Modeling in Clay—From casts and original designs; weekly exercises in designing architectural ornaments.

Elements of Construction.—Lectures and designs for specified problems.

Wood Construction—Frames, roofs, ceilings, domes, heavy frames for mills, &c., roof trusses, stairs, doors, windows, external and internal finish.

Stone Construction—Materials, mortars and cements, walls, foundations, stone cutting, tools and mode of using.

Brick Construction—Materials, bonds, walls, arches, vaults and domes, centerings, &c.

Iron Construction—Cast and wrought iron, steel, properties and uses, strength, columns, lintels, girders and beams, usual forms and formulæ therefor.

Tinner's Work—Slating, Plastering, Painting and Plumbing.

Architectural Drawing—Ornaments, moulding, finishing in ink, sepia and color, working out full sets of drawings for buildings from sketches, practical perspective and shades and shadows.

Architectural Designing—Original sketches for 3 projects; 2 full sets drawings for buildings for specified private and public purposes.

History of Architecture—Daily lectures on principal styles, characteristics, construction and decoration, making especially prominent those ideas applicable in American architecture, tracings of details, designs for specified problems.

Æsthetics of Architecture—Æsthetics applied to architecture and allied arts, so far as yet made practical; laying out grounds, arrangement of plans, grouping of masses, decoration, internal and external, theories of color and decoration, treatment of floors, walls, ceilings, art objects, furniture, carpets, &c. About 25 original designs required for specified objects.

Estimates—Method of measurement, valuing labor and materials, estimates for specified works.

Agreements and Specifications—Preparation of sets.

Heating and Ventilation—Usual methods, by grates, stoves, furnaces, hot water and steam apparatus; the fuels, their properties, heating value and products.

Graphical Statics—Elements, equilibrium polygon and its applications; roofs, loads and wind pressures; type forms of trusses; determination of strains and dimensions of parts; details of joints; construction and use of graphical tables.

SPECIAL EXERCISES.

Specimen plates will be required of each student at the close of each term in drawing, to form a part of his record. All such papers must be on paper of regulation size, except when otherwise directed.

SHOP PRACTICE.

To give a practical knowledge of various kinds of work, a full course of instruction is arranged, filling three terms, which all architectural students are required to pursue unless they have already had equivalent practice. The system is similar to the Russian system, so much admired at the Centennial and Paris Expositions, but more comprehensive, and applied to Building rather than Mechanical Engineering.

STUDENTS' WORK FROM SCALE DRAWINGS.

First Term—Carpentry and Joinery.

Planing Flat, Square and Octagonal Prisms and Cylinders; Framing with Single, Double and Oblique Tenons; Splices, Straight and Scarfed; Mitre, Lap and Gained Joints; Through and Lap Dovetails; Mouldings, Mitres and Panels.

Second Term—Turning and Cabinet Making, Cylinder, Balusters, Capitals and Bases of Columns, Vases, Rosettes, &c. Fret Sawing, Veneering, plain and ornamental, Inlaying, Carving and polishing.

Third Term—Metal and Stone Work, Pattern Making, Moulding and Casting, Filing and Finishing, Drilling, Screws, Hand and Machine Turning.

Stone Work, executed in Plaster of Paris; Production of Plane, Ruled, Warped and Spherical Surfaces; Voussoirs of Arches, Vaults and Domes; Decorative Carving.

APPARATUS.

A collection of casts donated by the Spanish Government, and another of casts of various architectural details, from Lehr, of Berlin, belong to the Schools of Architecture and Designing; Models of ceilings, roof-trusses and stairs, joints, &c.; also Schroeder's models of joints in stone cutting, &c.

The casts, photographs, etc., of the Art Gallery. A library containing many of the best English, German, French and American Architectural works and Periodicals, such as *Daly's Motifs Historiques*, *Architecture Privee*, *Racinet's Ornament Polychrome*, *Builder*, *Civil Engineer's and Architect's Journal*, *Workshop*, *Skizzenbuch*, *Encyclopedia d' Architecture*, *Owen Jones' Grammar of Ornament*, *Falke's Art in the House*, *American Architect*, *Prang's Illustrations to History of Art*, etc., etc.

A large Carpenter and Cabinet shop, containing full sets of tools, nine sets of shop practice tools, foot lathe with slide rest, chuck, drills, etc. Cross and splitting saws, planer, moulding and tenoning machine, lathe, whittler, fret saw, etc.

BUILDER'S COURSE.

The Trustees allow persons desiring to fit themselves for Master Builders to take a course of a single year, pursuing such technical studies of the course in architecture as they may be prepared to enter upon with profit, and as will be most advantageous to them.

Candidates for the Builder's course must pass the examinations in the common branches, but need not pass in the studies of the Preliminary Year unless they shall desire to pursue other studies than those marked in the following: (The figures denote the hours per week). Fee, $10 per term.

1. Wood Construction, 10; Projection Drawing, 10; Shop Practice, (Carpentry and Joinery), 10.
2. Stone, Brick and Metal Construction, 10; Architectural Drawing, 10; Shop Practice (Stair Building), 10.
3. Agreements, Specifications, Estimates, Heating and Ventilation, Architectural Designing, 10; Shop Practice (Cabinet Making), 10.

ARCHITECTURAL COURSE.

Required for the Degree of B. S. in School of Architecture.

FIRST YEAR.

1. Projection Drawing, 10; Plane Trigonometry, Algebra and Advanced Geometry; Shop Practice; French.
2. Descriptive Geometry and Lettering, 10; Analytical Geometry; Shop Practice; French.
3. Modeling, 10; Calculus; Shop Practice; French.

SECOND YEAR.

1. Elements of Construction, 10; Advanced Algebra and Analytical Geometry; Free-Hand Drawing, 10.
2. Elements of Construction, 10; Advanced Calculus, Architectural Drawing and Designing.
3. Graphical Statics, Architectural Drawing, Astronomy.

THIRD YEAR.

1. Architectural Drawing, 10; Descriptive Geometry and Drawing, 10; Chemistry and Laboratory Practice, 10.
2. History of Architecture, Analytical Mechanics, Physics.
3. History of Architecture, Architectural Designing, 10; Physics.

FOURTH YEAR.

1. Æsthetics of Architecture, 10; Resistance of Materials and Hydraulics; History of Civilization.
2. Architectural Designing, 10; Constitutional History; Water Color Sketching, 10, or Geology.
3. Estimates, Agreements and Specifications, Heating and Ventilation, 10; Architectural Designing, 10; Political Economy, Graduating Thesis.

COLLEGE OF NATURAL SCIENCE.

SPECIAL FACULTY.

THE REGENT.

PROFESSOR BURRILL, Dean. | PROFESSOR TAFT,
PROFESSOR WEBER, | PROF. L. ALLEN GREGORY,
PROFESSOR S. H. PEABODY, | GEORGE A. WILD,
C. I. HAYS.

SCHOOLS.

SCHOOL OF CHEMISTRY. SCHOOL OF NATURAL HISTORY.
SCHOOL OF DOMESTIC SCIENCE.

ADMISSION.

Candidates for the College of Natural Science must be at least fifteen years of age, and must pass satisfactory examinations in the common school branches and in the studies of the Preliminary Year.

Their preparation should be specially good in the Scientific studies of the Preliminary Year. Some knowledge of drawing of natural objects will also greatly facilitate the student's progress. A knowledge of the Latin language is a good preparation for the mastery of the scientific names which must be learned in this course.

SCHOOL OF CHEMISTRY.

This School aims to impart such knowledge of Chemistry as will enable the student to apply the principles of the science to

the related arts, and to fit him for the field of original research, or for the practical business of the Druggist, Pharmaceutist and Practical Chemist.

INSTRUCTION.

Text-book instruction in the principles of Chemistry and Chemical Physics, occupy six weeks of the first term of the first year. The remainder of the year the recitations alternate with laboratory practice. During the next three years each student is expected to work two hours daily in the laboratory, five days in the week. In order to graduate, each is required at the close of his course, to make an original investigation, and present a Thesis.

Students who pursue Chemistry as a part of other courses work at least two consecutive hours daily during such time as their specialty may require.

Text-Books.—Roscoe's Chemistry; Douglas & Prescott's Analysis; Fresenius' Analysis; Miller's Chemistry; Rose's Analysis.

Books of Reference.—Gmelin's Handbook of Chemistry; Graham-Otto's Ausfuehrliches Lehrbuch der Chemie; Watts' Dictionary of Chemistry; Lehmann's Physiological Chemistry; Percy's Metallurgy; Mitchell's Practical Assaying; Wormley's Micro-Chemistry of Poisons; Taylor on Poison.

Four courses of laboratory work have been arranged as follows:

CHEMICAL COURSE.

FIRST YEAR.

First Term.—Qualitative Analysis, Tests and Separation of the Alkalies, Alkaline Earths, (N H_4) 2 S Group, and 1st and 2d Division of H_2 S Group.

Second Term.—Qualitative Analysis Completed, Tests, and Separation of 3d Division of H_2 S Group, and the Acids, Analysis of 20 Simple Salts, and 20 Compound Substances.

