

APPENDIX A.

INSTITUTIONS AND OFFICERS.

THE UNIVERSITY OF MINNESOTA.

REPORT OF THE PRESIDENT.

To the Honorable John S. Pillsbury, President of the Board of Regents,

Dear Sir: I have the honor to submit the following biennial report of the University of Minnesota for the two academic years ending July 31, 1896.

The rapid growth of the University of Minnesota during the years 1891-95 and 1895-96 is clearly indicated by the enrollment of 2,171 students in the former year and of 2,467 students in the latter, being an increase of 639 students in the two years over the number of students enrolled at the time of my last report in 1894. The increase in the number of students during the two preceding years was 151. The total increase during the last four years, therefore, has been 1,093. This is only 281 less than the whole number of students in the university four years ago.

The faculty of the university at the close of the college year 1895-96 numbered 168, distributed as follows:

College of Science, Literature and Arts.....	58
College of Engineering, Metallurgy and Mechanic Arts.....	32
College and School of Agriculture.....	18
College of Law.....	10
College of Medicine and Surgery.....	48
College of Homeopathic Medicine and Surgery.....	26
College of Dentistry.....	23
College of Pharmacy.....	17
Total	241
Duplicates.....	73
Total of Instructors	168

In the College of Science, Literature, and the Arts there are—

Professors.....	20
Assistant Professors.....	10
Instructors.....	23
Assistants.....	5
Total	58

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In the College of Engineering, Metallurgy, and Mechanic Arts there are (besides the professors in the College of Science, Literature and the Arts who give instruction in the College of Engineering also)—

Professors	1
Assistant Professors	1
Instructors	1
Special Lecturers not included in Faculty	1
Engineers	1
Total	5

CHANGES IN THE FACULTY OF ACADEMIC COLLEGES.

Prof. Williston S. Hough of the department of philosophy notified his intention to resign his chair in the university, while he was absent on leave in Europe in the year 1894-95. His formal resignation was received in due time, and Mr. Frederick J. E. Woodbridge, who had temporarily filled the chair during the absence of Professor Hough, was elected professor of philosophy and entered upon his duties at the beginning of the year 1895-96.

Prof. George E. MacLean of the chair of English Literature resigned his professorship in the spring of 1895, to accept the chancellorship of the University of Nebraska, to which he had received a call. Professor MacLean had devoted eleven years to the building up of the department of English in the university, had been very successful in his work, and his resignation was accepted with much regret. The chair of English has not yet been filled, but the work was divided during the past year between two assistant professors, one of whom had been called to the university just before Professor MacLean resigned, having previously been professor of English in Ripon College.

In 1896 the following instructors were promoted to the position of assistant professors:

Joseph B. Pike in Latin.
 E. Eugene McDermott in Rhetoric.
 Frank H. Constant in Civil Engineering.
 H. Wade-Hibbard in Mechanical Engineering.
 D. T. MacDougall in Botany.
 Charles F. McClumpha in English Language and Literature.
 Frederick Klueber in English Philology.

The following gentlemen were appointed in 1895 and entered upon their work at the beginning of the year 1895-96:

James Richard Jewett, Ph. D., of Brown University, W. Va. haeuser, professor of Semitic languages and history.

Frank H. Constant, C. E., was called to succeed Prof. James Wadsworth, who in 1895 resigned the chair of structural engineering.

Mr. Constant has during the last year had charge of the work structural engineering, and it is expected that he will be named professor of structural engineering whenever the chair is filled.

H. Wade Hibbard was elected in 1895 to a position in the department of mechanical engineering, and was soon after made assistant professor of mechanical engineering. It was understood when Hibbard was called, that he should in due time be promoted to the leadership of the department if experience should justify it.

Lieut. Harry A. Leonhaeuser at the beginning of the year 1895-96 became professor of military science and tactics, his predecessor, Lieut. George H. Morgan's term of service having expired by limitation of law.

Frederick W. Denton was in 1895 elected associate professor of mining in the College of Engineering, Metallurgy, and Mechanic Arts. He entered upon his duties at the beginning of the year 1895-96. In 1896 he was made professor of mining, and at the same time Professor William R. Appleby, who had been professor of mining and metallurgy, was made professor of metallurgy.

A. J. Calais was appointed instructor in French in April, 1896, and will enter upon his duties at the beginning of the year 1896-97.

Professor Francis P. Leavenworth was in 1896 elected director of the observatory.

Assistant Professor Arthur Edwin Haynes of the College of Science, Literature, and the Arts was in 1895 elected professor of mathematics in the College of Engineering, Metallurgy, and the Mechanic Arts.

Frank L. McVey, a graduate of the philosophical department of Yale University, has been appointed instructor in political science, and will enter upon his duties at the beginning of the year 1896-97.

William Halderman Riddle, a student of Harvard University in the graduate course, has been appointed instructor in mathematics, and will enter upon his duties at the beginning of the year 1896-97.

DEGREES CONFERRED.

Since my last report degrees have been conferred as follows:

	1895.	1896.
Number of Arts	28	28
Number of Science	32	41
Number of Literature	31	31
Number of Civil Engineering	4	4
Number of Mechanical Engineering	3	4
Number of Electrical Engineering	7	3
Number of Mining Engineering	1	3
Number of Philosophy	1	...
Number of Arts	3	6

Master of Science	6
Mining Engineer	1
Bachelor of Laws	86
Master of Laws	2
Doctor of Medicine	53
Doctor of Dental Medicine	12
Doctor of Pharmacy	12
Electrical Engineer .....	..
	285

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS

Much might be said in regard to the growth of the work in the college, as regards both the scope of the work and the demands made on the university by reason of the ever-increasing number of graduates from high schools in all parts of the state who are coming to the university. I will, however, merely say in reference to the college generally that its work has been very satisfactory, and the demands have been met as fully as was possible. I desire to call the attention of the regents to the needs of two departments to this college—chemistry and botany.

The work in chemistry has increased to such an extent, by reason of the large number of students, as to make it almost impossible to find space in the buildings or time in the day for all the work of the students. The chemical laboratories do not begin to meet the requirements. The professor of chemistry has done his best to utilize every nook in the building. But the plain fact is that the laboratory is not large enough, and another is needed. The space at present occupied is as follows:

General chemistry and qualitative laboratory	2,720 square feet
Quantitative laboratory	1,360 square feet
Organic laboratory	800 square feet
Lecture room	1,440 square feet
Special laboratories	1,200 square feet
Total	7,620 square feet

It is only by dividing classes into six or seven sections and using all possible time in the week, that the work can now be done. It will be impossible to meet the requirements even in this way if there should be further increase of students.

