

FOURTH ANNUAL CIRCULAR

OF THE

ILLINOIS

INDUSTRIAL UNIVERSITY,

URBANA, CHAMPAIGN COUNTY, ILLS.

1870-71.

Post-Office-CHAMPAIGN.

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NAME.	Post-Office.	County.	LERM ENDS.
Anderson, W. B	Mt. Vernon	Jefferson	1877.
Blackburn, Alexander	Macomb	. McDonough	1875.
Brayman, Mason	Quincy	. Adams	1873.
Bowen, G. S	······ Chicago	. Jook	1877.
Brown, A. M	Villa Ridge	Pulaski	1875.
Cobb, Emory	Kankakee	Kankakee	1873.
Cunningham, J. O	Urbana	. Cyampaign	1877.
Edwards, Samuel	La Moille	. Bureau.	1875.
. Galusha, O. B	Morris	. Grundy	1877.
Goltra, M. C	Jacksonville	Morgan	1873.
Greenleaf, L. L	Chicago	Cook	1877.
•Griggs, C. R	Urbana	Champaign	1873.
Harrington, R. R.	Pontiac	Livingston	1877
Lawrence, L. W	Belvidere	Boone	1877.
Mahan, Isaac S	······ Centralia	Marion	1875
Pearson, John D	Godfrey	Madison	1877
Pickard, J. L	······ Chicago	Cook	1875
Pickrell, J. H	······ Harristown	Macon	1877
Pullen, Burden	······ Centralia	Marion	1877
Scott, James R	······ Champaign	Champaign	1877
·Scroggs, J. W	······ Champaign	Champaign	1873
Slade, James P	Belleville	St Clair.	1875
Van Ösdel, J. M	······ Chicago	Cook	1873
Wagner, D. C	Shannon	Carroll	1877
Wright, Paul R	South Pass	Union	1875,

MEMBERS APPOINTED BY THE GOVERNOR AND SENATE.

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J. M. GREGORY,	E. COBB,
J. M. PEARSON,	J. O. CUNNINGHAM,
J. H. PICKRELL,	L. W. LAWRENCE,

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ALEXANDER THOMSON, C. E.,	H. K. VICKROY,
Foreman of Machine Shops,	Orchardist and Gardener.
THOMAS FRANKS,	E. L. LAWRENCE,
Florist,	Head Farmer.

CATALOGUE OF STUDENTS,

FOR THE YEAR 1870-71.

			Residence,			
NAMES.	Copres.) EAR.	POST-OFFICE.	County.		
Adams, William W	Mechanical	1	Urbana	Champaign		
Adams, Gearge C) [1	Fairmount	Vermillion		
Aldrich, Jashub W	Horticultural		Ti skilwa	Bureau		
Allen, Darwin	Mechanical	2	Hampshire	Kane		
Alvis, William W		1	Rural Retreat	Douglass		
Ashby, Charles W	1	2	Battle Creek	Michigan		
Atkinson, George R	Chemical	1	Paris	Edgar		
Baker, Ira O	Civ. Engineering	1	Mattoon	Coles		
Barnard, D. Elroy	Agricultural	2	Manteno	Kankakee		
Barrett, Benjamin	1	1	Champaign	Champaign		
Beasley, Joseph T			Champaign	Champaign		
Becbe, Nathaniel W	Civ. Engineering	1	Forreston	Ogle		
Bellangee, John L	Mechanical	1	Dover	Bureau		
Boda, Henry	Mechanical	1	Nau voo	Hancock		
Brooks, Samuel P		1	Lindon	Whiteside		
Brown, Dillon S			Geneva	DeKalb		
Bryan, John R	Agricultural	1	Xenia	Clay		
Bunce, Vincent P	Agricultural	2	Versailles	Brown		
Burtin, Louis T		1	Nauvoo	Hancoek		
Burton, Allen P	Agricultural	I.	Urbana	Champaign		
Burwash, Milo B	Agricultural	3	Champaign	Cuampaign		
Burwash, Thomas	Agricultural	2	Champaign	Unampaign		
Campbell, L. Frank		Ť	Sparta.	Kandolph		
Campbell, John P	Mochanical	1	Mc Lanesboro	Lamilton		
Cantrell, John E	Mech. & Mintary	2	Thurse 1	Logan		
Carroll, William E	4	1	Tuscola	Douglass		
Claukin, Eugene L	Architecture	1	Bonwhen	Dongloga		
Changier, John	Acoriantenus	1 0	Bourbon	Hopeoel-		
Chapman, Sunder S	Agricultural	4 T	Fireston	Handoak		
Chap Willie S	Agricultural	2	Chienro	Poole		
Clark Tot P	Agriculturel		Elvestor	Hancock		
Clandoum Carrier O	Militow	้า	Mousieson	Whitogido		
Cleveland Hamu	minuary	9	Nachvillo	Topposeoo		
Clevensor Datas I	· · ·	า	Honelov	Champaign		
Coffee Fowl W			Champaign	Champaign		
Conkey Anhort T	AunionItanal		Homor	Champaign		
Control Edward	Muchanical	ĩ	Richlan d	Sancemon		
Corington Magaellus F	breenanteau	3	Havono	Mason		
Columbia Thomas B		ين • ،	Champairm	Champaign		
Concondall Milton	1	,, i	Brushy Fork	Donglass		
Craver Jemes C	Chemical	ь э	Joneshoro	Union		
Crawley John J	Q., OH11041	ĩ	Tuscola	Douglass		
Croig Calvin		1	Liberty	Adams		
Cravne William II	Mechanical	- ¹	Urbana	Champaign		
Costs Henry L	Civ. Engineering	ĩ	Nunda	McHenry		
	arr manneting(1	1			

X (MF	Courses	¥=	Rest	RESIDENCE.			
	COURSE.	YEAR.	Post-Office.	COUNTY.			
Cussins, James S	Mech. & Military	1	Decatur	Macon			
Curtis, Herbert J	Mech. & Military	2	Warren	Joe Davies			
Davies, John J	Agricultural	3	Freeport	Stephenson			
Davis, Taylor	Chemical	2	Bourbon	Douglass			
Day James B	Agricultural	1	Corlinvillo	Macoupin			
Dean, Charles A	Agricultural.	2	Champaign.	Champaign			
Dillow, Daniel J		ī	Dongola	Union			
Dier, William A		1	Forreston	Ogle.			
Dowell, Wilson		2	Lexington	Mc Lean			
Dore, Clarence F	Architecture	1	Forreston	0gle			
Drawey Hanry N	Civ. Engineering	1	Nock Island	ROCK Is and			
Drewry, Ebenezer L.	on, Engineering	1	Mason	Effingham			
Drake, James F	Agricultural	ì	Belvidere	Boone			
Dunning, Russel O	Horticultural	ĩ	Jefferson	Cook			
Dunlap, Burley A	Civ. Engineering	1	Savoy	Champaign			
Dunlap, Murat M	Horticultural	1	Savoy	Champaign			
Dunlap, Earnest S	Horticultural	2	Champaign	Chompaign			
Dunlan Clermont D.	Horticultural		Norwood	Cook			
Dunlap, Warren	Civ. Engineering	ĩ	Keokuk Junct'n	Adams			
Dunayski, Frank A	Agricultural	ĩ	Dan zig.,	Germany			
Eaton, Herbert	Agricult'l & Mil.	3	Philo	Champaign			
Eaton, Ernest	Mechanical	3	Philo	Champaign			
Edmunds, James K	Mechanical	2	Sonora	Hancock			
Ellison Theodore S.	Agricultural	ĩ	Sparta Marina	Madigon			
Ells, William C	ingin antunut	î	Champaign	Champaign			
Enos, Charles W	Agricultural	j	Marine	Madison			
Estep, Haney C	Civ. Engineering	1	Rantoul	Champaign			
Evans, Jesse F	Agricultural	2	Flora	Clay			
Faulkner, Watson	niochankar	ĩ	Champaign	Chempsion			
Faulkner, James		î	Clement	Clinton			
Finger, Charles A	1	1	Marissa	St Clair			
Fisher, George D	Agricultural	2	Bement.	Piat t			
Folks Willis K	51111tar y	ن ٦	Chempoign	Bureau			
Foster, Charles W	Agricultural	2	Scott	Champai gu			
Gardner, Willis S		2	Champaign	Champaign			
Gabrialal, Gregory		l	Armenia	Asia Minor			
Graham, Charles P	CT	3	Champaign	Champaign			
Gregory, Samuel F	Unem & Multary	1	Sandiake	New York			
Gridley, George N	Agricultural	->	Holfday	Lake			
Goodspeed, James M		3	Urbana	Champaign			
Guthrie, Charles H		1	Mt Sterling	Brown			
Hadsall, John E		1	Riley.	McHenry			
Hall, Walter U	Agricultural	1 9	Sugar Creek	Vermillion			
Hamilton, Robert G	agricultural	1	Marissa	St. Clair			
Hatch, Miles F	Mechanical	š	Bliven's Mills	McHenry			
Hatch, Fred L	Agricultural	2	Bliven's Mills	McHenry			
Hays, Charles J.	Horticultural	2	Bridgeport	Lawrence			
Happeser Augustus I.	Cir. Engineering	1	Loda	Iroquois,			
Hemphill, William H.	Civ. Engineering	ì	Marissa	St Clair			
Herring, John H	Agricultural	2	Goshen	Indiana			
Hesse, Clarence K	Architecture	2	Champaign	Champai gn			
Hidy, Henry B	~	2	Davis	Stephenson			
Hall, Edgar L	Chem. & Mulitary	2	Watson	Effingham			
Holmes, Charles B.	on. Engineering	ĩ	Urban a	Champaign			
Holmes, John E		i I	Jordans Grove	Randolph			
Holton, Henry C	i	1	Indianola	Vermillion			
Hubbard, George W		2	Urbana	Champaign			
Hungerford, Everett M	mechanical	L T	Loda	froquois			
Ivers. John J.		2	Champaign.	Champaign			
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	(1		RESIDENCE,			
NAMR.	COURSE.	IFAR.	Post-Office.	COUNTY.		
Jeffers, Charles P	Chemical,	1	Lynden Palermo	Whiteside		
Joerg, Rudolph	Mechanical	9 1	Kettle Creek Pana	Pennsylvania		
Jones, John S	Military	Î.	Tuscola Edwardsville	Douglass Madison		
Jones, Alward F.	Mechanical	1	Monee Clay City	Will.		
Kenvedy, William J W	Agricultural	1	Clay City Danville	Clay		
Kirkpatrick, Marion F	Agricultural	2	Champaign Joliet	Champaign		
Kraft, George W	Mechanical	1	Smithston Rantoul	St. Clair		
Lefflar, John E	inteenanie	2	Batayia Sigel	Kane		
Lisk, Byron	Agricultural	2	Onarga Philo	Iroquois		
Lutkin George A	Civ. Engineering	1	Villa Ridge Richland	Pulaski		
Lynch, Edward	Civ. Eng. & Mil.	8	Wapella	De Witt		
Lyttle, George W	Mechanical	1	Champaign Batayin	Champaign		
Matthews, James W	Agricultural	8	Mason Freenort	Effingham		
Marsters, Hezekiah E	ing four tart and a set	1	Ranteul Mt Vernon	Champaign		
McKinley, William B	Agricultural .	2	Champaign	Champaign		
McDannell, Urillo S	Civ, Engineering	î	Rock Island	Rock Island		
Merrill, Warren	Agricultural	29	Astoria Homer	Fulton		
Miller, Charles W		1	Chicago Carlinville	Cook		
Mil'er, Robert W		î	Springfield	Sangamon		
Mignich, William.	Agricultural.	1	Vi la Ridge Clyde	Pulaski Whiteside		
Moore, Elvan F.	Mech. & Military	- 93 93	Tolono Lincoln	Champaigh Logan		
Morrow, Andrew T	Civ. Engineering	1	Pittsfield Tuscola	Pike Douglass		
Ness, Joseph	Agricultural.	1 2	Rossville	Vermillio n Indiana		
Ockerson, John A	Mg. Engineering Civ.Engineering	2 3	Elmwood Mahomet	Peoria Champalen		
Parker, Calvin E	Agricult'l & Mil. Agricultural	3	l'hilo Sonora	Champaign Hancock		
Patch, Emery	Mechanical	1 1	Janesville Lincoln	Wisconsin Logan		
Peadro, Benjamin F Peary, Edward E	Agricultural	1 1	Windsor Beaufort	Shelby North Carolina		
Philips, Parley A Pheenix, Samuei T.	Chemical Horticultural	2 1	Damascus Bloomington	Stephenson McLean		
Pickrell, William Pratt. Franklin C	A gricultural Military	$\frac{1}{2}$	Mechanicsburg Warren	Sangamon Joe Daviess		
Porterfield, E Newlan Prather, Frank	Mechanical Agricultural	2 1	Sydney Decatur	Champaign Macon		
Plather, Hamar S Priekatt Charles M		1	Urbana Kingwood	Champaigo McHenry		
Proudfit, Samuel M Rader, Adolphus L		1 3	McLeansboro Bristol	Hamilton Tennessee		
Rafferty, James N.,	Civ. Engineering	$\frac{1}{3}$	Vermillion Champaign	Edgar Champaigd		
Reiss, Willis A Reynolds, Stephen A	Civ. Engineering Military	3 8	Beilville Belvidere	St. Clair		
Reynolds, Henry S Rice, Walter B	Agricultural Horticultural	2 2	Urbana Champaign	Champaign Champaign		