Third Term.—Quantitative Analysis of Sodium Sulphate, Dolomite, Ammonium Alum, Potassium Chloride, Bone Ash, Iron Ore.

SECOND YEAR.

First Term.—Quantitative Analysis of Calamine (Zinc Carbonate), Copper Pyrites Galena, Spathic Iron Ore, Nickel Ore, Clay, Soil, Determination of Iron, Copper, etc., both volumetrically and gravimetrically.

Second Term.—Volumetric Analysis, Alkalimetry and Acidimetry, Preparation of Standard Solutions, Analysis of Sodium Carbonate, Sodium Hydroxide, Potassium Hydroxide, Pearl Ash, Cream of Tartar, Sulphuric, Hydrochloric, Oxalic and Citric Acids, Analysis of Corn or other Grain.

Third Term.—Preparation of Salts, Acids, etc., Electroplating with Silver, Gold, Copper, Nickel.

THIRD YEAR.

First Term.—Ultimate Analysis, Determination of Carbon, Hydrogen, Oxygen, Nitrogen Chlorine, Phosphorus and Sulphur in Organic Compounds, Analysis of Urine.

Second Term.—Blow Pipe Analysis, Determination of a collection of minerals representing over thirty of the Metals. Assaying in both the dry and wet way of Gold, Silver and Lead Ores.

Third Term.—Photography, Preparation of Ether, Absolute Alcohol, Gun Cotton, Cadmium Iodide, Ammonium Iodide, Glacial Acetic Acid, Silver Nitrate, Collodion, Taking Negatives, Printing Positives, Toning and Mounting.

FOURTH YEAR.

First Term.—Gas Analysis, Calibration of Eudiometers, Analysis of Air from Lungs, Atmospheric Air, Marsh Gas, Illuminating Gas and Crude Coal Gas, Analysis of Mineral Waters.

Second Term.—Toxicology, Micro-Chemistry of Poisons, Testing for Mineral and Vegetable Poisons, Separation from Organic Mixtures.

Third Term.—Original Researches, Thesis.

PHARMACEUTICAL COURSE.

FIRST YEAR.

Same as in Chemical course.

SECOND YEAR.

First Term.—Quantitative Analysis of Commercial Drugs, White Lead, Red Lead, Paris Green, Sodium Nitrate, Oxalic Acid, Tartar Emetic, Commercial Hydrochloric, Nitric and Sulphuric Acid.

Second Term.—Analysis of Mineral Waters, Preparation of Tinctures, Solid and Fluid Extracts, Reading and Compounding Prescriptions.

Third Term.—Isolation of Alkaloids, Atropine, Strychnine, Quinine, Nicotine, Aconitine, Morphine, Preparation of Salycilic Acid, Examination of Alcoholic Liquors, Reading and Compounding Prescriptions.

THIRD YEAR.

First Term.—Same as second term, second year of Chemical course.

Second Term.—Same as first term, third year of Chemical course, without Analysis of Urine, Reading and Compounding Prescriptions.

Third Term.—Preparation of Salts, Perfumes, Flavoring Extracts, Cosmetics, Electroplating with Gold, Silver, Copper and Nickel.

FOURTH YEAR.

First Term.—Same as second term, fourth year, of Chemical course.

Second Term.—Analysis of Urine, normal and pathological, Reading and Compounding Prescriptions.

Third Term.—Original Researches, Thesis.

AGRICULTURAL COURSE.

FIRST YEAR.

Same as in Chemical course.

SECOND YEAR.

First Term.—Quantitative Analysis of Feldspar, Soil, Ashes of Plants and Grains.

Second Term.—Analysis of Commercial Fertilizers, Manures and Minerals used for Fertilizers.

Third Term.—Preparation of Organic and Inorganic Salts, Starch from Potatoes, Corn, Wheat, etc., Sugar, Dextrine, Alcohol.

THIRD YEAR.

First Term.—Same as in Chemical course.

Second Term.—Analysis of Milk, Corn, Wheat, Potatoes, Fruits, etc.

Third Term.—Silt Analysis of Soils, Analysis of Mineral Waters.

METALLURGICAL COURSE.

FIRST YEAR.

Same as in Chemical course with the Quantitative Analysis of Brass, Solder and Type Metal in third term..

SECOND YEAR.

First Term.—Same as in Chemical course.

Second Term.—Assaying of Gold, Silver, and Lead Ores, both dry and wet way, Blowpipe Assaying.

Third Term.—Analysis of Malachite, Azurite, Cinnabar, Tin Ore, Cobalt and Nichel Ore containing Arsenic, Bog Manganese, Grey Antimony.

THIRD YEAR.

First Term.—Analysis of Pig Iron, Wrought Iron, Steel, Furnace Slags, Rolling Mill Slags and Cinders.

Second Term.—Same as in Chemical course, with Analysis of Mineral Waters in place of Assaying

Third Term.—Same as second term, fourth year, of Chemical course, with Analysis of Coal in place of Mineral Waters.

APPARATUS.

The facilities offered for obtaining a practical knowledge of Chemistry are believed to be unsurpassed by those of any other institution in the West. A large Laboratory Building, 75x120 feet, and four stories in height, has just been errected, at an expense, including furniture, of $40,000.

The Basement is 12 feet high and contains:

1st. Furnace room for assaying and metallurgical operations.

2d. Mill room for storing and crushing ores.

3d. A large room for the manufacture of chemicals and pharmaceutical preparations.

The first story is 14 feet high and contains:

1st. A large lecture room capable of seating 200 persons.

2d. Qualitative laboratory, which will accommodate 152 students when fully completed. The number of desks now fitted up are one hundred and four. Each desk has an evaporating hood and a wash bowl with constant supply of water. There is a spectroscope table, and a blowpipe table for general use.

3d. Store room stocked with apparatus and chemicals.

The second story is 14 feet high and is designed for the use of advanced students only. It has the following appartments:

1st. A small lecture room with mineralogical cabinet, and set of furnace models for illustrating lectures on metallurgy.

2d. Laboratory for students in agricultural chemistry.

3d. Main laboratory for quantitative analysis. These two laboratories will accommodate 152 students when fitted up to their full capacity. Sixty-four desks are now finished.

4th. Store room with apparatus for all kinds of work in quantitative Analysis. The apparatus for general use includes a large platinum retort for the preparation of hydrofluoric acid; a Dove's polarizer, with a complete suit of accompanying apparatus; a Geissler's mercurial air pump; Hoffman's apparatus for illustrating the composition of compound gases; a Soliel-Scheibler's saccharimeter; an excellent set of areometers; a Hauy's goniometer; a camera with Ross' lenses; a Ruhmkorff's coil; galvanic batteries of Grove and Bunsen; also a potassium dichromate battery, a galvanometer, a spectroscope and a large binocular microscope; a Hartnack microscope; a gas combustion furnace for organic analysis, etc.

5th. Balance room, containing five chemical balances of the manufacture of Bunge, (Short Beam) Becker & Son, and Troemner. Three additional ones are ordered.

6th. Pharmacy. This room is furnished like a Drug Store with shelves, drawers, prescription desk, balance, graduates, etc. It contains a full set of drugs and pharmaceutical preparations made in the laboratory by students in Pharmacy.

7th. Private Laboratory for instructors.

8th. Gas Analysis room, entirely cut off from the system of heating and ventilating to avoid undue fluctuations of temperature. It is furnished with a table specially constructed, and contains a full set of Bunsen's Gasometric Apparatus, a coil, battery, mercury, etc.

On the mansard floor ample provision has been made for the study of Photography.

COURSE IN CHEMISTRY.

Required for Degree of B. S. in School of Chemistry.

FIRST YEAR.

1. Chemistry and Laboratory Practice; Trigonometry; Advanced Algebra and Geometry; British Authors or French.
2. Chemistry and Laboratory Practice; Analytical Geometry; American Authors or French.
3. Organic Chemistry and Laboratory Practice; Calculus or Free-Hand Drawing; Rhetoric; French (optional).

SECOND YEAR.

1. Laboratory Practice; Physiology or Botany; German.
2. Laboratory Practice; Zoology or Botany; German.
3. Laboratory Practice; Zoology; German.

THIRD YEAR.

1. Laboratory Practice; Mineralogy; German.
2. Laboratory Practice; Physics; German.
3. Laboratory Practice; Physics; German.

FOURTH YEAR.

1. Laboratory Work; Mental Science; Meteorology and Phyrical Geography.
2. Constitutional History; Laboratory Work; Logic.
3. Political Economy; Geology; Laboratory Work and Thesis.

SCHOOL OF NATURAL HISTORY.

The aim of this School is to give a liberal scientific education. It acquaints the student with the latest researches in respect to the structure of the earth and to the origin and distribution of its organic products; teaches him to collect and preserve specimens and arrange them for study, and to conduct original investigations.

SPECIAL STUDIES.