The professor of chemistry makes the following statement of the actual floor space needed to accommodate the students in chemistry at the present time:

General chemistry laboratory.....	8,000 square feet
General qualitative laboratory	6,000 square feet
General quantitative laboratory	3,600 square feet
General organic laboratory	2,500 square feet
General lecture room laboratory	4,200 square feet
General laboratories	7,200 square feet
Work rooms, balance rooms, construction rooms, etc.....	2,000 square feet
Total	34,100 square feet

This does not include halls, partitions, walls, hoods, etc.

The contrast between the room now available and this statement of what is needed, shows very clearly that some action is required to meet the present necessities of the department. Probably a somewhat smaller estimate than that made by the professor of chemistry might suffice for a time, but it is wise in building to consider the future somewhat.

The departments of botany, animal biology, geology, and mineralogy, drawing, mining, and metallurgy, together with the museums and the geological and natural history survey, are all accommodated, so far as may be, in a single building, Pillsbury Hall. As a result, several of the departments are badly crowded. If a building could be erected for the accommodation of one of these departments, it would relieve all the other departments. If a building is to be constructed for any one of these departments, it would seem that it should be for the department of botany, because the herbarium of the department is of great value, is now liable to destruction, and should without unnecessary delay be placed in a fire-proof building. It is desirable that the work of the department should be conducted in connection with the herbarium, and one building, therefore, should accommodate the whole department. As showing the value of the herbarium, and the needs of the department of botany, I quote a statement prepared by Prof. Conway MacMillan, under whose energetic management the herbarium has been created and the department brought to its present efficient condition:

The university herbarium contains in round numbers very nearly 200,000 specimens. It is rapidly increasing in size under a skillfully organized system of exchange founded by the Department of Agriculture at Washington, afterward placed in charge of Dr. J. H. Sandberg, then special agent for the government, and from him secured for the University of Minnesota.

Only four American herbaria lead the Minnesota collection in numbers and value. The order is as follows:

Columbia University, New York.....	500,000
Harvard University, Boston.....	500,000
National Herbarium, Washington.....	280,000
Shaw Garden Herbarium, St. Louis.....	225,000
University of Minnesota Herbarium.....	200,000

All these except the last are provided with fire-proof buildings.

Among the most important foreign collections which have been received by the University may be mentioned the following: Pringle's *Plants of Canada*, Huth's *Astragal*, Butler's *Jamaican Alga and Ferns*, Fendler's *Plants of Trinidad*, J. G. Smith's *Plants of Mexico*, Macoun's *Mosses, Hepaticae, Lichens and Fungi of Canada*, Spruce's *South American Hepaticae*, Franceschi's *Plants of Guadeloupe Islands*, Palmer's *Mexican Collection*, Murray's *Plants of New Zealand*, Krieger's *Fungi of Saxony*, Von Thuenen's *Mycotheca Universalis*, Wulfen's *Natal Collection*, Wittrock and Nordsted's *Alga*, Praln's *Pentinsular Lichens Collection*, Roumeguere's *Fungi of France*, Sydow's *Mycotheca Marchica*, Lachmann's *Plants of Iceland and Greenland*, Schumann's *Odessa Collection*, Britton's *Plants of Africa*, Schlechter's *Plants Africana*, MacOwan's *Cape Colony Collection*, Tiselius's *Swedish Potamogetons*, Waghorne's *Labrador and New Foundland Plants*, Ule's *Mosses of Brazil*, Praln's *Plants of the East Indies*, Romm's *Swedish Collection*, Buysmann's *Astragal*, Heller's *Plants of the Sandwich Islands*, Reunult and Cardot's *Mosses of Europe*, Gorman's *Plants of Alaska*, Le Joll's *Alga of Cherbourg*, Ardlsson's *Alga of Italy*, Rabenhorst's *Alga of Saxony and Middle Europe*, Henry's *Plants of China*, and many others equally valuable, comprising material from such collectors as Regel, Steudler, Sadler, Ball, Wray, Sintenis, Dickson, Rostan, Alexander, Clarke, Meyer, Petric, Kling, Cook, Moggridge, Bornmuller, Aitchison, Lady Dalberg, Wright, Sinclair, Whyte, Parnell, Bolssler, Wood, Helper, Fendler, Anderson, Bourgeau, Dubee, Trail, Czatkó, and covering almost all parts of the world.

Of American collections a very full representation of recent work has been provided, including Heller's *Plants of North Carolina*, Pringle's *Plants of Arizona*, Greene's *Plants of California*, Eastwood's *Plants of Colorado*, Patterson's *Plants of Colorado*, Stewart's *Plants of Iowa*, Cain's *American Lichens*, Willey's *American Lichens*, Underwood's *American Hepaticae*, Ellis and Everhardt's *North American Fungi*, Thibodeau's *American Alga*, Collins, Setchell and Holden's *North American Alga*, Suksdorf's *Plants of Washington*, Parish's *Plants of California*, Williams's *Plants of Montana*, Maxwell's *Plants of Texas*, Langlois' *Plants of Louisiana*, Price's *Ferns of Kentucky*, Bodin's *Kansas Astragal*, Heller's *Plants of Virginia*, Koenig's *Plants of Kentucky*, Moffat's *Plants of Illinois*, Williams's *Lichens of the Dakotas*, Rushe's *Plants of Missouri*, Rushe's *Plants of Oklahoma and Indian Territory*, Jepson's *Plants of California*, Bourglehouse's *Yellowstone Park Collection*, Heller's *Plants of Pennsylvania*, Carleton's *American Uridner*, Williams's *Mosses of Montana*, Nelson's *Plants of Wyoming*, Koenig's *Plants of Pennsylvania*, Piper's *Plants of Washington*, Palmer's *Idaho Astragal*, MacDougal's *Plants of Arizona*, Sandberg, MacDougal and Heller's *Plants of Idaho*, Morgan's *Ohio Mycomycetes*, Mulford's *Plants of Idaho*, Heller's *Plants of Texas*, Cumming's *Lichens of North America*, Curtis's *Plants of Florida*, Watson's *Plants of Ohio*, Eaton's *Plants of New Hampshire*, Howell's *Florida Coast Plants*, Jepson's *California Collection*, Curtis's *Southern Plants*, Seymour's *Economic Fungi*, Fink's *Lichens of Iowa*, Bates's *Plants of Nebraska*, Nash's *Plants of Florida*, Pollock's *Plants of West Virginia*, Curtis's *Alga Floridae*, Wheeler's *Plants of Michigan*, besides numerous other large collections by such men as Dodge, Lucy, Osterhout, Ruth, Baker, Parish, Cole, Glatfelter, Wilkinson, Orcutt, Eggers, Saunders, Wright, Watson, Umbach, Davis, McDonald, Deane, Sonne, Griffiths, Morton, Kelsey, Pratt, Pollard, Swan, Demerrio, Tracy, Earl, Holway, Bailey, and others representing all parts of the United States.