			Residi	SNCE.
NAME.	COURSE	YEAR.	Post-Office.	COUNTY.
Pickenda Can D		1	Seneca	McHenry
Richards, Geo. B	Machanian	1	Blue Ridge	Piatt
Richard Thomas F	Militory	8	Springfield	Sangamon
Ricker N Clifford	Architocture	8	La Harne	Hancock
Rieger William V	Agrianituva	, ,	Beaufort	North Carolina
Riley Ozias	Agriculture	จั	Urbana	Champaign
Robbins H Edward.	Mechanical	2	Wenona	Marshall
Robbins, S. Volney	Mechanical	ĩ	Wenona	Marshall
Rotinson, Elna A.	Mechanical	1	Jacksonville,	Wisconsi n
Rolfe, Charles W		2	Montgomery	Kane
Rutherford, Cyrus		1	Oakland	Coles,
Salter, Rembrandt R	Militar y	1	Champaign	Champaign,
Satterlee, Frank W	Mechanical	2	Batavia	Kane
Satterlee, Lewis A	Mechanical	1	Batavia	Vormillio h
Short, Albert K	Unemical	1	The page of the pa	Champaign
Silver, Charles W	Agricultural		Trhana	Champaign
Singletony Charles 1	Agricultural	-) 1	Macomb	McDonough
Singletary, Unaries A	Acricultural	.,	Urbana	Champaign
Smith Tra W	Agricult'l & Mil	ī	Burlington	Kane
Smith Charles A	Mechanical	i	Mt. Vernon	Indiana
Soper. Hubelt	Agricultural	i	Rantoul	Champaign
Stayman, John M.		î	Champaign	Champai gn
Stevens, Harmon G.		1	Homer	Champaign
Stevens, Francis A	Agricultural	1	Newton	Jasper
Story, George	Civ, Engineering	1	Chicago	Cook
Stribling, Edgar N	-	1	Du Quoin	Perry
Swartz, Alexander C	Civ. Engineering	1	Fairvie w	Fulton
Swisher, Riley	Agricultural	3	Cossville	vermillion
Swyer, David E		2	Bellyine	St. Clair
Tackaberry, Elijah	Agricultural	2	Howiston	Macon
Talbot, Charles W	Agricult'i & Mil.	1	Bushville	Schuyler
Tate, Charles M	A	1	Decatur	Macon
Toople Tared	Militory		Elvin	Kane
Techie, valeu	addinearly	1	Vermillion	Edgar
Terry Theodore	Agricultural	i	Otter Creek	Jersey
Terrell James N.	Agricultural	ĩ	Bellville	St. Clair
Thompson, Alonzo O	Agricultural	3	Urbana	Champaign
Titus, William L	Mechanical	2	Kane	Green
Town, Henry L.	Agriculturai	2	Batavia	Kane
Towle, Irvin B	Civ. Engineering	2	Urbana	Champaign
Trowbridge, Silas	Mechanical	2	Decatur	Macon
Tyndale, Hector H.	Mechanical	1	Springueid	Miscouri
Walker, Edwin G	Mechanical	ž	Vienna	Tohnson
Warder, Walter	1	2	Champaign	Champaign
Wells David @	ĺ	1	Rural Retreat	Donglas
Wharton Isach N	Cir & Mo Env	3	Bement	Piatt.
Wharry Walter W	Chemical & Mil	1 1	Sycamore	De Kalb
White Wallace	Mechanical	î	010ey	Richland
White Alfred	ac on a literation	ī	Buckley	Iroquois
Whitcomb, Alonzo L	Chemical	2	Urbana	Champaign
Whitcomb, Alva H		1	;Urbana	Champaigu
Whitney, Albert J	1	2	Sydnev	Champaign
Whitney, Lewis C	1	1	Sydney	Champaign
Wilcox, Albert C		1	Afton	lowa,
Williams, Charles A		2	Peoria	Peoria
Williams, Louis E	Agricultural	1	Perry	Chempsign
Williams, James A		8	Ookland	Coles .
Winkler, Joseph	Mechanical		Woodstock	McHenry
Winn, George L.	Milles	1	Woodburn	Macoupin.
Wood, Keuben U	Minitary	1 3	Woodburn	Macoupin
Wooda Hannon O	1	. 1	Sterling	Whiteside
Wright Frank F	Ow Free & Mil	1	Arcola	Douglas
Veggel Ahrsham	Agricultural	<u>.</u>	Homer	Champaign
Young, Horace D	Civ. Engineering	ī	Gilman	Iroquois
			1	

			RESIDENCE.			
NAME.	COURSE,	YEAR.	Post-Office.	COUNTY.		
Baker, Ella S. Dhase, Ella Dheever, Alice. Coffeen, Sadie. Sanine, Frances. Detmers, Jennie H. M. Douglas, Sarah M. Held, Ella. Wilmore, Della M. Hoodwin, Frances E. Fregory, Helen B. Vers, Mary A. Cellegg, Fiora L. Segood, Anna. Potter. Adella F. Kemine, Mary	Chemic al		Champai gn Champai	Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign. Champaign.		
taymond, Jennie lea, Margaret A jummers, Charlotte Whitcomb, Abbie Whitcomb, Emma Whitcomb, Mary		1 1 1 1 1	Urbana Urbana Urbana Urbana Urbana Urbana	Champaign Sangamon Champaign. Champaign. Champaign.		

RECAPITULATION.

Students who have not yet selected their vocation, and are not therefore decided upon their course, as also all who are taking elective courses, are enumerated as "Unassigned." The students marked "Military" take the study of Military Science, besides their regular studies, whatever those may be.

tion industria and set	÷.
Agriculture and Horticulture	63
Mashanical	89
Atril Engineering	22
Civil Englacentag.	2
Civit and Mining Edgineering	4
Architectural Engineering	11
Chemical	26
Military	67
Unassigned	.01
	177
Total	54.4

Norg.-The figures in the "Year" column indicate, not the year in the courses, but the years of attendance, many of the students having entered with advanced standing.

HISTORY.

The Illinois Industrial University is both State and National, in its origin and relations. It was created by a grant from Congress, and its great leading aims were prescribed by a law of Congress. The State accepting the grant and its conditions, founded the University, and further endowed it with the large donations received from the County in which it is located.

The public movement which gave rise to this University, began a quarter of a century ago. Public meetings of the friends of industrial education were held in all parts of the State, and numerous petitions signed by thousands of the agriculturalists and other industrial classes, flooded the State Legislature. At length in 1857, the General Assembly adopted joint resolutions asking Congress to make grants of public lands to establish colleges for industrial education. After long discussions, Congress passed the necessary law in July, 1862, making the magnificent grant of public lands out of which has arisen that long list of Agricultural Colleges and Industrial Universities now scattered over the Continent.