Botany.—Candidates for admission are examined upon Gray's "Lessons in Botany," or an equivalent, and are expected to be able to analyze readily common wild flowers. Beginning with the Fall Term of the second year, systematic and structural Botany is continued by illustrated lectures and laboratory work upon fresh, dried and alcholic specimens. Students, throughout the course, are required to observe for themselves, and to make notes and drawings of their investigations. A series of these drawings, upon a uniform scale, together with the accompanying descriptions, are deposited in the library of the Laboratory.

Each student provides himself with suitable pencils, drawing pens and paper, needles in handles, glass slides for mounting objects, and razor for making thin sections. For the first term, a Manual of Botany (Gray's or Wood's) is required. Microscopes and other apparatus are furnished by the University, for which a deposit of three dollars is required, but no charge is made except for damage and material used.

The first six weeks are devoted to the study of the natural orders of flowering plants. About twelve lectures are given upon the characteristics of the prominent orders—their geographical distributions, importance, etc., together with the history of a few specials plants and their products. During this time, two hours per day, three days per week, students analyze in the Laboratory, flowering plants of the more difficult orders, Compositæ, Graminæ, etc., especially such as are best obtained in Autumn. The seventh week is devoted to practical instruction in the use of the compound microscope, and in the preparation of objects. For this, students are furnished with printed directions, and have individual instruction. During the five weeks following, the general morphology of plants, including vegetable anatomy and histology, is studied, there being about ten lectures, and thirty hours of laboratory work. Tests are made from time to time, by the use of disguised vegetable substances. Two weeks are taken for review, finishing drawings and examination. The special morphology of the great divisions of Cryptogamic and Phænogamic plants, their chief characteristics, their classifications, and the identification of species of Cryptogams, or flowerless plants, constitute the work of the second term. Special attention is given to injurious fungi, from specimens in the herbarium, or grown in the laboratory. Aquaria furnish numerous kind of fresh water algæ, and the

green-houses supply specimens in nearly all the groups studied. During the term, there are about twenty lectures, and fifty-four hours of laboratory work, besides review and examination.

The most important books of reference in the English language are Sachs' "Text-Book of Botany," LeMaout & Decaisne's "Botany," Gray's "Structural Botany," Lindley's "Introduction to Botany," Berkley's "Cryptogamic Botany and Fungology," Cooke's "Fungi," and "Hand-book of British Fungi."

Vegetable Physiology is studied the third term of the first year. The physiological part of Sachs' Botany, is made the basis of this work, given by lectures with references to other publications, and experimental practice. Respiration, assimilation, the circulation of fluids, the influence of light and temperature, growth and reproduction, are some of the topics treated, and sufficiently show the magnitude and importance of the study. Throughout the course, the attempt is made to introduce the students to the literature of the various subjects, and to acquaint them with the authority for the facts stated.

Anatomy and Physiology.—This study commences the first term of the second year, and the Anatomy is taught by lectures, aided by works of reference. The human skeleton and manikin are made the basis of comparison in the more extended Zoological researches. The Physiology is taught by means of Dalton's Unabridged Work, accompanied by lectures, in which especial attention is given to the subjects of food, digestion, dress, circulation, respiration, ventilation, etc. The senses will be carefully studied, accompanied with suggestions for prolonging their greatest efficiency—the practical and useful always taking the precedence of the merely theoretical, that the controllable powers of the body may be preserved with their most efficient activities, to avoid preventable suffering and death, and secure vigor and happiness.

Zoology continues two terms. In the first, Invertebrate Zoology is studied, unfolding the cardinal facts exemplified in the Sub-Kingdoms, Protozoa, Cœlenterata, Anuloida, Anulosa and Mollusca, together with the general principles of respiration, circulation, special methods of reproduction and development; geographical and geological distribution; principles of natural classification, depending upon morphological type and specialization of the functions, etc.

Vertebrate Zoology follows, embracing embryology, modification of plan by which animals are adapted to the various con-

ditions of existence, as manifest in their Comparative Anatomy; Systematic Zoology, so that the orders may be recognized at sight, etc. Nicholson's Manual of Zoology is used as a text-book.

Osteology and Taxidermy are taught in extra classes.

Osteology is taken up the winter term, to give the student a practical and theoretical knowledge of the vertebrate skeleton.

It consists in laboratory work, alternating daily with a study of the comparative Osteological collections in connection with recitations from "Flower's Osteology" as text.

In the laboratory, special attention is given to the cleaning and mounting of both Ligamentary and Articulated skeletons.

Taxidermy is commenced the spring term, and is designed to fit the student for the practical operations of collecting, preserving, and mounting objects of Natural History.

During the early part of the term special attention is given to the collection and "making" of skins of Birds and Mammals, and numerous specimens are so collected and prepared by each student; while the latter part of the term is occupied in mounting specimens from both fresh and dried skins.

Geology.—In Geology, Dana's Manual is used; commencing with Dynamical Geology, which explains the forces known to produce observed phenomena in the crust of the earth; as Life, in the formation of lime-stone, coal, peat; water, in eroding, transporting and depositing material for strata; heat, as manifested in consolidation, metamorphism and crystallization, as well as mountain folds on the surface of a shrinking globe.

Lithological Geology is the next term's work. This treats of the kinds, nature and material of rocks, stratified and unstratified; their mineral constituents; structure original or induced; concretions, veins, dykes, etc.; methods of determining the chronological order of the strata. Also the historic development of the earth as revealed by

Paleontology, or the entombed fossils of the Silurian and Devonian ages. The third term explains the Carboniferous age with its coal, the Reptilian and Mammalian ages, with their wonderful inhabitants; the Glacial period with its continent of ice, and through to the present time. Here also are discussed the elements of Time, the system of Life, the origin of Species, the climax in Man.

Physical Geography and Meteorology.—The principles of the phenomena manifest in the life of the earth bear the same relation to Geology that Physiology does to Anatomy. This subject, a

result of the facts of Geology, with an application of the laws of Physics, is taught by lectures and works of reference. It explains how the solid earth, influenced by winds and waters, driven by heat and electricity, aided by light, constitutes a fit abode for man, the last link of terrestrial being.

Entomology.—After three or four introductory lectures upon the most useful literature, and the methods of collecting and preserving specimens, about five weeks are devoted to the special anatomy of insects and the outlines of classification,—four lectures, and one review or two hours of practical work per week. During this time students make collections as fast as possible, reserving, however, the determination of species until the last half of the term. During this latter portion of the term three lectures per week are given upon injurious and beneficial insects, methods of exterminating, etc., and four hours per week are taken for laboratory work, naming species, noting habits observed, making detailed descriptions, etc. A careful and complete description of some one species, illustrated by drawings of important parts, is made by each student and deposited in the library of the school. The large collection of named species, the ample reference library, the drawings and other illustrations to which students have access, are invaluable aids in the study.

Students are required to provide themselves with collecting nets and bottles, pins, and lined boxes, and books for notes. Microscopes and other required apparatus are furuished by the University.

Microscopy and Fungology.—Students have in this study further practice in the use of the compound microscope, the management of light for particular purposes, the testing of lenses, measurement of magnifying powers and angles of aparture, drawing and photographing objects, preparation and mounting of material, etc. The application, as indicated above, is mainly, but not exclusively, devoted to minute fungi, including those of the different fermentations and putrefactions. Such fungi as are known or supposed to be injurious to plants or animals are studied as carefully and thoroughly as circumstances permit, cultures being made for the purpose, and specimens obtained from various sources.

APPARATUS.

In *Botany*, the school has a collection of about one thousand species of the plants indigenous to the State of Illinois, including a very nearly complete set of the grasses; a collection of Rocky

Mountain and Western Plants; a collection of plants from Dr. Vasey, Botanist of the Department of Agriculture, Washington, D. C., and others obtained by exchange from various parts of the United States. A collection of the fungi of the vicinity contains numerous species. The green-houses and out-door plantations furnish a large amount of illustrative material for the classes. Enlarged *papier-mache* models of flowers and fruits by Dr. Auzoux, exhibiting structure and development, are in the cabinet.

In Entomology numerous species have been contributed by the State Entomologist, who is required by law to deposit his first series of specimens in the cabinet of the University. Local collections and exchanges have further increased this number, amounting now to about three thousand species.

The University now has first-class microscopes of four different styles from European makers, one by a prominent American maker, and others of which the glasses were made to order in Europe, and the stands, a new pattern, manufactured in the shops of the University.

In *Zoology*, the cabinets contain a human skeleton, and a manikin made by Dr. Auzoux; skeletons of the different orders of mammals, and of birds; stuffed preparations of a large number of birds, mammals, fishes, reptiles, etc.; a dissected eye, trachea and vocal apparatus, in *papier-mache*, by Dr. Auzoux; collections of shells, fossils and insects.

The Geological Cabinet has been immensely improved the past year. In addition to the specimens from the State Geological Survey and other illustrative specimens, mineral and fossil, the cabinet has been the recipient of Prof. Ward's celebrated college series of famous fossils, so essential in elucidating the various phases of life in Geological History. This set was the munificent donation of Emory Cobb, Esq, President of the Board of Trustees.