In connection with the Geological and Natural History Survey of Minnesota a special effort has been made to bring together a complete and accurate collection illustrative of the Minnesota plant population. Nearly 5000 specimens from all parts of the state have been accumulated, representing the different groups of plants from bacteria, slime-moulds, alga and fungi to the higher liverworts, mosses, ferns, and flowering plants. Among the collections are those of Sandberg, Alton, Schofield, Holzinger, Moyer, Mannung, Menzel, Wickershelm, Lugger, Hvoslef, Sandsten, Pink, Arthur, Bailey, Holway, Upham, Winchell, Kassube, Herrick, and many other Minnesota botanists, together with the large collections made by the state botanist and by his assistants, Messrs. Sheldon, Ballard, Taylor, Frost, Anderson

of Miss Tilden. As a systematic state collection, it is believed that that of Minnesota stands easily first in America.

Besides the herbarium the foundations of a botanic museum have been laid and several wood collections and an alcohol exhibit are already in place.

The botanical library, comprising about 2,000 bound volumes and 3,000 pamphlets, in conjunction with the herbarium and museum and supplemented by the laboratories of plant anatomy and plant physiology, is an excellent complement not only for instruction, but for original scientific investigation. Herbarium, library and laboratories must be kept together, and to do this safely and properly it is imperative that a suitable house should be provided and exposed to danger by fire. In conjunction with this a necessary building for the growing of native and exotic plants should be erected. Otherwise proper instruction through the winter months will continue to be impracticable, and is impossible at any time in such a department of the subject as plant physiology without this additional equipment.

The need of the department, then, is a fire-proof building, in which should be inclosed the herbarium and botanic museum, together with the library and necessary laboratory, preparation, lecture and office rooms. Without such a building there can be no certainty that this priceless collection, accumulated under peculiarly fortunate conditions, will be safe from destruction or loss.

COLLEGE OF ENGINEERING, METALLURGY AND MECHANIC ARTS.

This college during the last two years has made substantial progress. Professors Eddy, Denton, Hibbard, Kirchner, and Constant, who have in that time been added to the corps of instructors, have all brought to their work such learning and experience as have added largely to the range and effectiveness of the instruction given in the college. The work in mathematics, so essential to successful engineering, has been greatly strengthened, particularly along theoretical lines, by Professor Eddy; and it will be still further improved in quality, if not in range, by the experience and tact of Professor Haynes, who will hereafter give his whole attention to training students in engineering in the mathematics specially needed by engineers.

The department of mechanical engineering has been strengthened by the coming of Assistant Professor H. Wade Hibbard from the position of chief draughtsman to the Lehigh Valley Railway Company, to devote himself to machine design, locomotive engineering and car design. The work along these lines, in connection with some locomotive testing which the liberal policy of the Minneapolis, St. Paul & Sault Ste. Marie Railway management enabled the professor and his students to perform, has already aroused much interest and enthusiasm.

The department of drawing has been strengthened by the coming of Assistant Professor William H. Kirchner, who was appointed in December, 1894. The work is now emphasized along the specific lines of lettering, constructive and descriptive geometry,

and working drawings which need the attention of students preparing for special duties as professional engineers.

The school of design, which was developed largely through the personal efforts of Henry T. Ardley, has been discontinued as a separate school since Mr. Ardley's resignation two years ago. The work, however, with some minor modifications, is now in the hands of Assistant Professor Kirchner, under the name of Industrial Art. This work could be greatly extended with wonderful advantage to the state. Nothing but funds is wanting. I ask your special attention to this matter of providing means for enlarging the work in industrial art.

The school of mining and metallurgy has made noticeable advances since the report of two years ago. The ore-testing laboratory then announced as under construction has been completed and equipped with machinery of the most approved pattern. The plant is one of the most complete in the country, and has already attracted much attention and received favorable comment.

The action of the last legislature in appropriating \$5,000 annually for the support of this school made possible a much-needed extension of its facilities. The work in mining has been more clearly defined as compared with metallurgy, and Frederick W. Denton, mining engineer to the Minnesota Iron Company, was elected one year ago as associate professor of mining and metallurgy. He has now become professor of mining. With the arrival of Professor Denton an important line of professional preparation was made possible. Field work in mining and metallurgy is now conducted. Four weeks each of sophomore and junior years are given to mining work, mine surveying, and the investigation of modern metallurgical plants. During the spring term a month was spent in the iron mines of the Vermillion range, in most satisfactory work, by a class of fifteen students.

MILITARY DEPARTMENT.

The instruction in military science is a part of the curriculum of the university because by the act of congress granting lands for the encouragement of agriculture and the mechanic arts, military science is required to be taught in all institutions receiving the benefit of the land grant. It cannot be doubted that the military drill is most beneficial to the students, and I am glad to say that it is now regarded with more favor by the students than ever before. The appearance of the young men during drill has decidedly improved, and the battalion of cadets was at the last inspection

awarded high praise for its soldierly appearance and efficiency, by the officer detailed by the war department to inspect it. The discipline is excellent, and the results of the training most agreeable, both as respects physical culture and self-control, and obedience to proper authority.

The instruction given has been both theoretical and practical. The theoretical instruction has embraced recitations in the drill regulations and in the elements of military science, together with a series of lectures by Professor Leonhaeuser on army organization, army administration, military law, guard and outpost duty, transportation, field operations, and kindred subjects. The practical instruction has comprised drills from the setting-up exercises to the various evolutions of the battalion. In these drills the student officers have exercised command of their different units, and a commendable spirit of rivalry has been created and has had a pronounced and beneficial effect on the whole organization.