Illinois, the first to ask, was among the first to accept the grant, and great public interest was immediately excited in the question of its organization and location. Princely donations, in some cases of half a million of dollars, were tendered by several counties to secure the location of the institution in their midst. In February, 1867, a law was passed fixing the location and defining the plan of the University, and, in May of the same year the Board of Trustees met at the University Building donated by Champaign County, and finally determined the location. During the year much of the scrip was sold or located, necessary alterations were made in the buildings, apparatus and library were purchased, a faculty partly selected, and preparations made for active work. The 2d day of March, 1868, the University was opened for students, and on the 11th of the same month, formal inauguration exercises were held. In 1869, the Legislature appropriated \$25,000 to the Agricultural Department for barns, tools, stock, etc., and \$20,000 to the Horticultural Department for green house, barns, drainage, trees, tools, &c., besides \$5,000 to Chemical Laboratory, and \$10,000 for Library and apparatus. The present Legislature has lately appropriated \$75,000 to begin the erection of a main building which is to cost \$150,000; and \$25,000 for a Mechanical Building and machinery, to include a large Drill Hall for the Military Department. Plans have been adopted and the erection of these buildings is to begin at once. The new Mechanical Building is to be ready for use at the opening of the Fall Term, and the walls of the main building are to be erected this year.

The University began in 1868 with seventy-five students. The number has rapidly increased, till now its catalogue shows a total number of two hundred and seventy-seven in attendance during the year closing June 7, 1872. As fast as required, the several Departments have been organized, till at length all the great industrial classes are represented, including Agriculturists, Mechanics, Engineers, Miners, Architects, Chemists, Merchants and Publishers, and each class may find here the instructions necessary to the best understanding and performance of its work.

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

LOCATION.

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

UNIVERSITY GROUNDS AND FARMS.

The lands occupied by the University embrace about 623 acres divided as follows:

1. The Campus, about 13 acres, including ornamental grounds and a Military Parade ground.

2. The Horticultural Grounds, about 130 acres, embracing gardens, orchards, nurseries, arboretum and forest plantations.

3. Experimental Farm, 70 acres, including the experimental plats and fields.

4. The Stock Farm, 410 acres.

The University owns another farm near Urbana, designed to be sold.

The experimental apple orchard has over 3,000 trees of nearly 1,400 varieties. The pear orchard has, already planted or growing in nursery, over 400 varieties of pears. The other fruit plantations embrace a large number of varieties of various fruit trees and small fruits.

The forest plantations already include 20 acres of timber trees planted in rows, and designed to illustrate artificial forest culture.

BUILDINGS.

The old University Building now occupied partly by class rooms, library and laboratory, and partly with private rooms for students, is of brick, 125 feet in length and five stories in height, with a wing of 40 feet by 80 feet, four stories in height. This building was donated by Champaign County.



The new University Building, of which the above is a cut, is to be 214 feet in length, with wings extending back 124 feet. It is three stories beside basement and Mansard roof. It is designed wholly for public use, and will contain a large public hall for chapel and general exercises, large drawing rooms and thirty class and lecture rooms, sufficient for the instruction of 1,000 or 1,200 students. In one wing, to be made fire-proof, will be provided a spacious library and reading hall, and large and commodious rooms for museums of Natural History and the useful arts. Several large rooms for literary societies will also be provided in the Mansard story. The building is surmounted by companile towers for clock and bells.



The new Mechanical Building and Drill Hall is to be built this summer and to be ready for use in September. It will be of brick, 128 feet in length by 80 feet in width, two stories in height, with towers three stories in height, as shown in above perspective view. It will contain a boiler and forge room, a machine shop, furnished with steam engine. lathes, and other machinery; pattern and finishing shop, and shops for carpentery, cabinet work, wood working machinery, paint rooms, printing rooms, draughting rooms, and rooms for models, finishing, &c.

In the second story will be a large drill hall, 120 feet by 60 feet, sufficient for the evolutions of a company of infantry, or a section of a battery of field artillery. On the ground floor of one of the towers will be an armorer's shop, a band room, officer's rooms and a military model room.



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

The Veterinary Stables and operating rooms are to occupy the building heretofore used as shops. It is provided with a good yard and sheds, and will be fitted up for practical instruction in the care and treatment of sick animals during the winter clinic. The University has three barns belonging to the stock and experimental farms and gardens, and three dwelling houses for the superintendents

PROPERTY AND FUNDS.

Besides the lands and buildings already described, which are with furniture, library, &c., valued at \$216,000, the University owns 25,000 acres of well selected wild lands in Minnesota and Nebraska. It has also endowment funds, invested in State and County bonds, amounting to \$364,000, besides other property and avails valued at \$50,000.

LIBRARY,

The Library which has been carefully selected to aid the scientific studies required in the several practical courses, includes now about 5,000 volumes, and an appropriation of \$10,000 has just been made by the General Assembly for its increase. The large Library Hall is fitted up as a reading room, and richly provided with American, English, French and German papers and periodicals, embracing the most important scientific and art publications, monthlies, quarterlies, &c. The reading room, well warmed and lighted, is open every day and evening, and is constantly resorted to by the faculty and students. The following are some of the periodicals regularly received by the library.

AGRICULTURAL. HORTICULTURAL. Agronomische Zeitung, (German.) Gardener's Monthly. Horticulturist. American Agriculturist. American Bee-keeper's Journal. Southern Gardener. Bonham's Rural Messenger. Tilton's Journal of Horticulture. California Farmer. MECHANICAL. Carolina Farmer. American Builder. Central Union Agriculturist. Architectural Review. Chemische Ackersman, (German.) Manufacturer and Builder. Colman's Rural World. Scientific American. Cultivator and Country Gentleman. Van Nostrand's Eclectic Engineers Farmer's Union. Magazine. The Workshop. Fruit Grower. CHEMISTRY AND NATURAL SCIENCE. Hearth and Home. Journal fur Landwirtschaft, (German.) American Naturalist. American Journal of Microscopy. Journal of Agriculture. Annalen der Physik, (German.) Kansas Farmer. Landwirtschaft Versuchstation, (Ger-Comptes Rendues, (French.) Zeitschrift Annalen Chemie, (German.) man.) Massachusetts Ploughman. LITERARY. Michigan Farmer. Blackwood's Magazine National Live Stock Journal. Edinburg Review. North Western Farmer. London Quarterly. North British Review. Ohio Farmer. Prairie Farmer. Westminster Review. Revue des Deux Mondes, (French.) Rural Home Visitor. Rural New Yorker. The Nation. Southern Cultivator. NEWS. Southern Planter and Farmer. Centralia Sentinel. Champaign County Gazette. Western Farmer. Champaign Union. Western Rural. Willamette Farmer. Chicago Evening Post. Illinois Democrat. EDUCATIONAL. Illinois Statts Zeitung, (German.) Michigan Teacher.

AIMS OF THE UNIVERSITY.

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

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

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

It aims to make the *fields of learning free to all*, and *all free*, that whoever comes may learn what he wills.

It aims also to make learning practical. It would avoid the endless, and often useless study of books—of countless words and theorizings—and unite theory and practice, making books subservient to the practical knowledge of things. In its methods it employs the hand and eye, as well as the brain, of the student to the fullest extent, and seeks to fit him to act as well as to think.

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

1. Scientific Agriculture, embracing Soil Culture in all its varieties, and for all crops, Animal Husbandry, Stock breeding, feeding, etc., Veterinary Science, Agricultural Chemistry, Rural Engineering and Drainage of lands.

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

3. Mechanical Engineering. Theory and practice in construction of machinery, pattern making and working in iron and brass. Study of the Motors, Strength of Materials, and Mechanical Drawing.

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

5. Mining Engineering, embracing Mine Surveys, Sinking and Tubing of Shafts, driving of Adits, and methods of working; Assaying, Treatment of Ores, and Metallurgy.

6. English Language and Diterature. A thorough and extended course in higher Grammar, Rhetoric, Criticism and Essay Writing, to fit students for editorial or other literary work, or teaching.

7. Analytical Chemistry. Chemistry applied to the Arts; Laboratory practice with reagents, blow-pipe, and spectroscope. A full Course, to fit students to become chemists, druggists and pharmaceutists.

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

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

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

11. Mental and Moral Philosophy, and Logic.

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

13. Commercial Science, Book Keeping, Commercial Law, &c.

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

15. Natural History, Botany, Zoology, Geology, Physical Geography.

FREEDOM IN CHOICE OF STUDIES.

The University being designed, not for children, but for young men and women who may claim to know something of their own wants, powers and tastes, entire freedom in choice of studies, is allowed to each student, subject only to such necessary conditions as the progress of the classes, or the convenience in teaching, requires. It is not thought useful or right to urge every student without regard to his capacity, taste or practical wants, to take entire some lengthened curriculum, or "course of studies." Liberty every where has its risks and responsibilities as well as its benefits,---in schools as well as in society; but it is yet to be proved that compulsory scholarship is necessarily better, riper and more certain than that which is free and self-inspired. Each student is exhorted to weigh carefully his own powers and needs, to counsel freely with his teachers, to choose with serious and independent consideration. the branches he may need to fit him for his chosen career, and then to pursue them with earnestness and persevereance, without faltering or fickleness.

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

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

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

It is recognized that students will often need advice in the selection of studies and in the arrangement of a proper course. To meet this need the Faculty have carefully arranged several courses of studies which may be wisely followed by those who have no special reasons for diverging from them.

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

DEPARTMENTS AND COLLEGES.

Heretofore the courses of instruction have been exhibited only under the headings of the several Departments. It is found desirable, in order to afford a clearer view of the actual work of the University, to add the subdivisions into Colleges. This implies no change in the character or plan of the University, but only the adoption of a usage now common in the American universities, to exhibit more impressively the several courses of studies.

A Department embraces a single branch of study, taught usually by a single professor and his assistants, as the Department of English Literature, or of Mathematics.

A College includes a combined course, made up of the several branches needful for some one calling or profession. Thus in the older universities there were Medical Colleges and Law Schools, and in the new Industrial or Polytechnic universities, are found Colleges of Agriculture, of Engi. neering, of Mechanical Science, etc.

Under the following several Departments will be found an exhibit of the nature and extent of the instruction afforded in each of the several branches of learning taught in the University. The student may learn from this the character of any branch and the time necessary to complete it.