A valuable and extensive collection of the leads of the State, and accompanying mineral, was donated by Gen. J. C. Smith, and other gentlemen, of Galena.

COURSE IN SCHOOL OF NATURAL HISTORY.

Required for Degree of B. S. in School of Natural History.

FIRST YEAR.

1. Chemistry; Free-Hand Drawing, (optional); Trigonometry; Advanced Algebra and Geometry; French.
2. Chemistry; Free-Hand Drawing (optional); Analytical Geometry; French.

3. Vegetable Physiology; Chemistry, or Free-Hand Drawing; Rhetoric; French, (extra).

SECOND YEAR.

1. Advanced Anatomy and Physiology; Botany; German.
2. Zoology; Botany; German.
3. Zoology; Economic Entomology; German.

THIRD YEAR.

1. Geology; Mineralogy; German; Ancient History (optional, extra).
2. Geology; Physics; German; Mediæval History (optional, extra).
3. Geology; Physics; Modern History, or Astronomy.

FOURTH YEAR.

1. Meteorology and Physical Geography; History of Civilization; Mental Science.
2. Microscopy and Fungology; Constitutional History; Logic.
3. Political Economy; Physical Laboratory; Natural History Laboratory Work; Graduating Thesis.

SCHOOL OF DOMESTIC SCIENCE.

This is the first School of Domestic Science of high grade, and with a complete course, organized in the United States, if not the first in the world.

OBJECT OF THE SCHOOL.

It is the aim of the School to give to earnest and capable young women a liberal and practical education, which shall fit them for their great duties and trusts, making them the equals of their educated husbands and associates, and enabling them to bring the aids of science and culture to the all-important labors and vocations of womanhood.

This School proceeds upon the assumption that the housekeeper needs education as much as the Architect, the nurse as well as the physician, the leaders of society as surely as the leaders of Senates, the mother as much as the father, the woman as well as the man. We discard the old and absurd notion that education is a necessity to man, but only an ornament to woman. If ignorance is a weakness and a disaster in the places of business where the income is won, it is equally so in the places of living, where the income is expended. If science can aid agriculture and the mechanic arts to use more successfully nature's forces and to

increase the amount and value of their products, it can equally aid the house-keeper in the finer and more complicated use of those forces and agencies, in the home where winter is to be changed into genial summer by artificial fires, and darkness into day by costly illumination; where the raw products of the field are to be transformed into sweet and wholesome food by a chemistry finer than that of soils, and the products of a hundred manufactories are to be put to their final uses for the health and happiness of life.

The purpose 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.

TECHNICAL STUDIES.

Food and Dietetics.—This study extends through two terms. The first term is devoted to the consideration of the simple aliments, such as Sugar, Starch, the Albuminoids, Fats, etc. In the second term, the studies include the compound aliments; Chemical structure of the cereals, especially the Wheat; the chemistry of Bread-Making, care of Milk and Butter; the nature, uses, preservation and preparation of animal and vegetable food, for the healthful, and for the invalid; the chemistry of cooking; chemical composition, preparation and physiological effects of the beverages, such as Tea, Coffee, Chocolate, etc., and the effects of alcholic drinks.

Domestic Hygiene.—Location of Dwelling Houses, importance of Drainage, uncleanliness as a source of disease; necessity of ventilation and sunlight; uses, construction, material and hygiene of dress; principles of nursing and care of the sick.

Household Esthetics.—Principles of taste as applied to ornamentation, furniture, wall and ceiling decoration, carpets, pottery, clothing and landscapes, harmony of colors, forms, proportions, etc.

Household Science.—Principles of heating and ventilation, chemistry of illumination, materials of culinary utensils, tin, iron, brass, etc.; adulterations of foods.

Domestic Economy.—Economy of time, management of ser-

vants, government and instruction of children, household expenditures. *Usages of Society.* Laws of etiquette, social customs, etc.

Home Architecture.—Principal architectural styles, as Grecian, Roman, Gothic, Renaissance, Modern Gothic, etc.; exterior of the house; general characteristics; interiors, chief requisities, convenience, light, warmth, etc.; requirements of different apartments, programmes for designs, as of cottages of various styles and capacity, farm houses, villas, etc.; internal decoration and construction; sanitary requisites, cellars, walls, water supply, etc.

Landscape Drawing and Green-House Work see School of Horticulture.

For other studies see the proper Schools.

HEALTH AND PHYSICAL TRAINING.

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

The materials for the calisthenic uniform must be made up under the direction of the Instructor in this department.

The Trustees desire that all female students shall participate in these exercises unless excused for good cause. They have been witnessed and heartily approved by some of the most eminent medical men in the State, and their value as a means of maintaining good health during a prolonged period of study, and as helping to develope a more perfect physical form and to give ease, strength and grace, is beyond debate.

COURSE OF DOMESTIC SCIENCE.

Required for Degree of B. S. in School of Domestic Science.

FIRST YEAR.

1. Chemistry; Trigonometry; Drawing, (full term); British Authors.
2. Chemistry; Designing and Drawing; American Authors.
3. Chemistry; Designing and Drawing; Rhetoric.

SECOND YEAR.

1. Botany; Physiology; German or English Classics.
2. Food and Dietetics, (simple aliments) Botany and Green-House; German or English Classics.
3. Food and Dietetics, (Compound Aliments and principles of cooking, etc.;) Zoology; German or English Classics.

THIRD YEAR.

1. Domestic Hygiene; Ancient History; German or French.
2. Physics; Mediæval History; German or French.
3. Physics or Landscape Gardening; Modern History; German or French.

FOURTH YEAR.

1. Household Esthetics; Mental Science; History of Civilization.
2. Household Science; Constitutional History; Logic.
3. Domestic Economy, Usages of Society, etc.; Political Economy; Home Architecture; Graduating Thesis or Oration or Essay.

COLLEGE OF LITERATURE and SCIENCE.

SPECIAL FACULTY.

THE REGENT,

PROFESSOR SNYDER, Dean.	PROFESSOR CRAWFORD,
PROFESSOR PICKARD,	PROFESSOR BURRILL,
PROFESSOR SHATTUCK,	PROFESSOR TAFT,
PROFESSOR WEBER,	CHAS. E. PICKARD.

SCHOOLS.

ENGLISH AND MODERN LANGUAGES.
ANCIENT LANGUAGES AND LITERATURE.

ADMISSION.

Candidates for the School of English and Modern Languages will be examined in Algebra, Geometry, Natural Philosophy, Physiology and Botany or Book-Keeping, and the Latin mentioned below, but not the Greek. Students not prepared in the Latin for this School have been allowed to make up the required Latin after entering, with the aid of private tutors.

Candidates for the School of Ancient Languages will be examined also in the Greek, but not in the elements of Botany, Physiology and Natural Philosophy. The examinations in Latin and Greek will be as follows:

LATIN.

Latin Grammar including Prosody. (Harkness' or Allen and Greennough's), Latin prose composition. (Forty-four exercises, to the passive voice, in Arnold's Latin Prose Composition, or parts one and two, to page 166, of Harkness' Introduction to Elementary Latin Prose Composition, or an equivalent in Allen

and Greenough's Latin Composition), four books of Cæsar's Commentaries, six orations of Cicero, and six books of Æneid. *Real equivalents* for any of the above mentioned works will be accepted. The so-called Roman method of pronunciation of Latin is recommended, as found in Allen and Greenough's, or in the last edition of Harkness's Grammar.

GREEK.

Greek Grammar (Goodwin's or Hadley's), Greek Prose Composition (Jones' Exercises in Greek Prose Composition or an equivalent in Arnold's), and four books of Xenophon's Anabasis. Writing Greek with the accents will be required. *The Greek Etymology must be thoroughly learned.*

The so-called Continental sound of the vowels and diphthongs and pronunciation according to the accent are recommended.

OBJECT OF THE SCHOOLS.

The object of the Schools in 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. They meet the wants of those who wish to prepare themselves for the labors of the press as editors or publishers, for teachers in the higher institutions, or for the transaction of public business.

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

INSTRUCTION.

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

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

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

The Library is well supplied with works illustrating the several periods of English, American, French, and German Literature, as also those of Ancient Literature. It contains at present over eleven thousand well selected volumes, and is constantly growing by purchase at home and abroad. Valuable American and Foreign periodicals are received regularly in the Reading Room, a list of which is given on page 22.

SCHOOL OF ENGLISH AND MODERN LANGUAGES.

ENGLISH LANGUAGE AND LITERATURE.

Studies of the School.—In the arrangement of the studies 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 language. This drill extends through three years of the course, but may be shortened according to the ability and preparation of the student.

The first two terms of the first year are given to a general survey of the whole field of British and American Literature from

the middle of the sixteenth century to the present time. All the really representative writers come into notice, and representative specimens from the writings of each are carefully read in class. Moreover, each student is required each term to read the entire work of some classic author, making choice from a prescribed list. Frequent exercises in writing abstracts or original compositions on themes assigned are also required. The study of Rhetoric occupies the third term.