Besides the four companies composing the battalion, an artillery platoon of twenty cadets and a bicycle corps of twenty-six cadets have been formed and drilled in the special maneuvers adapted to each. Military instruction has been given in the school of agriculture with the best results. Lieutenant Leonhaeuser has proved himself a most agreeable and competent commander.

THE ARMORY.

This building was provided for by a special appropriation of the last legislature. It is now completed and in use. It is a substantial structure, 220 feet wide by 135 feet deep. It stands at the southeast end of the campus, near University avenue, and forms a very pleasing demarcation between the university grounds and the residence property beyond.

On the main floor, at the top of an entrance ramp twelve feet wide, is the main drill room, 140 by 80 feet clear floor space and two stories high. A suspended balcony extending around all the sides except at the stage, affords seating space for about 800. The main floor when used as an assembly hall will accommodate about 2,100. The stage is thirty-six by twenty-seven feet and will accommodate 100. The total seating capacity of the main room is, therefore, 3,000. Removable partitions make two side rooms available when needed, with accommodations for 800 more, so that an audience of 3,800 can be seated at once in the great hall. The two rooms adjoining the main hall, thirty-six by ninety-five feet, are for squad and artillery company drill. When these

rooms are opened to the main hall there is in all three rooms a floor of 18,000 square feet. Adjoining the balcony on the third floor is the band room, for cadet band practice and the storage of instruments. At the right of the principal entrance on the main floor are the commandant's offices, library, and lecture room; on the left are two company rooms.

The basement, which is entirely above ground, contains two company rooms, artillery and toilet rooms, lockers, bicycles, storage space for chairs, the heating and ventilating apparatus, etc. In the sub-basement is an indoor rifle range 220 feet long, bullet proof, with a passage at side for the target man.

The structure is built of buff sand-moulded brick and pink Kasota stone walls, on a foundation of native bluestone. The floors are of heavy timber construction with planking three inches thick, and contain no concealed spaces for fire to travel in. The roof is slate and composition gravel. Toilet rooms are furnished in marble and best open work plumbing. Twelve fire plugs are provided for fire protection.

The heating is a combined plenum and direct radiation system, so arranged that hot air may be forced into the large rooms for a few hours at a time, thereby making a saving in fuel and securing fresh air for occupants at the same time, it being possible to change the air in the three large rooms six times per hour.

The whole building is lighted with electricity, arc lamps being used in the large rooms and incandescence lamps in small rooms and corridors, with an open work system of wiring.

THE OBSERVATORY.

The last legislature made an appropriation of \$10,000 for an observatory. In the summer of 1895 the computing room and the dome were built, as an addition to the transit house which had been erected a few years before. The computing room was built to accommodate a few students in practical astronomy, and has connected with it a dark room for astronomical photography. The dome was made larger than is customary for the size of the telescope, in order to have ample room for large classes in general astronomy, and to accommodate the photographic and spectroscopic attachments. Its diameter is twenty-two feet. The shutter in the dome was made one foot wider than is usual, for a similar reason. The cost of computing room and dome was about \$2,000.

The equatorial telescope purchased for the observatory was made by Warner & Swasey, and the object glass by Brashear. It

was mounted in May, 1896. It is ten and a half inches clear aperture, and thirteen feet in length. The magnifying powers range from 80 to 600 diameters. As accessory apparatus there are eleven eyepieces, a filar micrometer, a diagonal prism, a three-inch finding telescope, and a helioscope. These with the driving clock, coarse and fine circles, etc., furnish a most complete visual telescope.

The adaptation to photography is very novel and efficient. The front lens of the object glass is replaced by a photographic lens, which fits into place by an ingenious device. The whole eye end of the telescope is removed and the photographic plate holder attached. The plate holder was designed by Warner & Swasey after the most approved style. Attached to the telescope is the photographic following telescope. The cost of the equatorial complete is \$5,165.

The photographic measuring machine has been ordered of the great German instrument makers, Repsold & Sons, but is not yet finished. It is probably the most perfect instrument of its kind ever constructed. Its cost will be \$700.

The spectroscope has not been ordered yet.

Quality of Instrument.—During June and July there were many clear nights suitable for testing the telescope. It has proven to be of the highest quality, as is conclusively shown by the separation of the most difficult double stars. The photographic part has not been tested, but there is every reason to believe it also is a perfect instrument.

Work of the Observatory.—On the completion of the telescope a request was received from Professor Burnham of the Yerkes Observatory, that we observe a list of double stars that needed re-measuring, and which he wished incorporated in his great work on double stars. The measures were immediately begun, and during June and July 300 measures were made. Of these twenty-one have distances less than one-half second. This work has been carried on during the entire part of every clear night, except when interrupted by visitors.

Instruction has been given in practical astronomy during the summer. Two students are working for the Master's degree, while four are teachers or professors from this and neighboring states.

On moonlight evenings visitors are admitted to the observatory, at the rate of about 150 persons a month.

THE LIBRARY.

By the liberality of the last legislature 2,794 volumes were added to the library in the year 1895-6, and probably several thou-

and will be added in the year 1896-7. Six hundred and ninety volumes were received in the same time by gift. While this is most gratifying, it yet means but small additions to the books of most of the departments. There should be an annual appropriation for the library, so that the institution may keep up with the progress of science and learning. The following summary shows the number and distribution of books belonging to the university:

General library	31,071
Law	3,483
Medicine	1,270
Agriculture	3,108
Geological Survey	432
Department libraries	8,680
Total	48,044

Some idea of the adequacy of some of the department libraries may be formed from the following table, showing the number of books in most of the special department libraries:

	Books.	Pamphlets.
Chemistry	493	.....
Botany	1,940	3,500
Biology	1,473	100
Physics	383	95
Engineering	816	140
Mining and metallurgy	200	.....
Military science	34	3
Art	55	30
Pedagogy	161	100
History	434	.....
Greek	1,047	12
Latin	468	200
Rhetoric	161	.....
Geology	533	175
Geological Survey	432	4,100
Astronomy	35	8

There are, of course, in the general library books pertaining to most of these departments, but the foregoing table shows the number of books in the rooms of the various departments available for immediate use in class or seminar room.