Under the head of the several Colleges he will find marked out the course of studies needful to fit him for his chosen profession or pursuit. These studies are the same as those shown under the heads of the Departments, but each College embraces studies from several departments, taken not in full, but to such extent as the practical aim of the college course may require.

It is expected that each student will enroll himself in one of the colleges, though he may vary from the course of studies prescribed.

The courses of studies, both in the Departments and Colleges, are subdivided according to terms and years to meet the necessities of class teaching. The student is at liberty to take as many or as few of these terms of any particular study as his needs may require, or his time will allow, but the full course marked out will be found necessary to a complete mastery of the subject.

DEPARTMENTS OF STUDY.

AGRICULTURE

This Department embraces a thorough course of instruction in the theory and practice of land culture and cropping in its several varieties; Animal Husbandry, including stock and dairy farming; Sheep and Swine husbandry and the principles of stock breeding. It includes also the principles of the amelioration of soil, veterinary science, and the general management of farming estates. For a statement of the full course of sciences involved in Agriculture see the article headed "College of Agriculture."

The following presents a full course in this department :

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FIRST YEAR.—The Farm.—Its measurements and mapping; subdivisions—meadows, pastures, orchards, woodlands, gardens, etc. Fences, hedges, farm buildings. Soil—classification and mechanical treatment of soils, plowing, etc: Drainage. *Plant Culture*—structure and physiology of plants; classes of the useful plants, their characteristics, varieties, and values. Wheat culture, maize culture, grass culture, root culture.

SECOND YEAR—The Farm.—Chemical elements and chemical treatment of soils. Fertilizers—their composition, manufacture, preservation and application. Climate; influence of light, heat and electricity on soils and vegetable growth. Farm implements—principles of structure and use. Road-making. Insects injurious to vegetation. Animal husbandry—breeds and varieties of neat cattle, horses, sheep and swine. Principles of breeding, rearing, training, fattening, etc. Chemical composition of food, and preparation of the several varieties. Sheep husbandry. Poultry. Bees. Veterinary surgery and medicine.

THIRD YEAR—Agricultural Economy.—Relation of Agriculture to the other industries and to Commerce. The several branches of Agriculture. Agricultural book-keeping—the farm-book, herd-book, etc. Rural Law.—Of tenures and conveyances of land, of high-ways, of cattle, of fences, of noxious weeds, etc. Laying out of large farming estates. Rural architecture and engineering. Foreign and ancient agriculture. History and literature of agriculture.

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

HORTICULTURE.

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

FIRST YEAR—First Term.—Composition and classes of soils, with reference to their uses; fertilizers, vegetable physiology, and laws of growth of plants. Second Term.—Chemical treatment of soils; manufacture and application of manures; laying out and mapping of grounds. Third Term.—Mechanical treatment of soils. Drainage. Insects injurious to vegetation.

SECOND YEAR—First Term.—Fruit growing. Planting and treatment of orchards. Forest culture. Second Term.—Management of Nurseries. Propagating, grafting, etc. Plans of orchards, gardens, etc. Records. Third Term.—Management of market and vegetable gardens. Small fruit culture.

THIRD YEAN—First Term.—Construction and care of hot and green houses. Propagating house. Conservatories. Floriculture. Second Term.—Garden architecture. Ornamentation. Green house work. Third Term.—Landscape gardening; Ancient, and Foreign Horticulture.

MECHANICAL SCIENCE AND ENGINEERING.

The studies of this Department are intended to qualify young men for the designing, construction or superintendance of all kinds of machinery. It will embrace a thorough course of instruction in the principles of mechanical philosophy, of mechanical devices and the parts of machines, of pattern making, finishing and mechanical proportion, and of mechanical designing and drawing.

A very important element of mechanical training, too often overlooked, is that of shop practice. Many of the schools of mechanical engineering have met with but partial success from the neglect of this important element of instruction. Here practical instruction goes hand in hand with the study of theory, not for the purpose of teaching mere mechanic art, which can be learned in any of the thousand shops of the country; but to give a practical character and value to the instruction, and to teach more effectually the work of the mechanical engineer.

FIRST YEAR---First Term. Drawing. The use of Draughting Instruments by the student in delineating various objects placed before him. Principles of Projection and Isometrical Drawing. Application of water colors in Finishing drawings by Tinting and Graining. Second Term. Descriptive Geometry. Generation of lines, and surfaces of single and double curvature; Graphical solution of various problems by the theory of Projections; Construction of Tin and Sheet Iron workers' patterns.

SECOND YEAR .--- First Term, Designing and Drawing. Practice in making working drawings of Original Designs. Designing of Machines intended for specific purposes, the parts shaped, proportioned and arranged by the student. Second Term. Shades, Shadows and Perspective. Principles of Light and Shade ; Use of Water Colors in giving actual external appearance. Projection of Shadows, representing objects as shown in direct light. Finished and Colored Perspectives or Pictures. Practical Mechanics. Shop practice in constructing Models or Machines from working drawings of the student's own design ; Making Patterns for moulder's use; Moulding and casting brass and other metals; Bench work, filing. Third Term. Practical Mechanics continued. Shop practice in constructing machines and models. Study of cutting tools, such as Drills, Counterbores, Reamers, Turning Cutters or Tools, Revolving or Milling Cutters, Taps, Dies, Chasers Knerls, Dial Plates for Gear Cutters, etc.

THIRD YEAR. First Term. Cinematics, or Comparison of Motion. Relative motion of points in any system of connected lines or pieces; motion, considered independent of force; velocity ratio. Principles of Mechanism. Cinematics applied to the investigation of the motion of different elementary parts of machines, such as friction wheels; curves in rolling contact; cams and curves in sliding contact; correct working gear teeth; gearing chains; escapements; link work; cylindrical, conical and double screws. Second Term. Analytical Mechanics. Equilibrium and resultant of forces; principle of moments and of virtual velocities; determination of "Center of Gravity"; support of bodies on inclined planes; friction considered in connection with motion of bodies upon surfaces; relation of force, time and space when bodies are projected in the air. Motion of rotating and vibrating masses. *Physics.* Properties of matter; liquids and gases; laws of falling bodies; Atwood's Machine; weight in different latitudes; molecular forces; elasticity and compressibility; theory of undulations and vibrations; musical instruments; light; solar spectrum and mode of ascertaining the composition of the Sun, stars and nebulæ. Correction of the aberration of lenses for microscopes, telescopes and other optical instruments. *Third Term. Analytical Mechanics continued.* Motion of material points as constrained to move in given paths; amount and center of hydrostatic pressure upon surfaces. *Discriptive Astronomy* Relative size and position of the Earth as compared with other heavenly bodies, and its movement among them; relative mass and density of the different bodies of the solar system; parallax aberration and velocity of light; precession nutation; physical constitution of the Sun, planets, comets, stars, nebulæ, etc.

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

FOURTH YEAR---First Term. Hydraulics, Pneumatics and Thermodynamics. Flow of Liquids and Gases through orifices, weirs, pipes, and channels. Distribution of water and gas in cities. Machines for raising water. Effect upon temperature by sudden changes in the volume of a gas, as when expanding in engine cylinders, or in compressing air for motor purposes. Strength of Materials. Resistance of Beams, Pillars, etc., to flexure and rupture Uurve of Flexure. Maximum Deflection. Strength of Trusses. Second Term. Prime Movers. Work developed by Water-Wheels, Wind-Wheels, Steam, Hot Air and Electric Engines, relative economy, and efficiency. Drawings. Complete Drawings of Machinery; plans, elevations, sections and details, the same finished with line shading and water colors. Third Term. Mill Work and Machinery. Heavy Machinery and its Foundations, for Mills and Factories. Manufacturer's machinery, engineer's machinery, etc. Drawing. Designing of Machinery, drawings and estimates.

CIVIL ENGINEERING.

The studies of this Department extend through four years. Those of the first three will prepare a student for undertaking many engineering operations, such as the building of railroads, canals, embankments etc. The fourth year is intended for those who wish to fit themselves for the higher engineering constructions, such as the building of arches, trussed bridges, and supporting frames of all kinds.

FIRST YEAR.—First Term.—Projection drawing. [See Mechanical Department.] Second Term.—Discriptive Geometry. Representation and discussion of lines. surfaces. angles. etc., by their projections; Graphical solution of problems.

SECOND YEAR.—First Term.—Surveying. Chain, compass and transit instruments applied to land surveying; Laying out, parting off and dividing up land; running perpendiculars and parallels; measuring inaccessible distances and angles; method of survey of the public lands of the United States. Leveling; measuring the difference of height between two or more points. Maps and plats of surveys. Second Term.—Shades, shadows and perspective. [See Mechanical Department]. Topographical surveying and drawing. Surveys made with the transit and leveling instruments in the ordinary way, also by the more approved modern methods as adopted upon the government surveys of the United States, with the stadia, for the determination of heights above a datum plane of different points; Location of contour lines passing through points of equal height; Field sketching, etc.

THIRD YEAR.—First Term.—Roads and Railroads. Preliminary surveys and final location of ideal roads by the actual use of engineer's instruments in the field; laying out on the ground of circular and parabolic railroad curves, turnouts, crossings, etc.; Elevation of the outer rail; cuttings and embankments; plans, profiles. sections, etc. Second Term. Analytical Mechanics and Physics. [See Mechanical Department.] Third Term.—Analytical Mechanics and Physics continued. [See Mechanical Department.] Also, three year students: Mahan's Civil Engineering. Building materials; results of experimental researches on strength of materials; masonry; framing; foundations; embankment walls; canal locks; sea-coast improvements.