During the second year some four or five of the great masters are studied, their work analyzed, the shaping forces of their times, and their influences upon succeeding times are investigated. Lectures are given from time to time on Poetry, Epic, Lyric, Dramatic, etc. Writing and reading required as in first year.

In the senior year attention is given to Old English; to the Anglo-Saxon, for which the way has been prepared by the study of both English and German; to Philology; to the Philosophy of English Literature, and to Æsthetics. Essays, Forensics, and orations are required.

French and German.—The modern languages taught in this School are confined to one year of French and two years of German. Abundant practical exercises are given both in composition and translation, and the diligent student gains the power to read with ease, scientific and other works in these languages, and may, with a little practice, write and speak them with correctness. A constant attention is also given to the Etymologies common to these languages and the English, and thereby a large advantage is gained by the student in linguistic culture. "He who knows no foreign tongue," said Goethe, "knows nothing of his own."

In the first year, the student passes over a complete grammar and reader, acquiring a knowledge of the technicalities of the idiom, and a sufficient vocabulary for the use of books of reference within the course. The second year is devoted to a critical study of the languages and philological analysis, and to a course of select classic reading, composition and conversation.

Mathematics, Physics and Astronomy.—For these studies, see School of Mechanical Engineering.

Natural Sciences.—See Schools of Chemistry and Natural History.

HISTORY AND SOCIAL SCIENCE.

The historical studies are designed to afford a general view of the history, social organization and progress of the race. They

embrace also the history of the Arts and Sciences, and of Civilization, the principles of civil polity and law, the philosophy of history, and the principles of political economy and constitutional law. The instruction is given chiefly by lectures, with readings of specified authors, and the study of historical geography and chronology.

The course occupies six terms in the third and fourth years of the University Courses.

THIRD YEAR.

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

FOURTH YEAR.

Constitutional History of England and the United States, five lectures a week; History of Civilization, Analysis of Historical Forces and Phenomena, notices of the Arts and of the Inductive Sciences; Political Economy.

PHILOSOPHY AND LOGIC.

The studies of this department are taught chiefly by lectures, with readings of specified authors, and written essays. These studies require much maturity of powers, and are therefore confined to the fourth year of the course.

Mental Philosophy. Analysis and classification of mental phenomena; theories of perception, consciousness, imagination, memory, judgment, reason. Mental Physiology, or connection of Body and Mind, healthful conditions of thought, growth and decay of mental and moral powers. Philosophy of Education. Theory of Conscience; Nature of Moral obligation, Moral feeling. The Right. The Good. Practical Ethics; Duties. Formation of character. Ancient Schools of Philosophy; Modern Schools of Philosophy. Influence of Philosophy on the progress of civilization, and on Modern Sciences and Arts.

Principles of Logic; conditions of valid thinking; forms of arguments; fallacies and their classification. Inductive and scientific reasoning; principles and methods of investigation. Practical applications of logic in the construction of argument, in the detection and answer of fallacies, and in the formation of habits of thinking, and the common judgments of life.

COURSE IN SCHOOL OF ENGLISH AND MODERN LANGUAGES.

Required for Degree of B. L.

FIRST YEAR.

1. Cicero de Amicitia, or British Authors; French; Trigonometry and Advanced Algebra and Geometry.
2. Livy, or American Authors; French; Analytical Geometry.
3. Rhetoric; French; Calculus, or Drawing; Horace (optional, extra).

SECOND YEAR.

1. English Classics; German; Physiology, or Botany.
2. English Classics; German; Zoology, or Botany.
3. English Classics; German; Astronomy.

THIRD YEAR.

1. German; Chemistry; Ancient History or Geology.
2. German; Physics or Chemistry; Mediæval History.
3. German; Physics; Modern History.

FOURTH YEAR.

1. Anglo-Saxon; Mental Science; History of Civilization.
2. English Literature; Constitutional History; Logic.
3. Æsthetics; Political Economy; Chemistry or Geology; Graduating Thesis or Oration.

SCHOOL of ANCIENT LANGUAGES and LITERATURE.

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

The study of Latin and Greek Composition will constitute a weekly exercise through the first year, and will be continued, to some extent, through the course. Essays, historical and critical, will be required from time to time, in connection with the works

read, and a free use of the library is urged. It is intended that each student completing the course in Ancient Languages shall have a clear knowledge of the history of Greek and Latin Literature, and of the principal authors in both languages. As an aid to the appreciation of the literature of the two peoples, Greek and Roman history will form an important part of the course, and will be taken up in the beginning of the course, illustrating the works read. In the first term of the third year Ancient History is taken up as a separate study, and especial attention is then given to the history of Greece and Rome, and the nations with whom they came in contact. Classes will be formed for students who wish to carry their classical study farther than the prescribed course, and every assistance will be given them.

For the studies in *History, Philosophy, etc.*, see School of English and Modern Languages.

For the studies in *Mathematics and Natural Science*, see Schools of Mechanical Engineering and Natural History.

COURSE IN SCHOOL OF ANCIENT LANGUAGES.

Required for Degree of B. A.

FIRST YEAR.

1. Cicero de Amicitia and prose composition; Iliad and prose composition; Trigonometry and Advanced Algebra and Geometry.
2. Livy and prose composition. Boise and Freeman's selections from Greek Authors and prose composition; Analytical Geometry.
3. Odes of Horace and prose composition; Memorabilia and prose composition; Calculus.

SECOND YEAR.

1. Satires of Horace; Thucydides or German; Physiology.
2. Terence; Sophocles or German; Zoology.
3. Tacitus; Demosthenes or German; Astronomy.

THIRD YEAR.

1. Juvenal or French; Chemistry; Ancient History or Geology.
2. Quintilian or French; Physics; Mediæval History.
3. De Officiis or French; Physics; Modern History.

FOURTH YEAR.

1. History of Civilization; Mental Science; Meteorology and Physical Geography.
2. Constitutional History; English Literature; Logic.
3. Æsthetics; Plato; Political Economy; Graduating Thesis or Oration.

ADDITIONAL SCHOOLS.

NOT INCLUDED IN THE FOUR COLLEGES.

SCHOOL OF MILITARY SCIENCE.

PROFESSOR WM. A. WOOD,

LIEUT. INFANTRY U. S. A.

By the law of Congress, and of the State, the University is required to teach Military Tactics to its students. All able-bodied male students of the College classes of the first and second year are enrolled in the companies of the University Battalion, and receive instruction according to the following programme, the exercises occupying from one to three hours each week (see figures in programme.)

The Military Organization of the University ranks in the State Militia as the University Battalion, Illinois National Guards.

PROGRAMME.

FIRST YEAR.—School of Soldier, Manual of Arms, 3. School of Company, Firings, etc., 2. School of Battalion, 2.

Reviews of Company and Battalion Drill, 2. Bugle Calls and Skirmish Drill, 1. Skirmish Drill, and Battalion Evolutions, 2.

SECOND YEAR.—Reviews, Picket Duty, 1. Guard and Picket Duties, 1. Skirmish and Battalion Evolution, 1 to 2.

Reviews, 1. Bayonet Fencing, 1. Battalion Evolutions, Target Practice, 1 to 2.

CLASS IN MILITARY SCIENCE.

A class is taught in Military Science and Art, as far as is requisite for officers of the line. From this class are selected the officers of the several companies, for which they act as drill sergeants and instructors. The military instruction is now under the charge of Lieut. Wm. A. Wood, an experienced officer of the regular army of the United States. A full supply of arms and ammunition is furnished by the War Department, including 300 cadet rifles and accoutrements, two pieces of field artillery, 1,000 fixed cartridges and 1,000 blank cartridges annually for target practice, with 200 rounds for artillery.

No student is eligible to the military class till he has reached

the second or Sophomore year, and is in good standing in all his studies. The course of instruction is confined strictly to two years. No student will be permitted to retain a command who does not maintain a good standing in conduct and scholarship.

The instruction and exercises occupy about three hours each week, arranged as far as possible so as not to interfere with any other courses of study, to allow the members of other courses to enter this. Students must be careful, however, to ascertain, before entering the military class, that the proper studies and exercises of their chosen courses will not be interfered with.

Commissions.—The Governor of the State is accustomed to commission as Captains in the State Militia, such graduates of the University as have completed the studies of the Military Classes, and have obtained the requisite experience in Command in the University Battalion. In order to obtain the commission the Student must be approved by the Faculty and pass satisfactorily an examination in Military Science and Tactics before a Committee appointed by the Faculty of the University. It is expected that in order to get the required experience in Command, the members of the Military Class of the third or Junior year will serve as commissioned officers of the several companies of the Battalion.

University Uniforms.—Under the authority of the acts of incorporation, the Trustees have prescribed that all male students, after their first term, shall wear the University uniform. The University cap is to be worn from the first. The uniform consists of a suit and cap of dark blue cloth. Students can procure them ready-made on their arrival here The University cap is ornamented in front with the initials I. I. U., surrounded by a wreath. Students will always wear their uniforms on parade, but in their rooms and at recitations may wear other clothing.