I ask that a generous policy towards the library, as the very heart of the university, may be pursued by the regents and the legislature.

DEPARTMENT OF AGRICULTURE.

The work of this department in the School of Agriculture, the College of Agriculture, and the Experiment Station has been peculiarly satisfactory.

First—The last legislature appropriated for buildings at the University Farm the sum of \$64,500. With this money the board

of regents erected a much needed dining hall, costing \$42,500, with seating capacity for over 400 students and in the upper stories dormitory rooms for about seventy-five students of the School of Agriculture. The capacity of the dairy hall was doubled, and Minnesota now is said to have the most capacious dairy school building in America, if not in the world. Large rooms are provided for the practice and lecture work in cheese making, butter making, dairy engineering, dairy stock, dairy chemistry, with ample offices and facilities for the work in dairy experimentation. The enlargement cost \$15,000. A sheep barn was erected and thoroughly equipped with silo, root cellar and other appliances for instruction and experimentation in sheep husbandry. A blacksmith shop was built. Improvements were made in the buildings for swine, and material improvements were made in the barn for cattle and horses. A model poultry house was erected. These several buildings and improvements last named cost \$7,000.

Second—In respect to the work in charge of the professor of agriculture, it is especially to be noted that a most desirable change has been made in the management of the university farm. It is no longer a mere model farm, but is an experiment farm. The land is divided into plots for experiments much more than formerly. An extended study of economic questions relating to field management, such as the rotation of crops, pasturing, manuring, etc., has been inaugurated. Some of the varieties of field crops that have been proved to be the best, are being produced in quantity and disseminated to the farmers of the state. It is believed that in this way the farmers will gradually get seeds of better producing sorts, at cost, and standards of merit will be set which seed dealers must follow. Experiments in tillage, especially in relation to conserving soil moisture in our droughtier counties, are being centered in the station work at "Coteau Farm" in Lyon county. Experiments in the matter of feeding horses are being made a leading line at the Northwest Sub-Experiment Farm. Forest cropping and management will naturally be a leading line of experimentation at the Northeast Sub-Experiment Farm. Other lines of diversified farming and stock raising will be taken up on these farms. Students in the School of Agriculture are given lectures and some practice work relating to fields, crops, the erection of buildings and fences, the making of roads, the handling of grains and machinery, and an assistant agriculturist gives instruction in the dressing and curing of meats.

Third—The horticultural work has made good progress and stands well in the estimation of the horticulturists of the state. Garden, orchard, ornamental and forest plantations are being extended on the various experiment and trial farms, and Minnesota is being taught by successful examples that we may have a wealth of vegetables, ornamental trees and shrubs and forest trees if we will plant and cultivate intelligently. Professor Green has published a valuable manual entitled "Amateur Fruit Growing," and he has another volume, on vegetable culture, ready for publication.

Fourth—The entomologist, Dr. Lugger, has fought chinch bugs, grasshoppers, and other insects so vigorously that he is constantly in demand in summer from all parts of the state to aid in combating our insect foes. Prominent in the investigation of insects is the study of animal parasites, concerning which a bulletin is soon to be issued. A very useful collection of the animals, insects and plants of the state is being rapidly made in the agricultural museum. The legislature deemed experiments in destroying insects of so much importance that at the last session a special annual appropriation of \$5,000 was made to aid in destroying chinch bugs and grasshoppers.

Fifth—The division of agricultural chemistry has developed a most useful course of practical instruction in chemistry for the farm school boys, for the ladies in the summer school, and for the students in the college course; and also some special advanced courses in agricultural and domestic chemistry. The experiment work along the line of human foods has gained the recognition of the department of agriculture at the national capital, and some special funds for this class of work have been provided by the department. A most interesting study of Minnesota soils has been made by Professor Snyder, and studies of the feeding requirements of various crops have been pursued. Our farmers send in numerous samples for analysis, and students are taught the analysis of the soils and food products of their own farms.

Sixth—The dairy division is still giving prominence to experiments and instruction in the best type of cow for dairy products. Experiments in making Gouda cheese have resulted in a method of making a good sweet curd cheese which the good rural housewife can make in a few hours without leaving her regular duties for a whole day, as is necessary in making the American cheddar cheese. The Dairy School for Factorymen had an attendance of 109 in 1895 and 97 in 1896, most of whom paid especial attention to the manufacture of butter in coöperative creameries, some to

making cheddar cheese, and a few to making sweet curd cheese. Professor Haecker does much work throughout the state in holding dairy meetings.

Seventh—The veterinary division has carried out useful experiments in bovine tuberculosis and in the use of hypodermic cathartics for horses, and will soon issue bulletins on these subjects. Dr. Reynolds has awakened people to the importance of vigorously dealing with bovine tuberculosis in relation to human health, and this has been so admirably done that but little opposition has been aroused. The time seems to have arrived when society is ready to use some preventive measures to avoid in part at least that terrible scourge, human tuberculosis. The young men at the School of Agriculture are taught much about diseases, but most about the prevention of disease, and simple, practical animal surgery. This division is in need of a well-equipped veterinary building, which might be arranged to also accommodate the live stock lectures.

Eighth—The division of animal husbandry is making a study of the fattening of beef cattle and of sheep, and the pasturing of sheep in summer, especially of the value of summer crops for pasturage. Some experiments in the breeds of sheep and swine, and in cross-breeding these classes, are also under way. The various classes of students receive lectures and practice work in live stock subjects, and Professor Shaw gives addresses to farmers' meetings and furnishes much copy on live stock subjects to the public press of the state.

Ninth—Instruction in poultry keeping has been started, with Mr. J. M. Drew as teacher. The new blacksmith shop affords excellent facilities for teaching farm repair work in iron, and Instructors C. R. Aldrich and William Boss have increased the efficiency of instruction in drawing farm buildings and in wood work in the School of Agriculture. Instructor William Robertson has arranged a course of study in agricultural physics, and Secretary J. A. Vye has developed courses of instruction in farm book-keeping and keeping books in dairy factories. Mr. A. D. Gaines was added to the list of instructors in general school subjects in 1895, and Mr. R. D. Pettit was employed as assistant in the entomological department. Several practical factory managers are employed during January of each year in the factory dairy school.