FOURTH YEAR.—First Term.—Strength of Materials. Tensile compressive and transverse strength and elasticity of steel, iron, wood and stone. when in the form of beams, pillars, etc. Hydraulics. Flow of liquids through orifices, weirs, pipes, canals, rivers, and the distribution of water and gas in cities. Practical Astronomy. Use of the sextant, transit, equatorial and zenith instruments in the determination of latitude and longitude, by the method of equal altitudes; circum-meridian altitudes; meridian transits, and any altitude of a star or the Sun. Second Term. Stability of Frames. Derivation of formulæ for the strength and stability of the various members of trussed frames of all kinds, such as trussed bridges and roofs; steel iron, and stone arches; stability of a wall sustaining a building. roof, pressure of water in dams, or pressure of earth in embankments. Construction Drawing. Drawing of existing engineering constructions, with due regard to the most approved methods of uniting materials in structures. Third Term. Stone Cutting. Application of the theory of descriptive geometry and graphics to the determination of the dimensions and form of stone required in buildings; plain, groined, cloistered, skew, and other arches; lining for tunnels, etc. Determination of the figure of the Earth; methods of con-Geodesy. ducting extended surveys of the Earth's surface; ordinary methods of measuring Base Lines; method by the standard compensating rods of the United States Coast and Lake Surveys; running of standard meridians and parallels for Government Land Surveys, etc. Drawing. Finished drawings of bridges and other structures.

MINING.

This department embraces two branches of studies: 1st. Engineering Operations; including mine surveys, the opening and working of mines, all mining constructions, etc., taught at present in the College of Engineering. 2d. The subjects of Mineralogy, Metallurgy, Assaying, treatment of ores, Smelting, etc., as taught in the College of Chemistry. The course in Engineering and in Metallurgy will be found under the head of those two colleges.

ENGLISH LANGUAGE AND LITERATURE.

In the arrangement of the studies in this department, the endeavor has been to present so thorough and extended a drill in grammatical and philological study, and in the authors and history of our language, as to afford the advantages, so far as may be, of the ordinary study of Latin and Greek.

The course is arranged to extend through three years, but it may be shortened according to the ability or needs of the student.

Instruction will be given by text books and lectures; and constant practice in essay writing, forensics, presentation of plans and criticisms, will be required. Public declamations, original or selected, and original essays, are required of every student at least twice a term, during his entire connection with the University.

FIRST YEAR.—*First Term.*—Punctuation; use of capitals; sources of the English Language; principles of composition and essay writing *Second Term.*—Primary rhetoric; advanced grammar, philological and grammatical analysis of modern authors. *Third Term.*—Advanced grammar; philological and grammatical analysis of Milton and other authors; history of their times and contemporaries.

SECOND YEAR.—First Term.—Grammatical and philological analysis of Shakespeare and early dramatists; history of the times and contemporaries of Shakespeare. Second Term.—Grammatical and philological analysis of Spenser. Gower, Chaucer, etc., and history of their times. Third Term.—History of English Literature, essays and criticisms.

THIRD, YEAR.—*First Term.*—History of English and American Literature, essays and criticisms. *Second Term.*—Rhetoric proper; invention; plans, etc. *Third Term.*—Elements of criticism; methods of philological study, etc.

GERMAN LANGUAGE AND LITERATURE.

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

FIRST YEAR.—First Term.—Worman's Complete German Etymology. to lesson 28. Second Term.—Etymology completed; Conversational Reader; German Echo commenced. Third Term.—Syntax; Reader completed.

SECOND YEAR.—*First Term.*—Review of Etymology; Classic Reader. *Necond Term.*—Review of Syntax; Schiller's William Tell; Gæthe's Iphigenia. *Third Term.*—Lectures on the German Language; coversation and composition; Schiller's Jungfrau von Orleans; reading of German papers through second and third terms.

Books for reference—Grimm's Deutsche Sprachlehre; Adler's Dictionary.

FRENCH LANGUAGE AND LITERATURE.

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

FIRST YEAR. First Term Etymology. Oral exercises in French pronunciation; written exercises in translating English into French. Second Term. Etymology. Select readings; conversazioni weekly. Third Term. Syntax. Translating Fiench composition; conversazioni, weekly.

SECOND YEAR. First Term. Review of Grammar; classic French literature; conversazioni, weekly. Second Term. Modern French Literature, novels, comedies, etc.; conversazioni, weekly; composition. Third Term. Modern French Literature continued; history of French Literature; written criticisms of French authors by the class weekly.

LATIN LANGUAGE AND LITERATURE.

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

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

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

GREEK LANGUAGE AND LITERATURE.

This course will resemble that in the Department of Latin.

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

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

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

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

CHEMISTRY.

The full course in this Department will occupy four years, and is designed to make students at home in the applications of chemistry to agriculture, and the arts and manufactures; in a word, to make them thorough chemists.

FIRST YEAR. First Term. Inorganic Chemistry and Chemical Physics. Second Term.—Organic Chemistry. Third Term.—Qualitative Analysis —detection of the alkalies, the alkaline earths, the earths, the metals, the mineral acids and the organic acids. Use of the blow-pipe and the spectroscope. Crystallography and Descriptive Mineralogy. Instructions on the subject will be given by lectures, and the students will have practice in determining minerals.

SECOND YEAR—First Term.—Qualitative Analysis—a series of substances for practice in the detection and separation of the elements. Practice in mineralogy continued. Second Term.—Quantitative Analysis. Salts, minerals, ores, alloys, furnace products, etc. Third Term.— Quantitative analysis of soils, manures, ashes of plants, mineral waters

THIRD YEAR. First Term. Quantitative analysis continued; assaying; volumetric analysis. Second Term. Organic analysis. Detection and separation of organic acids and bases, and other organic compounds.

Third Term. Quantitative Organic analysis: 1st, of compounds containing carbon and hydrogen; 2d, of compounds containing carbon, hydrogen and oxygen; 3d, estimation of nitrogen, sulphur, chlorine, bromine and iodine in organic compounds.

FOURTH YEAR. First Term. Preparation of chemicals. Second Term. Chemistry applied to the arts of dyeing, bleaching, calico printing, electrotyping and photographing. Third Term. Lectures on the manufacture of glass and porcelain, the smelting of ores; heating and illumination, &c.

ARCHITECTURE.

This Department is for the present appended to the College of Engineering. Its studies embrace many of those belonging to the course in Civil Engineering. They include, also, Architectural drawing, the principles and styles of Architecture, the history of Architecture, and plans and estimates for buildings of all kinds.

NATURAL HISTORY.

FIRST YFAR. Second Term. Structural and Physiological Botany. Form, arrangement, structure, morphology, growth and office of the leaves and flowers; forms, growth and office of the stem and root; cellular tissue, cell development, cell contents and cell transformations; structure, parts and uses of seeds and fruits, and the food, nutrition and reproduction of plants—the whole illustrated by living and dried specimens and drawings. Also, enough of Systematic Botany to enable the general student to analyze the flowering plants. Third Term Botany in lectures: 1st, the natural orders, their extent, properties, uses and distribution; 2d, use of the microscope. Vegetable Physiology continued. Classification, distribution and reproduction of cryptogamous plants.

SECOND YEAR. First Term. Systematic Botany. Practical examination and collection of the flowering and flowerless plants from all parts of the State, as far as practicable. Botanical excursions and surveys.

ZOOLOGY. Principles of Zoology. Development, structure, classdistribution of animals. Second Term. Systemification and 1st, natural orders, families, etc; 2d, atic Zoology. in lectures : Embryology and peculiar modes of reproduction; alternate generation; Comparative Anatomy as applied to classification. Collection and preservation of specimens, and Natural History of domestic animals. ThirdEntomology. Classification of insects; habits of those injurious Term to vegetation, with means of checking their ravages. Habits of beneficial species.

THIRD YEAR. First Term. General Physiology. Comparative Anatomy. GEOLOGY Second Term Principles of Geology. Third Term. Lithological Geology. Sources and materials of mineral wealth; building stones; mineral veins. Paleontology.

FOURTH YEAR. First Term. Historical Geology. 'Second Term. Physical Geography and Meteorology. Third Term. Special Geology of Illinois. Method of conducting surveys. Practical excursions.

PURE MATHEMATICS.

The studies of this Department extend through eight terms. Those of the first six are, it is thought, what the general student will require; the seventh is considered necessary, and the eighth desirable for the engineer.

FIRST YEAR. First Term. Geometry, Davies' Legendre, i-v books; elementary principles, ratios and proportions, the circle and the measurement of angles, measurement and properties of polygons, area of the circle. Second Term. Geometry, vi-ix books; planes; polyedral angles; the prism, pyramid, cylinder, cone and sphere, the properties and measurement of; area of a spherical polygon, of a lune; measurement of spherical angles. Algebra, Davies' Bourdon, chapters vi and vii; formation of powers; binomial theorem; extraction of roots of any degree; radicals of any degree; theory of exponents. Third Term. Higher Algebra; series, properties and summation of; binomial theorem, general demonstration of; exponential quantities; logarithms; general theory of equations.

SECOND YEAR. First Term. Trigonometry, plane, spherical and analytical; formation and use of tables; solution of right angled and oblique angled triangles; relations between the circular functions of any Second Term. Analytical Geometry; geometrical construction; arc. point and right line on a plane; properties and measurement of the circle. ellipse, parabola and hyperbola; point, right line, plane and surface of revolution in space. Third Term. Differential Calculus; differentials of algebraic functions of a single variable; Maclauren's Theorem; Taylor's Theorem ; differentials of transcendental functions ; maxima and minima of functions of a single variable; equations of tangent and normal; expressions for sub-tangent, sub-normal, etc.; differentials of an arc, plane area, surface and volume of revolution. Integral Calculus; integration of monomials, of particular binomials, of rational fractions; applications in the rectification and quadrature of curves, in the quadrature of surfaces of revolution, and in the cubature of volumes of revolution.

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

HISTORY AND SOCIAL SCIENCE.

The instruction in this Department will be given partly with text books, but chiefly by lectures, with systematic readings of specified authors, and daily examinations on the same. The study of historical

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geography will keep even pace with the history studied, and the chronology will be rendered as clear and distinct as possible. Written exercises on chronology, and essays in historical criticism, will constitute prominent features of the course.

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

SECOND YEAR.—*First Term.*—Ancient history of Greece and Rome, with notices of other ancient nations; ancient geography. Five lessons (or lectures) a week. *Second Term.*—Mediaeval history. *Third Term.* —Modern history—general European history; European geography. Five lessons (or lectures) a week. Political economy.

THIRD YEAR.—First Term.—Constitutional history of England, and of the United States. Two lectures a week. Second Term.—History of Civilization; analysis of historical forces and phenomena; notices of the history of the arts and of the inductive sciences. Third Term.—Political philosophy; constitutional and international law.