The University Library contains many books on Military Science, Military History and Engineering.

Gymnasium.—The Drill Hall is furnished with a full set of gymnastic apparatus, and classes in gymnastic exercises are organized in the fall and winter terms under careful leaders. Fee 50 cents.

Telegraphy.—In connection with the military department there is a Telegraph office in the new University Building with accommodations for learners, and connections with the Mechanical and Military building, the Dormitory and several private houses, making about three miles of telegraph lines. The stud-

ents form an association or class, and the members join the University main line, using their own instruments in their rooms. The class appoints its own officers, inspectors, etc., and pays a small contribution for maintaining batteries, etc. At present there are twenty-seven instruments on the line.

COURSE IN SCHOOL OF MILITARY SCIENCE

SECOND YEAR.

1. School of the Soldier and Company; Bayonet Fencing, 2.
2. School of Battalion; Ceremonies and Reviews; Skirmish Drill.
3. Brigade and Division Evolutions; Sword Fencing, 2.

THIRD YEAR.

1. Guard Outpost and Picket Duty; Sword Fencing, 2.
2. Military Administration; Reports and Returns; Theory of Fire-arms; Target Practice, 2; Artillery Drill.
3. Organization, etc., of armies; Art or War; Field Fortifications, 4.

SCHOOL OF ART AND DESIGN.

UNDER CHARGE OF PROFESSOR PETER ROOS,

(Late of the Art Academy, Boston.)

This School is to subserve a two-fold purpose. 1. It affords to the students of the several colleges the opportunity to acquire such a knowledge of free-hand drawing as their chosen course may require. 2. It offers to such as have a talent or taste for art, the best facilities for pursuing studies in industrial designing or other branches of fine art. Schools of Design, in Europe and in this country, have been found important aids to the higher manufactures, adding to the beauty of fabrics and to the skill and taste of workmen.

The increased interest in the decorative arts and in the manufactures which they require has added new importance to the study of Drawing and Designing. It is the purpose to keep this school of Design abreast with the best movements in this direction.

COURSE OF INSTRUCTION.

Students not seeking a professional training may yet avail themselves of the two years course in Industrial Art. Any person

of ordinary ability who faithfully completes this course will be qualified to teach drawing and designing in Public Schools, or enter professions with great advantage in the various branches of industry, where artistic skill and taste are indispensible to success.

FIRST TERM.

(Exercises in Outline.)

Elements of Form; Analysis of Compound Forms; Elementary Designs; Elementary Perspective by aid of objects; Elements of Historic Ornaments; Memory Exercises.

SECOND TERM.

Enlargement and Shading from copy; Ornamental Designs from plant form; Naturalistic and Conventional Arrangement; Harmonious lines and Distribution of Form; Perspective drawing of Objects, Plants, etc.; Features of the Human head; History o Early Art.

THIRD TERM.

Outline Drawing and Shading from Casts of Ornament; Applicatlon of decorative forms to flat and round surfaces under various conditions; Designs for specified objects; Advanced Perspective and Shadows; Harmony and contrast of color. (Lectures on Art, and its History).

FOURTH TERM.

(Clay and Wax Modelling.)

Basso Relievo Ornament from the Solid. Features and the Human head from description; Relievo Ornament from shaded copies or drawings; Original Designs for decorative purposes; Enlargements and Reduction from cast; History of Styles of Ornament.

FIFTH TERM.

Shading from Statuary, Casts, etc.; Drawing of Landscape and Animals from copy in Charcoal and Sepia; Color applied to Decorative Art; Designs for useful Objects; Perspective drawings of interiors of rooms; Physics on Lettering.

SIXTH TERM.

General review of the principal work done; Specimen plates to be completed; Optical and Physical principles of Color in Nature; Aerial Perspective; Sketching from Nature in Charcoal and Color; Artistic Anatomy of Form and Proportion, by illustrated lectures; Famous Artists and their principal works.

Students having passed the above course with thoroughness will be permitted to enter the advanced classes.

The following course is for those who wish to become accomplished either as Designers, Painters or Teachers. In order that the student may acquire thoroughness in the branch he wishes to pursue as a specialty, the subject has at this stage been formed into two divisions, viz: Decorative and Pictorial. The teacher

student must give attention to both branches, and with him theory will necessarily supersede practice. Opportunities will be afforded such pupils at times to teach in the elementary classes whereby greater efficiency will be acquired.

SPECIAL COURSE IN PAINTING.

Trees, Animals and Figures from copy and from nature in Pencil, Charcoal and Sepia; Aerial Perspective.

Anatomy of Expression; External muscular developement; Shading from Statuary in Charcoal and Monochrome; Composition drawing from description; Memory Exercises.

Water Color Painting from pictures; Sketching from Nature in Sepia and Water Color; Copying from Oil Paintings of Portraits and Landscapes.

Sketching from Nature in Oil Colors; Rapid studies of interiors with varied arrangement of light and shade; Pictorial compositions introducing figures or animals; Theory and History of Art.

Portrait Painting from life; Pictures finished from sketches; Studying of Groups of Still Life Subjects; Painting of ideal compositions of one or more heads; Chemistry of color.

ADVANCED COURSE IN DESIGNING.

Studies in Clay or Wax.

Ornaments and Plant form in Basso releivo from flat examples; Designs adaptive to useful objects; The Human Figure from cast or original compositions, reproduced by casting in metal or plaster; Processes of manufacture: Monumental designs.

Shading from cast and from nature; Classic objects and furniture enlarged from copy; Designs finished with Pen, Brush and Distempera color; Architectural construction.

Design for Church Decoration in Historic Styles; Memorial Windows for stained glass; Decorative designs; Commemorating events in History; History of manufactures, and important inventions.

ADVANCED TEACHERS' COURSE.

A teacher must be prepared for emergencies of which the professional Designer or Artist have no experience. A general knowledge of the several subjects is therefore recommended. The decorative, and painting course will be worked together so as to form a thorough course for teachers. By the guidance of natural inclinations a subject should be chosen to which more time be devoted so as to make it a specialty. Some have a su-

perior ability for drawing faces, and portraits, others can more easily originate patterns and designs.

The authorities of the University have provided, that, persons not connected with the Institution may join the Drawing and Painting Classes on very moderate terms.

MUSIC.

Music constitutes no part of any University course of studies, and is therefore not provided by the Trustees. But as many students, especially young lady students, desire instruction in music, competent teachers are selected by the Trustees, and rooms set apart for instruction.

MISS JENNIE C. MAHAN,

Teacher of Instrumental Music, has marked out the following

Course of Instruction :

Bertini's Instructor; Clementi's Sonatines, Op. 36, 37, 38; Heller's Studies, Op. 36, Books 1 and 2; Duvernay's Studies, Books 1, 2, 3; Loschhorn's Klavier-Technik; Czerny's Etudes de la Velocite, Op. 299, Books 1, 2, 3, 4; Czerny's Fifty Finishing Studies, Op. 740, Books 1, 2, 3; Cramer's Studies, Books 1, 2, 3, 4; Mendelssohn's Lieder ohne Worte; Clementi's Gradus ad Parnassum.

TUITION.

Instruction for term of ten weeks—2 lessons a week..... $10.00
For term of ten weeks—one lesson a week..... 6.00
Practice on piano, one hour daily per term..... 2.00

MRS. JENNIE HOLLISTER,

Teacher of Vocal Music and Voice Culture, follows the Italian method, giving individual instruction.

TERMS.

Ten weeks—two lessons a week..... $12.00
Ten weeks—one lesson a week..... 7.00

No deductions on account of absence in either course, except in case of protracted illness.

Special students in music will also be charged the regular term fee charged students of the University.

PREPARATORY CLASSES.

[TO BE CONTINUED TILL JUNE, 1881.]

To meet an urgent demand, the Trustees consented to provide temporarily for teaching the Preparatory Studies, lying between the Common School studies and the proper College studies.

The High Schools of the State are already doing such excellent work, and are multiplying to an extent that it is decided that this Preliminary work shall be dismissed from the University entirely after next year, ending June, 1881.

Candidates for these classes should not be less than fifteen years old. They must also pass satisfactory examinations in Arithmetic, Geography, English Grammar, and History of the United States. The examination in these branches should be equal to that usually required for a Second Grade certificate for teachers. This examination may be made by county superintendents. The studies taught in the preliminary year are as follows:

PREPARATORY STUDIES.

For the Colleges of Engineering, Agriculture and Natural Science.

First Term.—Algebra—(Olney's) Fundamental rules, Factoring, Common Divisors and Multiples, Powers and Roots, Calculus of Radicals, Simple Equations, Proportion and Progression. *Physiology*—(Dalton's or an equivalent.) *Book-Keeping*—Single and Double Entry.

Second Term.—Algebra—Quadratic equations. *Geometry*—Plane Geometry, Lines, Circumferences, Angles, Polygons as far as equality in Olney's Geometry. *English*—Elements of Composition. (Gilmore's Art of expression or equivalent.) Orthoepy and Word Analysis. (Introduction to Webster's Academic Dictionary). *Natural Philosophy*—(Norton's or an equivalent.)