Tenth—The Agricultural Summer School for Women has now been held very successfully for three seasons. The attendance was 59 in 1894 and 68 in 1895. The work is not yet all that it ought.

to be. The regents are carefully considering the subject and will reach definite conclusions soon.

Eleventh—Under a law passed in 1895 appropriating \$20,000 for procuring and equipping two sub-experiment farms, and \$10,000 for their support for the years 1895 and 1896, one such farm was located by the board of regents at Crookston, Polk county, designed to meet the requirements of the Red River Valley district. Another was located at Grand Rapids, Itasca county, designed to meet the requirements of the great forest region of northeastern Minnesota. Each of these farms contains 450 acres of land, well chosen to serve in the various experiments especially needed in the district in which it is located. Some experiments especially applicable to southwestern Minnesota are being carried on at "Coteau Farm," Lyon county, the homestead of Mr. O. C. Gregg, superintendent of the Minnesota farmers' institutes. Buildings suited to experimental work have been erected at the two sub-experiment farms, and the work has been regularly organized with the professor of agriculture, W. M. Hays, in charge. Mr. T. A. Hoverstad at Crookston and Mr. Warren W. Pendergast at Grand Rapids, assistants in agriculture, are resident managers, each being a graduate both of the School of Agriculture and of the College of Agriculture. The farmers of these districts are already showing a deep interest in these sub-experiment farms. The work of similar experiment farms in other parts of America has been thoroughly studied, and the work of each sub-experiment farm is being rapidly arranged so that the questions of greatest importance to agriculture may be studied.

Twelfth—Forty-six bulletins have been issued since the experiment station was started, fourteen of which were issued during the last biennial period. The experiment station now has a list of 16,000 farmers to whom the bulletins go free of even postage, and this list is being rapidly enlarged upon request. Besides the bulletins an annual report is issued containing the substance of the bulletins issued during each year, and other matters relating to the experiment station and to the educational work of the department. These annual reports are issued in limited numbers, but as they contain valuable facts, enough should be printed to furnish one to each public library and to rural school districts. Several previous bulletins have been issued, also, touching upon subjects of immediate interest to the farmers of the state. Annually there is an improvement in the quality of the experiments reported by the station workers.

Thirteenth—Through the invitation of President J. J. Hill of the Great Northern Railway, and the liberality also of the officials of the St. Paul & Duluth, of the Minneapolis & St. Louis, and of the Chicago & North Western Line, delegations of farmers have visited University Farm from various counties and districts of the state at various times during the past year. Carlton county, upon the invitation of the St. Paul & Duluth Railway, first sent a delegation of representative farmers, twenty-five in number. Kittson, Marshall, Otter Tail, Douglas, Swift, Stevens, Kandiyohi, Wilkin, and other counties followed with like representative delegations of prominent farmers, who came as guests of the Great Northern. This road also brought one delegation from Traill county, North Dakota, and one from Waterbury, South Dakota. Delegations of from 100 to 350 came on very cheap excursion rates offered by the Minneapolis & St. Louis Railway from the western and central parts of the state, to the University Farm. These delegations arrange with the officials at the experiment station as to the time of their coming. Each member of the faculty stops his work long enough to tell the crowd of visitors in a general way what he is doing in the experiment station. Refreshments are served and each member of the faculty briefly speaks to the visitors in an after-dinner speech what and how he is doing with the boys and girls. In all, 2,000 visitors have thus been shown the agricultural department of the university during the past season, and more such delegations are constantly accepting the kind offer of free or cheap transportation proffered by the railway managers. The railway officials have recently learned to take great interest in this most useful department. They see the importance to all concerned that the farmers along their lines awaken to the advance of agricultural thought.

I am very glad to bear witness to the harmony, earnestness and enthusiasm with which the work in the agricultural department has been carried forward, and I acknowledge with special gratitude the appreciation of the work shown by the farmers, the coöperation of agricultural organizations, particularly the farmers' institutes, the assistance rendered by the press, especially the agricultural papers, and I congratulate the regents and the people of Minnesota on the very happy solution of what was once the most difficult problem the university was ever called upon to solve.

COLLEGE OF LAW.

The College of Law, which has been continuously prosperous ever since its organization, has during the last two years made special improvements in several important particulars.

The course of study has been enlarged and enriched by additional subjects of legal importance, and the time necessary for the completion of the course has been extended to three years, giving at the present time a day and an evening school, each extending over a period of three years, and in addition to these a graduate department comprising general jurisprudence, political science, constitutional history, and other subjects of unusual interest and importance.

Besides this extension of time and the improvement of the course of study, many valuable additions have been made to the library, but not such abundant additions as the rapid growth and general development of the department demand.

Hon. A. C. Hickman was made a member of the faculty of law at the close of the last academic year, as professor of pleading and practice. Having occupied this chair for two years, and having demonstrated his peculiar fitness for the position, it is believed the department has been substantially strengthened by Judge Hickman's election to this important professorship.

Additional requirements for admission to this college have also been made, and a more rigid application of the rules for admission is gradually enforced. It is the policy of the department to demand the highest qualifications for admission to the regular courses leading to the degree of Bachelor of Laws that the conditions and circumstances of young men in the Northwest seeking entrance here will admit.

In order that legal learning may be disseminated also among the young men whose tastes and necessities guide them into other than professional pursuits, a course of study has been provided, comprising chiefly the various branches of commercial law and extending over a period of one year, to which all persons of sufficient age and ability to prosecute the work with profit are admitted; and already several young business men have pursued this course greatly to their benefit, and expressed satisfaction.

The methods of instruction, while substantially the same as from the beginning of the department, have been materially improved during the last two years by supplementing them with carefully prepared works on elementary jurisprudence, prepared by the instructors and furnished the students in their respective branches of the law.

As to the length of time for procuring a degree, as to the thoroughness of the work demanded and attained, and as to the breadth and scope of the work performed in its undergraduate and graduate

departments, it is probably true that this college is now fairly abreast of the first-class institutions of a similar nature in the older portions of our country.

MEDICAL DEPARTMENT.

COLLEGE OF MEDICINE AND SURGERY.