COMMERCIAL.

The course in this department will occupy one year, the first term of which will be occupied in teaching the principles of book-keeping in general; the second, their application to special lines of business, general business forms and papers, and the third, to the higher operations of a counting house, commercial law and political economy. Students who wish to prepare for a commercial career, and also acquire a general education, may extend this course through two or more years, by taking such collateral studies as their contemplated vocation may render desirable.

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

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

Second \overline{Term} .—Partnership accounts; commission and shipping; farm books; business forms and papers; notes, drafts, exchange, endorsements; bills of lading; accounts current; account sales; inventories, invoices, etc. Commercial correspondence.

MILITARY SCIENCE AND TACTICS.

This Department is organized under the provision of the Acts of the National and State Governments, requiring the instruction in Military Tactics.

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

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

1. Practical instruction in Military Tactics (for the present, confined to the infantry arm), to all able-bodied students of the University, comprising the following branches :

Manual of arms; squad and company dill; bayonet exercise; skirmish drill; battalion drill; guard and picket duty; evolutions of the brigade; target practice.

The exercises are confined to three hours' drill and instruction per week.

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

The instruction, theoretical and practical, is to occupy not to exceed five hours each week, and is so arranged as not to interfere with any courses of study, and make it possible for the member of any other course to engage in it as an optional study.

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

As collateral studies for such as make this course a specialty, are recommended Mathematics and Surveying, English and Modern Languages, Drawing,, one term of Chemistry, History and Political Economy.

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

SECOND YEAR.—First Term.—Military administration; reports and returns; army regulations and military laws; sword fencing. Second Term.—Outpost and picket duty (Mahon's); sword fencing. Third Term.—Military fortification, field and permanent; military bridges and roads; target practice.

THIRD YEAR.—First Term.—Artillery practice; field artillery; drill at the cannon. Second Term.—Military Engineering; Cavalry tactics, theoretical. Third Term.—Art of War (Jomini); Military History and statistics; organization and administration of armies.

There is formed now a battalion of four companies, officered by the students of the military class, and battalion drill and skirmish drill were practiced last term.

PHILOSOPHY AND LOGIC.

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

First Term.—Mental Philosophy. Analysis and classification of mental phenomena. Theories of perception; Imagination; Memory; Judgment; Reason; Intuition. The æsthetic. Phenomena of dreaming, clairvoyance, and insanity. Doctrines of the absolute and the unconditioned. The philosophy of education.

Second Term.—Moral Philosophy (three lectures a week). Theory of conscience; nature of moral obligation; moral feeling; the Right; the

Good. Practical ethics; Duties. Formation of character. Logic formal and inductive, (two lectures a week, alternating with Moral Philosophy).

Third Term.—History of Philosophy. Ancient schools of philosophy; Scholasticism; Modern schools of philosophy; Influence of philosophy on the progress of civilization, and on modern sciences and arts. Inductive logic.

COLLEGE OF AGRICULTURE.

FACULTY.

THE REGENT, Professor of Political Economy.

DR. MANLY MILES, Professor of Agriculture

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

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

EDWARD SNYDER, Professor of Agricultural Book-Keeping.

S. W ROBINSON, Professor of Agricultural Machinery.

S. W. SHATTUCK, Professor of Agricultural Engineering.

D. C. TAFT. Professor, pro tempore, of Geology of Soils.

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

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

The College of Agriculture has two Divisions, which, for convenience, are styled Schools.

1. The School of Agriculture Proper.

2. The School of Horticulture and Fruit Growing.

1.---THE SCHOOL OF AGRICULTURE.

The aim of this school is to educate scientific agriculturists. The frequency with which this aim is misunderstood by the community at large. demands that it shall be carefully explained. Many, looking upon agriculture as consisting merely in the manual work of ploughing, planting, cultivating and harvesting, and in the care of stock, justly ridicule the idea of teaching these arts in a college. The practical farmer who has spent his life in farm labors, laughs at the notion of sending his son to learn these from a set of scientific professors. But all of this implies a gross misunderstanding of the real object of agricultural science. -It is not to teach how to plough, but the reason for ploughing at all,-to teach the composition and nature of soil, the philosophy of ploughing, of manures, and the adaptations of the different soils to different crops and cultures. It is not to teach how to feed; but to show the composition, action and value of the several kinds of food, and the laws of feeding, fattening, and healthful growth. In short it is the aim of the true Agricultural College to enable the farmer to understand thoroughly and profoundly, all that men can know about soil and seed, plants and animals, and the influences of light. heat and moisture, on his fields, his crops, and his stock; so that he may both understand the reason of the processes he uses, and may intelligently work for the improvement of those processes. Not "book farming," but a knowledge of the real nature of all true farming-of the great natural laws of the farm and of all its phenomena-this is the true aim of agricultural education. And when it is recollected that agriculture involves the principles of a larger number

of sciences than any other human employment or profession, it will not be regarded as an unfit end of a sound collegiate training.

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

APPARATUS.

The College has for the illustration of Practical Agriculture, a large stock farm of 410 acres, provided with a large stock barn, fitted up with stables, pens, yards, cooking room, etc.; and fine stock of several breeds of neat cattle, sheep and swine are to be purchased at an early day. It is well supplied with farm machinery and tools.

There is also an experimental farm of about 70 acres, exclusive of orchards, etc. This is divided up into experimental plats and fields. A clinic for sick animals is held in the Fall or Winter Term, to furnish opportunity for the practical study of Veterinary Science. During the clinic, held last winter, nearly 60 diseased animals were presented for treatment, and the students took active part in prescribing for them.

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

Admission.—Candidates must pass a thorough examination in Arithmetic, English Grammar, Geography and History, and in Algebra to equations of the 2d degree.

The recommended course which follows occupies four years.

FIRST YEAR. First Term.—Geometry, Chemistry, English or Latin, History, 2 lectures a week. Second Term.—Botany, Chemistry, English or Latin; History, 2 lectures a week. Third Term.—Botany, Analytical Chemistry, English or Latin.

SECOND YEAR First Tcrm.—Soils and Fertilizers, Vegetable Physiology, Trigonometry and Surveying, German or Chemistry. Second Tcrm.—Plant Culture, Chemical treatment of Soils, Manufacture of Manures, Drawing and mapping, Zoology, German or Chemistry, Physics. Third Term.—Mechanical treatment of Soils and Drainage, Entomology, German or Chemistry, Physics.

THIRD YEAR. First Term.—Fruit growing, Orchards, etc.; Comparative Anatomy and Physiology, French or History. Second Term.— Animal husbandry, breeding, etc.; Geology, French or History. Third Term.—Agricultural book-keeping, Farm records, etc.; Political Economy, French or History,

FOURTH YEAR. First Term.—Rural Economy and rural Law, Mental Philosophy and Constitutional history, History of English and American Literature. Necond Term.—Veterinary Surgery, Rural Architecture, Physical Geography and Meteorology. Third Term.—Landscape Gardening, History of Agriculture. Geology of Illinois, Inductive Logic and History of Philosophy.

2.—school of horticulture.

The aim of the School of Horticulture is to educate scientific horticulturists. Its course embraces such studies as are necessary to thorough mastery of gardening, fruit growing, and forestry.

APPARATUS.

To give a practical character to the special studies of the course, the school is provided with ample horticultural grounds of about 130 acres, including 20 acres of forest plantations, 10 acres of ornamental grounds several acres of nurseries, and large garden plats. It has an apple orchard of 3,000 trees of about 1,400 varieties, a pear orchard of nearly 400 varieties, and small fruits of many kinds. It has also two green houses well filled with rare exotics and flowering plants. It is supplied with the best garden machinery and tools. It has also many plans of ornamental grounds and parks.

Admission.—The conditions of admission are the same as those for the School of Agriculture.

The course of recommended studies is as follows :

FIRST YEAR. First Term.—Geometry, Chemistry, English or Latin; History, two lectures a week. Second Term.—Botany, Chemistry, English or Latin; History, two lectures a week. Third Term.—Botany Analytical Chemistry, English or Latin.

SECOND YEAR. First Term.—Soils and Fertilizers, Vegetable Physiology, Trigonometry and Surveying, German or Chemistry. Second Term.—Plant Culture, Chemical treatment of Soils, Manufacture of Manures, Drawing and mapping, Zoology, German or Chemistry, Physics Third Term.—Mechanical treatment of Soils and Drainage, Entomology, German or Chemistry, Physics.

✓ THIRD YEAR. First Term.—Fruit growing, orchards, etc.; Comparative anatomy and physiology, French or History. Second Term.— Nursery plans and records, Geology, French or History. Third Term.— Vegetable garden and small fruits, Political Economy, Book-keeping, French or History.

FOURTH YEAR. First Term.—Hot and green houses, Rural Economy and rural Law, History of English and American Literature. Second Term.—Rural Architecture, Physical Geography and Meteorology, History of Civilization. Third Term.—Landscape gardening. Geology of Illinois, History of Philosophy and Inductive Logic.

COLLEGE OF MECHANICS AND ENGINEERING.

FACULTY.

THE REGENT.

S. W. ROBINSON, Professor of Mechanical Science and Engineering. S. W. SHATTUCK, Professor of Mathematics.

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

ALEX. THOMSON, Teacher of Railroad Engineering.

JAMES BELLANGEE, Teacher of Architectural Drawing.

This College for the present embraces the following Schools: 1st, the School of Mechanical Science and Engineering. 2d, the School of Civil Engineering. 3d, the School of Mining, and 4th, the School of Architecture.

1.—SCHOOL OF MECHANICAL SCIENCE.

The aim of this School is to fit students to become Mechanical Engi-

neers, and to prepare them to invent, construct and manage all kinds of machinery. The instruction, while severely scientific, is also severely practical, and aims at a thorough understanding and mastery of all the mechanical principles and devices. Shop practice is required as a regular study in the course. The students of this department, under the direction of the Foreman, have manufactured a steam engine, several lathes, and many pieces of finely finished apparatus. They also have done a large amount of work for outside parties, including patterns for castings, models for the Patent Office, a heliotrope for the United States Coast Survey, several thermometer graduating machines, and some pieces of sciencific apparatus for other institutions. Several of the foregoing and some others were invented by the Instructors. Three patents have been allowed for the inventions made in this department during the past year.