Third Term.—Geometry completed, including solid Geometry and the Sphere. *English* as in second term, with addition of Goldsmith's Traveler, or an equivalent, read for analysis. *Botany*—Gray's Lessons in Botany, or an equivalent.

FOR COLLEGE OF LITERATURE AND SCIENCE.

First Term.—Algebra, as above. *Latin*, Cæsar. *Greek*, Grammar and Reader.

Second Term.—Algebra and Geometry, as above given. *Latin*, Cicero's Orations. *Greek*, Xenophon's Anabasis.

Third Term.— Geometry Completed. *Latin*, Virgil's Æneid. *Greek*, the Anabasis.

N. B. Greek is required only for the School of Ancient Languages. The School of English and Modern Languages, requires Physiology, Natural Philosophy, Botany, or Book-keeping instead of Greek.

Students in the preparatory studies are not matriculated as University students. They pay no entrance fee, but are charged a tuition fee of Ten Dollars a term, and the incidental fee of Seven and a half Dollars a term. They have all the privileges of the library and of the public lectures.

N. B. No student is matriculated as a College student till all preparatory studies are completed.

EXAMINING SCHOOLS.

The Trustees have authorized the Faculty to designate one or more High Schools in each County of the State, of sufficiently high grade and good reputation, whose certificates of examination, in the branches required of candidates for the University, may be received in lieu of the usual examination of the University.

These must be Graded, or High Schools of good reputation, and of sufficiently extended course to prepare students for the University. The principal teachers of the schools selected will be authorized to prepare questions and conduct examinations of any of their students desirous of entering the University, but the papers must be sent to the University for final decision.

EXAMINING SCHOOLS.

Rockford West High School	J. H. Blodget, Principal.
Buda High School	J. V. Wilkinson, "
Maplewood High School	S. F. Hall, "
Sterling, 2d Ward High School	Alfred Bayliss, "
S. Belvidere High School	J. W. Gibson, "
Geneseo High School	B. F. Parge, "
Belvidere High School	H. J. Sherrill, "
Lanark High School	F. T. Oldt, "
Gibson City High School	W. A. Wetzel, "
Belleville High School	Henry Roab, "
*Rochelle High School	P. R. Walker, "
*Peru High School	Joseph Carter, "
*Shelbyville High School	C. L. Howard, Supt.
*Sycamore High School	H. A. Blanchard, "

*DeKalb High School.....S. L. Graham, Principal.
*Dwight High School.....Jesse Hubbard, "
*Macomb High School.....J. F. Gowdy, "
Kinmundy High School.....N. S. Scovell, "

*These Schools are candidates for the rank of Accredited Schools, but can not be examined in time for this catalogue.

ACCREDITED HIGH SCHOOLS.

The Faculty, after personal examination, appoint accredited High Schools, whose graduates may be admitted to the University without further examination. These must be schools of first-rate character, whose courses of instruction include all the studies required for admission to some one of the colleges of the University. On application, a member of the Faculty is sent to examine the school making the application, as to its facilities for teaching, its course and methods of instruction, and the general proficiency shown. If the report is favorable, the name of the school is entered on the published list of High Schools, accredited by the University. The graduates of these schools are admitted to any of the colleges for which their studies may have prepared them. The appointment continues as long as the work of the school is found satisfactory. Annual reports are asked from these schools.

ACCREDITED HIGH SCHOOLS.

Princeton High School....._____, Principal.
Lake View High School.....A. T. Nightingale, "
Champaign, West High School.....T. L. Evans, "
Decatur High School.....E. A. Gastman, "
Salem High School.....Loyd Crossett, "
Champaign, East Side School.....I. L. Betzer, "
Urbana High School.....J. W. Hayes, "
Elmwood High School.....J. M. Crow, "
Oak Park High School.....B. L. Dodge, "
Chicago Central High School.....Geo. Howland, "
Chicago S. Division High School.....Jeremiah Slocum, "
Chicago N. Division High School.....H. H. Belfield, "
Chicago W. Division High School.....Ira S. Baker, "
Hyde Park High School.....Leslie Lewis, Supt.
Marengo High School.....C. J. Allen,
Blackstone High School.....Wm. Jenkins, "
Kankakee High School.....C. W. Rolfe, "
Mattoon E. Side High School.....E. P. Rose, "
Springfield High School.....F. R. Feitshans, "
Monticello High School.....Gilbert A. Burgess, "
Warren High School.....D. E. Garver, "

MISCELLANY.

EXAMINATIONS.

Written examinations are held at the close of each term or oftener, and whenever any study has been finally completed. Any student failing to answer correctly 75 per cent. of the questions proposed, loses all credit for that study, and is precluded from proceeding with any other studies, without special permission.

A record is kept of each student's term work and standing, and from this his final certificate of graduation is made up.

DEGREES AND CERTIFICATES.

The law provides that "on recommendation of the Faculty, the Trustees may authorize the Regent, as President of the University, to issue diplomas to such persons as shall have completed satisfactorily the required studies, and sustained the examination therein, conferring such Literary and Scientific Degrees as are usually conferred by Universities for similiar or equivalent courses of studies, or such as the Trustees may deem appropriate." Approved May 11, 1877.

In accordance with the law the following system of Degrees has been adopted for the University:

1. All studies will remain as heretofore free. Each student may choose and pursue such studies as he may desire, subject only to such conditions as to preparation, times of study, and number of studies as may be necessary to secure efficiency in classes and economy in teaching.

2. But students who wish to be candidates for any degree must complete fully the course of studies prescribed for such degree.

3. Students not candidates for any degree will be enrolled as special students, and will receive at the close of their attendance, if not less than a year, the certificates provided by law, with statement of work done and of credits attained.

4. It is designed that the requirements for all the Bachelors' Degrees shall be, as nearly as possible, equal in amount and value.

5. The Degree of Bachelor of Science, B. S., will be given to those who complete either of the courses of studies in the Colleges of Engineering, Agriculture, or Natural Science. The name of the School will be inserted after the degree.

6. The Degree of Bachelor of Letters, B. L., will be given

to those who complete the course in the School of English and Modern Languages.

7. The Degree of Bachelor of Arts, B. A., will be given to those who complete the course of the School of Ancient Languages.

8. The Masters' Degrees, M. S., M. L., and M. A., and the equivalent degrees of C. E., M. E., etc., will be only given to those who have pursued and passed examinations on a year of prescribed post-graduate studies, and presented an accepted Thesis, or after a term of successful practice with a Thesis.

BOARD.

There are many boarding houses near the University where either table board or board and rooms can be obtained, with the advantages of the family circle. Boarding clubs are also formed by the students, by which the cost of meals may be reduced to $2.00 per week. Some students prepare their own meals, and thus reduce expenses still farther.

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

For estimates of annual expenses, see page 87.

The Young Men's Christian Association of the University will aid new students in procuring rooms and boarding places.

LABOR.

Labor is furnished as far as possible, to all who desire. It is classified into Educational and Remunerative labor.

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

Remunerative Labor is prosecuted for its products, and students are paid what their work is worth. The maximum rate paid for farm, garden and shop labor is *ten cents*, and for that about the buildings and ornamental grounds, *eight cents per hour*. Students of sufficient experience may be allowed to work by the piece or job, and thus by diligence or skill, secure more pay.

Some students, who have the requisite *skill, industry and economy*, pay their entire expenses by their labor; but, in general, young men can not count upon doing this at first, without a capital to begin with, either of skill, or of money to serve them till a degree of skill is acquired. As the number of students increases

it is found more and more difficult to furnish the labor needed, and students can not count so certainly upon finding employment.

STUDENTS' GOVERNMENT.

For several years an experiment has been in progress, in self-government of the Students of the University. By permission of the Faculty, the General Assembly of the Students was organized, and a constitution adopted providing for the election of a President, Vice-President, Secretary and Marshal; for a Senate of twenty-one members, a court consisting of a Chief Justice and two Associate Judges. Under this constitution, laws are enacted by the Senate, which become valid only when approved by the Regent and Faculty of the University. All offenses against these laws are tried before the Student's Court, and punished by fines according to the class of the offense. Students refusing to pay the fines imposed by the Student's Government are referred to the Faculty and if sentence is approved, are sentenced to such penalties as the Faculty may deem proper. The government has thus far rendered important aid in maintaining good order in the dormitories and grounds, in preserving public property, in preventing the visiting of saloons, and in other matters requiring the intervention of authority, and above all in cultivating kindly relations between the Students and Faculty and a spirit of manliness and self control.

GENERAL DIRECTIONS TO STUDENTS..

Young men or women desiring a liberal education, and living at a distance from any College or University, are often puzzled to understand precisely what they will be required to know and do in order to gain admission. To such these words are addressed:

1. Notice that a College, or a University, (which is properly a collection of Colleges,) is designed for the higher education only, and not for the study of the common branches. None of the common branches, such Arithmetic, Geography, English Grammar, Reading and Spelling, are taught in this University. These must all be finished before you come.