The greatest hindrance to medical education in this country is the low standard of preparatory education required for admission to the medical colleges. It has been possible for anyone to enter a medical college, even though he had less education than would be required for admission to a good high school. Medical colleges that set up a higher standard for admission did not always or often live up to their own regulations. It is one of the hopeful signs of the times that this condition of things is passing away, and admission to medical colleges of good repute will hereafter be possible to those only who can present evidence of considerable preliminary training. A few institutions have advanced the requirements for admission to a diploma of a college. In this university, upon the request of the faculties of the College of Medicine and Surgery and the College of Homeopathic Medicine and Surgery, the regents have voted that on and after the college year beginning October, 1899, all applicants for admission to these colleges will be required to pass the entrance examinations provided for the students of the academic department of the university, or present in lieu thereof the equivalents accepted for admission to that department. This means that a student to be admitted to the Colleges of Medicine and Surgery after Jan. 1, 1899, must have at least a complete high school training. This is not all that could be desired, but it is a decided advance on the past. As the examinations will be conducted by the general faculty, the requirements will be strictly enforced. The results therefore will, I anticipate, be as satisfactory as those reached in institutions that seem to demand more for admission, but in which the requirements can in one way or another be practically evaded. The time for the new requirements to be enforced is placed far enough in the future to enable all persons desiring to enter the institution to make proper preparation before the standard is raised.

The course of study necessary for a degree in the College of Medicine and Surgery and in the College of Homeopathic Medicine and Surgery having been extended from three years to four years, it is very satisfactory to observe that the first class entering under the new arrangement was as large as its predecessors. There is a per-

ceptible improvement in the intellectual fitness of candidates for admission. The schedule of studies provided for the four year course is richer and in every respect more satisfactory than the former one. It will now be possible to require very thorough work in the laboratories of medical sciences, and also to furnish the most abundant opportunities for practical clinical work. Fortunately the enlargement of our laboratory facilities has come at the same time as the extension of the course of study.

INCREASE IN THE CORPS OF INSTRUCTORS.

The faculty has been greatly strengthened by the addition of the following gentlemen to the teaching force:

E. F. Westbrook, Professor of Bacteriology and Pathology.
 Robert A. Wheaton, Clinical Instructor in Surgery.
 Herbert W. Davis, Clinical Instructor in Obstetrics.
 George L. Coon, Clinical Instructor in Genito-Urinary Diseases.
 John T. Rogers, Clinical Instructor in Paedology.
 Arthur J. Gillette, Clinical Instructor in Orthopedics.
 Burnside Foster, Clinical Instructor in Dermatology.
 George D. Heid, Instructor in Pathology.
 J. B. Schadle, Clinical Instructor in Laryngology.
 H. C. Carol, Instructor in Chemistry.

Professor Westbrook has proved to be a very valuable addition to the faculty. He will meet all the requirements of his most important department of bacteriology, provided he is furnished with the necessary apparatus.

The corps of clinical instructors named as having been recently appointed are engaged in clinical work at St. Paul, thus giving to the students the benefit of clinical cases in that city as well as in Minneapolis. They are the most competent men in St. Paul in their respective specialties. The corps of clinical instructors in Minneapolis will need to be enlarged in the near future. The opportunities for clinical instruction afforded by the "Twin Cities" are abundant.

The College of Medicine and Surgery needs \$2,000 for books. Reference works for the primary chairs are especially needed; indeed the work cannot be done as it ought to be without these works; and there are very few of these works now at the command of the professors.

As showing the disposition of the faculty to require good and thorough work of all candidates for degrees, it is proper to say that of the fifty-seven candidates for the degree of M. D. at the last commencement, only forty-seven received the degree, and in the final term examinations nearly one-half of the two lower classes were conditioned. It is not an occasion for gratitude that such defective scholarship should exist, but it is an occasion for gratitude that

showing such defective scholarship are not permitted to take degrees.

I am glad to say that the College of Medicine and Surgery is at present time in better condition, with ability to do better work, with the promise of greater usefulness, than ever before.

COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY.

Since my last report the following changes have taken place in College of Homeopathic Medicine and Surgery:

Prof. D. A. Strickler resigned the chair of ophthalmology, and F. M. Gibson was elected as his successor.

Prof. Asa S. Wilcox resigned the chair of diseases of women, and G. F. Roberts and Dr. M. P. Austin were elected as his successors, the former to do the didactic work.

Prof. S. E. Tenney resigned the chair of skin and genito-urinary diseases.

Prof. J. E. Sawyer resigned the chair of history and methodology of medicine, and Dr. T. J. Gray was elected as his successor.

Dr. R. R. Rome was promoted to the professorship of obstetrics, having been adjunct-professor in charge.

The professorship of skin and genito-urinary diseases is vacant. The chairs of principles and practice of surgery and of clinical and orthopaedic surgery have been reinforced by the appointment of an additional member to each. Professors R. D. Matchan and T. J. Gray will hereafter teach the principles and practice of surgery, and Professors W. S. Briggs and M. P. Austin will teach clinical surgery and orthopaedia.

The transfer of Prof. M. P. Austin left a vacancy in the chair of diseases of women, which was filled by the appointment of Dr. E. E. Austin.

The four years' course adopted a year ago went into effect on October 1st.

During the year just closed many operations were performed before the students by members of the faculty on the visiting staffs in the City Hospital, Minneapolis, and St. Luke's Hospital, St. Paul. Clinical lectures upon medical cases were also delivered.

It is worthy of note that all the students took an active part in the operations. In some cases they assisted and in others they performed the entire operation. At the medical clinics each student was required to make a careful examination under an instructor and suggest a diagnosis. The dispensary has provided the students with a large experience in treating cases. From May 1, 1895, to May 1,

1896, 1,474 in-door patients were treated and nearly 8,000 prescriptions were made. Members of the junior and senior classes likewise attended 612 out-door patients at their homes, under direction of members of the faculty.

The number of students in attendance at the college was greater than that of any previous year, except that of last year, when students entered who desired to finish their medical course in three years. Thirty-one students matriculated and were classified as follows: Eight seniors, thirteen juniors, two sophomores, and eight freshmen.

The work of the year just closed was the most satisfactory and encouraging in the history of the college.

The faculty has maintained during the past two years a dispensary at 1416 Washington avenue south, Minneapolis. This institution has been entirely supported by contributions from the members of the faculty. The faculty respectfully recommend that the board of regents make an appropriation for the maintenance of this very necessary part of the college work. There is great need of suitable charts and diagrams for illustrating lectures, and the faculty earnestly request that one hundred dollars be appropriated for the purchase of these.