APPARATUS.

The new Mechanical Building, which is to be ready for occupancy at the opening of the Fall term, in September next, will have a large machine shop fitted up with a steam engine, with power and hand lathes for iron and brass, a planer, drilling machine, a lathe for wood turning, benches and vises for a large class of students. It will also contain a boiler and forge room, with forges and tools, and brass furnace; a carpenter's shop, with benches and sets of bench tools, lathes, buzz and jig saws, &c.; paint and printing rooms, and draughting, finishing and model rooms. The College has also good collections of apparatus for the illustration of the principles of Physics and Mechanical Science.

The following is the course of studies recommended :

FIRST YEAR. First Term. Geometry, Drawing, English or Latin, History two lectures a week. Second Term. Geometry and Algebra, Descriptive Geometry, English or Latin, History. Third Term. Algebra, Botany, English or Latin;

SECOND YEAR. First Term. Trigonometry, Designing and Drawing; Chemistry. Second Term. Analytical Geometry; Shades, Shadows and Perspective, Shop Practice. Third Term. Calculus, Shop Practice, Chemical analysis.

THIRD YEAR. *First Term.* Calculus, Principles of mechanism; French or German, History. *Second Term.* Analytical Mechanics; Physics, French or German, History *Third Term.* Analytical Mechanics and Astronomy, Physics, French or German.

FOURTH YEAR. First Term. Hydraulics, Pneumatics, Thermo Dynamics, Strength of materials, Geology. Second Term. Prime movers and mill work, Complete Drawings of existing machines and tools; History of Civilization Logic. Third Term. Mill work and machines; Complete Drawings, estimates and designs, Constitutional Law, or Political Economy, Inductive Logic.

2.---SCHOOL OF CIVIL ENGINEERING.

This school is designed to make good practical Engineers, thoroughly prepared for all branches of Engineering work, Railroad surveys Topographic and Geodesic Surveying, Bridge building, Government Surveying, etc. Several of the students, though not yet through their course, have already been honored with positions on the Coast Survey, and on important Rail Roads.

APPARATUS.

This school is provided with a good Engineer's transit, a compass, an English level, two leveling rods, two brazed-link steel chains, Gunther's and Engineers', instruments for Stadia surveying, adopted in the Government Surveys. It has also a model truss bridge 20 feet in length, with moveable braces, and other apparatus for practical illustration.

The course of studies recommended is as follows :

FIRST YEAR. First Term.—Geometry, Drawing, English or Latin; History, two lectures a week. Second Term.—Geometry and Algebra, Descriptive Geometry, English or Latin. History. Third Term.— Botany, Algebra, English or Latin.

SECOND YEAR. First Term.—Trigonometry, Surveying, Chemistry. Second Term.—Analytical Geometry, Analytical Chemistry or Rhetoric, Shades, Shadows, and Perspective. Third Term.—Calculus, Topographical Surveying and Drawing, Mineralogy and Lithology.

THIRD YEAR. First Term.—Calculus, Roads, Railroads, and Mapping, French or German. Second Term.—Analytical Mechanics, Physics, French or German. Third Term.—(3 year students, Mahan's Engineering.) Mechanics and Astronomy, Physics, French or German, History.

FOURTH YEAR. First Term.—Hydraulics and Practical Astronomy, Strength of Materials and Frames, Geology. Second Term.—Stability of Structures, Drawing of existing constructions; History of Civilization and Logic. Third Term.—Stone Cutting and Geodesic Surveying, Drawings and Estimates, Political Philosophy and Constitutional Law, Political Economy, Inductive Logic.

3 --- SCHOOL OF MINING ENGINEERING.

The course for Mining Engineers differs from that of the Civil Engineering, only in the substitution of Mine Surveys and Constructions, Metallurgy, and Assaying, for Roads and Rail Roads, Topographical and Geodesic Surveying, and stone cutting.

4.—school of architecture.

The course in Architecture corresponds nearly with the course in Civil Engineering, adding to it the course in Architectural Drawing, Styles of Architecture, and the study of public buildings.

COLLEGE OF CHEMISTRY

FACULTY.

The object of this College is the education of professional Chemists.

Pharmaceutists and Metallurgists, It furnishes, also, facilities to such as wish to pursue a course of Chemistry applied to any of the arts, as glass-making, dyeing, tanning, gas manufacture, electrotyping, photography, etc.

The College is provided with a laboratory fitted up with tables, gas pipes, chemicals and chemical apparatus for a large class to practice. It has also, sand baths, stills for water, &c., scales of the highest accuracy and finish, a large binocular microscope of English manufacture, spectroscope, blow-pipes, galvanic batteries, and other important chemical apparatus. An appropriation of \$5,500 dollars has recently been made by the General Assembly to increase the apparatus and facilities for this department of study, and it is expected that this fund will be expended this summer under the direction of the Professor of Chemistry.

FIRST YEAR. First Term.—Geometry, Chemistry, English Language and Literature, U. S. History, two lectures a week. Second Term. —Chemistry, Geometry and Algebra, English or Botany, U. S. History, two lectures a week. Third Term.—Analytical Chemistry, Botany, English Literature.

SECOND YEAR. First Term.—Trigonometry, Analytical Chemistry, German. Second Term.—Analytical Geometry, Physics, Analytical Chemistry; German. Third Term.—Practical Chemistry; Mineralogy and Chrystallography, Physics, German.

THIRD YEAR. First Term.—Drawing, Chemistry and Mineralogy, French, Ancient History. Second Term.—Practical Chemistry, Rhetoric, French, Mediaval History. Third Term.—Palaeontology and Astronomy, Practical Chemistry, French, Modern History.

FOURTH YEAR. First Term.—Manufacture of Chemicals, Zoology, Geology. Second Term.—Assaying and Metallurgy, History of Civilization and of the Inductive Sciences, Logic. Third Term.—Assaying and Metallurgy, History of Philosophy. Constitutional and International Law.

The above course will necessarily vary for the student of Agricultural Chemistry, and the student of Mining and Metallurgy.

COLLEGE OF NATURAL HISTORY

FACULTY.

THE REGENT.

THOMAS J. BURRILL, Professor of Botany.

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

D. C. TAFT, Professor, pro tempore, of Zoology and Geology

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

The several departments are being rapidly provided with illustrative collections and other apparatus. The *Botanical* department has a large Herbarium of dried plants, collected by the Powell expeditions, which has been largely increased from other sources. It has Lignarium exhibiting woods in section, also *papier mache* flowers, and fruits of gigantic size, made by the celebrated Auzoux, of Paris, a pink, a papillonaceus

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flower, a cherry, a strawberry, a pea pod with peas, a vetch legume, a grain of wheat, &c. These gigantic specimens are dissected so as to exhibit clearly even the most minute organs and tissues. The Green Houses, and the Arboretum and Botanical Garden, for which preparations are already made, afford also unbounded opportunities for examining the living plants in process of growth.

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

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

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

The course of studies recommended is as follows:

FIRST YEAR.—First Term.—Geometry, Latin or English, Chemistry, United States History. Second Term.—Botany, Geometry and Algebra, Latin or English Literature. Third Term.—Botany, Analytical Chemistry, Latin, or English Literature.

SECOND YEAR.—First Term.—Vegetable Physiology, Zoology, Trigonometry, German. Second Term.—Zoology, collection and preservation of specimens, Physics, German. Third Term.—Entomology, Physics, Mineralogy and Crystallography, German.

THIRD YEAR.—First Term. Comparative Anatomy and Physiology, Mineralogy, Drawing. French. Second Term. Geology, Rhetoric or History, French. Third Term. Lithological Geology, Palæontology, Astronomy, Political Economy, French.

FOURTH YEAR.—*First Term.*—Historical Geology, Practical Astronomy, Mental Philosophy. *Second Term.*—Physical Geography, Meteorology, Metallurgy, History of Civilization. *Third Term.*—Geology of Illinois, Geological Surveys, Excursions, Inductive Logic.

COLLEGE OF LITERATURE, SCIENCE AND ART.

FACULTY.

THE REGENT, Professor of Philosophy and History. WM. M. BAKER, Professor of English Language and Literature. EDWARD SNYDER, Professor of German Language. A. P. S. STUART, Professor of Chemistry. T J. BURRILL, Professor of Botany.

S. W. SHATTUCK, Professor of Mathematics.

DON CARLOS TAFT, AssistantProfessor of Geology and Zoology.

*The work of this Professorship is for the present performed by other Professors.

The objects of this College is to furnish a sound and liberal education to fit students for the general duties of life, and especially to prepare them for those business pursuits which require a large measure of Literary and Scientific knowledge and training. It is designed to meet the wants of those who wish to prepare themselves for the labors of the Press as Editors or Publishers, or as Teachers in the higher institutions or for the transaction of public business. The large liberty allowed in the selection of the special studies of his course will permit the student to give such direction to his education as will fit him fully for any chosen sphere or pursuit.

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

The several departments of science also are provided with a good supply of the works of the best authorities and with a constantly increasing apparatus and cabinets.

In the following recommended course, a number of optional studies are introduced, but it is understood that no student will take more than three studies at a time without a permit. This course, though not modeled upon that of any other institution, is equal in value to the courses prescribed in our best colleges.

Students wishing to take only the English studies and modern languages, may be admitted with the general preparation prescribed for candidates for other courses, but those who wish to take the Latin or Greek language, must come thoroughly prepared in the usual preparatory course in those branches.

FIRST YEAR. First Term. Geometry, first five books, Latin, Cicero's works, English Composition, (Greek, the Anabasis, optional.) History of U. S., two lectures a week. Second Term. Geometry finished. Higher Algebra. Latin, Cicero's works, English literature, (Greek optional.) History of U. S., two lectures a week. Third Term. Botany. Higher Algebra completed, Latin, Virgil the Æneid or Georgics. English advanced Grammar, (Greek optional.)

SECOND YEAR. First Term. Trigonometry. Chemistry. German. English or Latin. Second Term. Analytical Geometry or Chemistry. Physics, German, English or Latin. Third Term. Mineralogy, Physics, German, English or Latin.