2. In order to pursue profitably the true College studies, and to keep pace with the classes, you must be ready to pass a strict examination in the common branches just mentioned, and in certain other preparatory studies, differing with the different Colleges of the University. (See pages 26 and 81.)

3. If well prepared only in the common branches above named, you may be admitted, not to the College, but to the Preparatory Classes, in which you will study the other preparatory studies required for admission to College. (See page 81.) All preparatory studies must be completed before you can be admitted, as a matriculated student, to any College class.

4. All College studies are arranged in regular courses, in which each term's work is designed to prepare for the next. You should enter at the beginning of the College year, in September. If unable to enter at that time, you may enter at any later time by making up the studies already passed over by the class.

5. Enter College with the purpose of going through, and make your course regular as far as you go. If obliged to leave before you have finished the course, you will have done the best thing for yourself in the meantime; while if you remain, the regular course is in nine cases out of ten, the most useful and effective.

Students desiring only a winter's schooling should go to some high school.

EXPENSES.

THE TUITION IS FREE in all the University Classes.

THE MATRICULATION FEE entitles the Student to membership in the University until he completes his studies, and must be paid before he enters. Amount..... $10.00

THE TERM FEE for Incidental Expenses is, for each student 7.50

Room Rent in University Dormitory, each Student per Term..... ..... $2.00 to $ 8.00

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

ALL BILLS due the University *must be paid before the student can enter* Classes.

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

	MIN.	MAX.
Term Fees and Room Rent for each Student	$ 28.50	$ 34.50
Table Board in Boarding Houses and Clubs	72.00	144.00
Fuel and Light.....	10.00	15.00
Washing, at 75 cents per dozen.....	13.50	27.00
Total Annual Amount	$123.00	$220.50
Board and Room in Private Houses, per week.....	4.00	6.00

FEES IN THE PRELIMINARY YEAR.

Tuition, per Term	$10.00
Incidental Fee, per Term	7.50

SPECIAL FEES.

For Music, for 20 Lessons	$10.00
For Painting and Drawing to Special Students	10.00
Graduating Fee	5.00

CAUTION TO PARENTS—STUDENTS' FUNDS.

The Business Agent will receive on deposit any funds parents may intrust to him to meet the expenses of their sons. *No greater error can be committed than to send boys from home with large amounts of spending money*, without the authoritative care of some prudent friend. Half the dissipation in Colleges springs from excessive allowances of money. Students have little real need for money beyond that required for fees, board bills and books. The attention of parents and guardians is earnestly requested to this matter, and especially in the case of those students who are under 20 years of age.

CALENDAR FOR 1880.

Examinations for Admission	Monday, September 13
First or Fall Term begins	Tuesday, September 14
Closing of the First Term	Tuesday, December 21

WINTER VACATION.

FOR 1881.

Examination for Admission to Advanced Classes	Monday, January 3
Opening of the Second or Winter Term,	Tuesday, January 4
Anniversary Day	March 11
Second Term Closes	Tuesday, March 21
Third or Spring Term begins	Tuesday, March 21
Baccalaureate Address in University Chapel	June 4
Class Day	June 5
Society Addresses	June 6
Commencement	Wednesday, June 7

SUMMER VACATION.

Examinations for Admission,	Monday, September 11
First or Fall Term begins	Tuesday, September 12

I. I. U. DIRECTORY.

Spring Term, 1880.

STUDENTS' GOVERNMENT.

EXECUTIVE.

President,	Frank White.
Vice-President,	C. H. Dennis.
Secretary,	M. B. Wilson.
Treasurer,	W. K. Mason.
Marshal,	C. N. Boyd.

JUDICIARY.

Chief Justice,	Lou Stull.
1st Ass't Justice,	J. H. Morse.
2nd " "	J. E. Armstrong.
Pros. Attorney,	F. M. McKay.

LEGISLATIVE.

President,	C. H. Dennis.
Vice-President,	A. F. Robinson.
Secretary,	Miss G. Dresser.
Ass't, Sec'y.,	Miss K. Baker.

Members of Senate.

Miss M. Mosser, 2	A. F. Robinson, 2
Miss May Reed, 2	T. C. Hill, 2
Miss L. Lawhead, 1	W. L. Parker, 3
Miss G. Dresser, 1	A. M. Bridge, 2
J. E. Armstrong, 1	E. Philbrick, 2
A. O. Coddington, 3	Miss L. Brown, 3
W. A. Mansfield, 3	A. E. Davis, 3
C. S. Hubbell, 3	E. H. Swasey, 3
J. G. Wadsworth, 2	J. A. Allen, 1
J. G. Allison, 1	F. H. Porter, 1

Miss Kittie Baker, 1

ILLINI.

Executive Committee—J. A. Allen, Miss Macknet, F. W. Hatch, Miss Hammett, E. Philbrick.

Editor-in-Chief,—J. A. Allen.
Office Sup't.—C. W. Palmer.
Business Manager—F. H. Porter.

I. I. U. BATTALION.

Lieutenant Wm. T. Wood, U. S. A., Commander and Professor of Military Science.

Capt. B. A. Slade, Adjutant.
Co. A, Capt., A. N. Talbot.
Co. B, " F. H. Williams.
Co. C, " F. H. Porter.
Co. D, " C. H. Dennis.
Co. E, " E. Philbrick.
Co. F, " T. C. Hill.

I. I. U. CORNET BAND.

Meets Monday and Thursday nights in Band Room—14 instruments.

E. L. Kelso, Leader.

LITERARY SOCIETIES, ETC.

ALETHENAI.

Young Ladies' Literary Society. Motto: "*Apo tou dunasthai, pros to einai.*" Organized October 4th, 1871, meets every Friday at 7 P. M.

Miss Augusta Batchelder, President.
Miss Gertrude Dresser, Secretary.

PHILOMATHEAN.

Young Men's Literary Society. Motto: "*Come up Higher.*" Organized March 7th, 1868; meets in Society's Hall, at 7 P. M. every Friday.

J. A. Allen, President.
J. L. Bullen, Secretary.

ADELPHIC.

Young Men's Literary Society; Motto: "*Animis opibusque parati,*" organized March 7th, 1868, chartered December 7th, 1872, meets in Society's Hall every Friday, at 7 P. M.

R. R. Conklin, President,
J. Weis, Secretary.

SCIENTIFIC ASSOCIATION.

Young Men's Literary Society. Motto: "Through Nature up to Nature's God." Organized February 28th, 1871; meets in Society's Hall every Friday at 7 o'clock P. M.

J. Sondericker, President.
J. R. Dresser, Secretary.

Y. M. C. A.

Room on second floor of Dormitory.

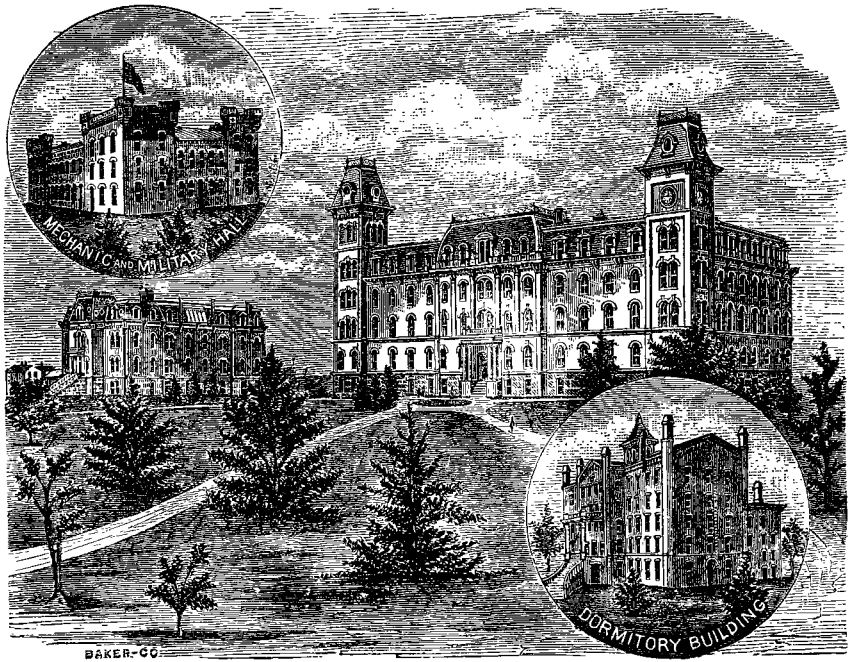
Devotional meetings Wednesdays 6:30 P. M., and Sundays 9 A. M. All Students are invited to attend.

I. I. U.,

TELEGRAPHIC ASSOCIATION.

Organized Jan. 9th 1874, for advancement in Telegraphy. Instruments now on line, 25. Central office open for practice all hours of the day.

F. Shlaudeman, President.
W. Bates, Secretary.
J. G. Allison, Treasurer.
C. F. Hafner, Inspector.



Illinois Industrial University.