THIRD YEAR. First Term. Comparative Anatomy and Physiology, Ancient History, Drawing, French, English or Latin. Second Term. Geology, Mediæval History, Perspective, French, English or Latin. Third Term. Political Economy and Modern History, Astronomy. French, English or Latin.

FOURTH YEAR. First Term. Mental Philosophy, Constitutional History of England and United States, Zoology, Astronomy or Geology.

S. W. ROBINSON, Professor of Physics.

I D FOULON, Instructor in French.

^{--- *}Professor of Ancient Languages.

Second Term. Moral Philosophy and Logic, or History of Civilization and of the Inductive Sciences, Physical Geogaaphy, Meteorology or Analytical Mechanics. *Third Term.* History of Philosophy, or Inductive Logic, Entomology, or Geology of Illinois, Constitutional Law.

SCHOOL OF COMMERCE.

The course in this School may be completed in a single year, and is designed to fit students to become thorough accountants and business men. The special studies of this School may be taken in connection with those of any of the Colleges. For a fuller statement of these studies the reader is referred to the Department of Commercial Science, on another page.

SCHOOL OF MILITARY SCIENCE.

The studies of this school are described fully in the article on another page under the Military Department.

The apparatus of instruction includes a large Drill Hall; 150 muskets and accountrements complete; 12 cavalay swords; 1 bass drum; 1 tenor drum; 3 fifes; 2 bugles; 18 fencing muskets for bayonet practice; swords, gauntlets and masks, for sword practice; automaton regiment for theoretical instruction; and a large Drill Hall to be erected this summer. The library also includes quite a selection of books on military science, military history and engineering.

REQUIREMENTS FOR ADMISSION.

1. Each student is required by law to be at least *fifteen years* of age, but it is believed that few will be found mature enough at this age to enter with the highest profit upon the studies of the University, and it is recommended, as a general rule, that students be at least eighteen years old before entering.

2. The law prescribes that "no student shall be admitted to instruction in any of the departments of the University, who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State." In addition to these, candidates for advanced standing must pass an examination in the studies already pursued by the class, or an equivalent therefor. Those desiring ancient languages must pass in the ordinary preparatory studies in such languages.

3. The examinations heretofore have often exhibited a most lamentable lack of true scholarship, even in the ordinary common school branches. In many cases, it is evident that the fault has been in that too commonand s d blunder of teaching, which neglects all thorough drill in definitions and principles, and occupies the pupil wholly with exercises. The student often gains considerable expertness in solving the problems in the book, without being able to answer a single question concerning principles, or to explain rationally, a single step in the process.

Frequent and searching examinations will be held to test the progress in study, and to determine each student's fitness to remain in the classes. The University cannot be held responsible for the lack of thoroughness in the common school studies of its students, but will insist on thoroughness in its own proper studies. A regular examination of all the classes is made at the middle and close of each term. A record is kept of the standing of each student at all the examinations, and from this his final certificate of graduation is made up.

UNIVERSITY UNIFORM.

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

STUDENT'S DORMITORIES AND BOARD.

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

Good private boarding houses are springing up around the University, where either day board, or board and rooms can be obtained, with the advantage of the family circle. Boarding clubs are maintained by the students, which furnish meals at a cost of from \$1.50 to \$2.50 per week. Several students have provided themselves with meals in their rooms, at an expense varying from \$1. to \$1.50 per week. Coal is purchased at wholesale, and furnished to students at cost.

HOW TO ENTER THE UNIVERSITY.

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

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

2. You must possess a thorough knowledge of the common school branches, arithmetic, grammar, geography, history of the United States, and algebra to equations of the second degree.

3. You should enter at the beginning of a term; but you may enter at any other time if prepared to go forward with any of the classes.

4. If doubtful of your ability to enter the department you have selected, write to the Regent, J. M. Gregory, Champaign, and state what branches you have studied, the progress you have made in each, and your wishes as to course and term of study.

TERMS.

The college year is divided into three terms, of fourteen, twelve and ten weeks. Students are expected in all cases to be present on the first day of the term. Those unavoidably delayed will be required to make up all lessons which their classes have passed over in their absence.

CALENDAR FOR 1870-71.

Tuesday,	Sept.	12,	1871
Wednesda	y, Sept.	14,	1871
Wednesda	y, Dec.	20,	1871
	•		
	Jan.	2,	1872
	Jan.	3,	1872
	Mar.	27,	1872
	Mar.	28,	1872
	Mar.	29,	1872
	June	7,	1871
	June	7,	1872
	Tuesday, Wednesda Wednesda	Tuesday, Sept. Wednesday, Sept. Wednesday, Dec. Jan. Jan. Mar. Mar. Mar. June June	Tuesday, Sept. 12, Wednesday, Sept. 14, Wednesday, Dec. 20, Jan. 2, Jan. 3, Mar. 27, Mar. 28, June 7, June 7,

EXPENSES.

Tuition free in all departments. Fee for incidentals, per term......\$2.50 Room rent in University building for each student, per term....... 4.00

Each student is required to pay a matriculation fee of \$10 on first entering the institution. This entitles him to a membership till he completes his studies. All bills due the University must be paid, and the Treasurer's receipt be shown to the Regent before the student can enter the classes.

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

Room rent and incidentals	.\$19.50		\$ 19.50
Board, from	. 54.00	to	180.00
Fuel and lights, from	. 10.00	to	15.00
Washing, 75 cents per dozen	. 10.00	to	15.00
- -			
Total	.893.50	to	8244.50

Many young men reduce the expense to within \$90 per year, and pay this by their labor during the year. It ough to be known that any young man can pay his way through college who is willing, for the sake of an education, to practice steadily the virtues of industry and economy.

GOVERNMENT.

The University is designed for *men*, not *children*, and its government rests in an appeal to the manly feeling and sense of honor of its students. If any student shall show himself so weak or corrupt that he can not. when thus treated, refrain from vicious conduct, he will receive permission to leave the institution, where his presence can only injure others, without being of any benefit to himself. But no pains will be spared to counsel the inexperienced, to admonish the careless and save the tempted. Especially will it be an object to establish and maintain that refined, and honorable public sentiment, which is at once the best safeguard against meanness and vice, and a constant inspiration to nobleness and virtue.

	^{1st} 6 ferm.		2d G Term.	3d G Term.	lst Term.		2d Term.	3d 1 Term.
	icometry, 1st Div.	71/2-81/2	icometry, 1st Div. (Algebra.)	terman, 1st Div. Latin, (Virgil.)	derman, 2d Div. French,	71/2-81/2	Mediæval History, Military Alternate.	English, 2d Div.
 81/201/2	Inorganic Chem- istry.	9-10	Inorganic Chem'y. Descr. Geometry. Labor from 10-4.	Lectures on Chem- istry applied to Arts. Botany. Labor from 10-34.	. English, 2d Div. Botany. Labor from 9 to 3 _j .	9-10	English, 2d Div.	. Calculus. Agriculture.
 91/2-101/2	Germen, 1st Div. Agri lture.	11-01	English, 1st Div.	Botany. Algebra.	Trigonometry.	1011	Zoology and German.	German. Latin,
1012-1112	Latin, (Cicero.) German, 2d Div.	1112	Botany. Geometry, 2d Div. Algebra, "	English, 1st Div.	Zonlegy,	11—12	Latin, (Horace.) Labor from 9 to 34	Lect. on Chemistry applied to Arts. Mineralogy Labor from 9to 34
 111/2-121/2	English, 1st Div.]2	Latin, (Cicero and Virgil.) German (1st Div.	Algebra.	Latin, (Livy.)	12	Analytical Geom- etry.	Entomology.
11/2-21/2	Book-Keeping. Drawing.	23	Bouk-Keeping.	Book-Keeping.	Designing and Drawing. Agriculture.	20 	French.	French. Topo. Surveying. Drawing
21/2-31/2	Drawing. Chemical Physics.	3-4	History U. S. Agr. Chem. Loct. (Alternate.)	Drawing and Agri- culture.	Surv. & Leveling. Mil.& Anc.Ilistory. Alternate.	3-4		Political Economy.
31/241/2	llistory of U. S., Drill, Alternate.			Lectures. Drill. Alternate.	Drill and Lectures.			Drill.

SCHEME OF RECITATIONS AND EXERCISES.

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3	tomy Milita			Wilita	Lectur			
21/231	Comp. Ana & Physiolog		- Military.	Geology.		34		,
1½2½	Constitutional History	2-3	History of Civili zation.	Constitutional Law.	Practical Astronomy.	23	Veterinary Sur- gery.	History of Agricul ture.
111/2121/2	Principles of Mechanism.	1-2	Geology.	Latin.	Agticulture.	12	Constructive Drawing.	Landscape Gard'g. Stone Cutting and Geoedcey.
101/2111/2	Calculus and Ana- lytical Geometry.	11-12	English, 3d Div.	Vegetablo Garde'g. Mahan's Engine'g.	Hydraulics, etc. Rural Econ'my,etc	11-12	Metteorology.	Designing, Draw- ing and Estimates.
9½10¾	R. R's & Mapping. Latin.	1011	Anal. Mechanics. Animal Husba'ry.	Physics.	Strength of Mate- rials and Frames. Hot and Green Houses.	1101	Prime Motors, Sta- bility of Structures	deology of Illinois.
81/201/2	Orchards and Fruit Growing.	910	Calculus, Physics, Nurseries & Plans. Labor from 9 to $3j_{\Sigma}$	English, 3d Div. Practical Chem. 9 to 34	Mental Philosophy, Practical Chemis- try, 9 to 34	016	Moral Philosophy and Logic. Practical Chem. 9 to 34	Practical Chemis- try 9 to 34 Hist of Philosophy. Logic.
. 78	English, 3rd Div.	71 <u>/2</u> 81/2	Latin.	Analytical Mech. (Desc. Astronomy.)	Geology,	71/281/2		Mill Work and Machines.
	1st Term.		2d Term.	3d Term.	1st Term.	•	2d Term.	3d Term.
— — — — — — — — — — — — — — — — — — —					FOURTH YEAR.			

SCHEME OF RECITATIONS AND EXERCISES.-Continued.

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