COLLEGE OF DENTISTRY.

At the close of the year 1894-5 the dean of the College of Dentistry, W. Xavier Sudduth, resigned, and Thomas E. Weeks, professor of operative dentistry and dental anatomy in the college was elected dean. At the close of the year 1895-6 Charles M. Bailey, professor of prosthetic dentistry, metallurgy, and orthodontia, resigned his professorship. Dr. Bailey had been connected with the college during the whole period of its existence, had been a most faithful and efficient instructor, and his resignation was accepted with much regret. Frederick B. Kremer was elected professor of prosthetic dentistry and crown and bridge work in 1895, and entered upon his duties at the beginning of the year 1895-6. Thomas B. Hartzell was elected professor of comparative dental anatomy and physical diagnosis and oral surgery, July 3, 1896, and will enter upon his duties at the beginning of the year 1896-7. Dr. George S. Monson was at the same time elected to the chair vacated by Dr. Bailey, but he declined the appointment. No further appointment has yet been made, but the work of the chair has been provided for in a manner that is satisfactory for the present.

I take pleasure in saying that the administration of the college by Dean Weeks has been very satisfactory, and he has received a most

medical support and coöperation from his associates on the faculty. The students entering this college have to a large extent received a high school education. The apparatus of the college has been increased the last year, and the college is in all respects in a prosperous condition.

COLLEGE OF PHARMACY.

Ample provision of rooms for the work of this college has been made in the new laboratory of medical sciences. The number of students in the college has not been large, the whole number in 1906 being thirty-three, of whom twelve were seniors, ten juniors, one unclassified, and one special. It has been deemed wise to keep the standard of admission high, and as a consequence many persons who have applied for admission have been rejected because of their want of proper preparation for the work. Dean Wullung has been assisted in his work by Mr. R. O. Leubner, and by Mr. Francis Ramaley in botany and pharmacognosy.

THE LABORATORY OF MEDICAL SCIENCES.

Dr. Thomas G. Lee, professor of histology and embryology, who with Dr. Stewart planned this laboratory, and is now especially interested in the work to be done in it, has, at my request, furnished the following description of the building, and statements of what has been done, and what still needs to be done:

For over three years—October, 1892, January, 1896—the laboratories of histology, embryology, bacteriology, and pathology occupied less than one-third of a one-storied building 150x32 feet. The space was altogether insufficient from the beginning, and with the rapid growth of the various colleges in the medical department, the space became more inadequate each year. The classes had to be divided into so many sections that the amount of instruction given to each student was necessarily greatly diminished. Finally, notwithstanding all these makeshifts, students had to be turned away and refused admittance to classes; for the simple reason that each room was full and no more sections could be crowded into the week.

The congested condition of the laboratories of histology, pathology, etc., was duplicated in the laboratory of chemistry in the same building. The removal of the laboratories of histology, pathology, etc., would relieve chemistry, but a difficulty was found in the fact that the College of Pharmacy, which was not overcrowded like the others, occupied the middle of the building; so that to relieve chemistry, pharmacy must be moved out along with histology, pathology, etc.

The board of Regents presented the matter to the legislature of 1894-5, asking for \$50,000, a close estimate on the cost of a building and very moderate equipment. Forty thousand dollars was granted. Early in June, 1895, ground was broken for the new laboratory.

The laboratory of physiology wished for more room than it had, and made request for certain space in the new building, which was granted.

The laboratory building was created, then, in consequence of the needs of the laboratories of histology and pathology. The College of Pharmacy was taken in to relieve chemistry, and physiology was given the space desired for to accommodate the needs of that laboratory.

The \$40,000 granted was insufficient to complete the whole building; the third floor is not yet finished, together with parts of the other floors.

Equipment is not yet provided, so that a further sum must be asked from the legislature of 1896-7.

The building was planned by Mr. F. G. Corser according to designs furnished by T. G. Lee and J. Clark Stewart. It consists of a cream brick three story and basement building, 75x150 feet, fronting on the boulevard on Pleasant street. The southeast quarter of the building is separated from the rest by a fire wall, and is occupied by the College of Pharmacy. It has its own entrance. Of the building proper the basement, which is about twelve feet high and well lighted, contains:

1. Animal room (Phys.), 29x44 feet, well lighted, and contains cages and aquaria for the animals, a crematory for burning refuse, sinks, etc.
2. Preparation room (Path. and Bact.), 18x24, not yet finished.
3. Special laboratory (Path. and Bact.), 24x44, not yet finished.
4. Preparation room (Hist. and Emby.), 18x24, partially fitted up.
5. Experimental and storage room (Hist. and Emby.), 20x30, not yet fitted up.
6. Toilet room, 15x17, partially fitted up.
7. Janitor's room, 15x17, partially fitted up.
8. General store room and unpacking room, contains crematory, needs sinks, etc., 21x44, not fitted up.
9. Work shop, needs lathe, tools, lockers, etc., 16x26, not fitted up.

FIRST FLOOR.

10. General laboratory (Hist. and Emby.) 44x70, partially fitted up.
11. Assistant's room (Hist. and Emby.), 15x17, partially fitted up.
12. Research laboratory (Hist. and Emby.), 18x38, partially fitted up.
13. Library, needs books, tables, etc., 17x18, not fitted up.
14. Professor's private office, 15x17, partially fitted up.
15. Special bacteriological laboratory and rooms of State Board of Health (Path. and Bact.), 30x44, not fitted up.

SECOND FLOOR.

16. General laboratory (Path. and Bact.), 44x70, partially fitted up.
17. Assistant's room (Path. and Bact.), 15x17, partially fitted up.
18. Professor's private laboratory (Path. and Bact.), 16x18, partially fitted up.
19. Professor's private room (Path. and Bact.), 15x18, partially fitted up.
20. Culture room (Path. and Bact.) 7x18, partially fitted up.
21. Private room of Dr. J. C. Stewart (Path. and Bact.), 16x18, partially fitted up.
22. Physiological demonstration room (Phys.), 17x22, partially fitted up.
23. Laboratory of experimental physiology (Phys.), partially fitted up.
24. Professor's private room (Phys.), partially fitted up.
25. Amphitheatre, needs lanterns, etc., 31x44, partially fitted up.

THIRD FLOOR.—ENTIRELY INCOMPLETE.

26. Museum of Histology and Embryology, and Pathology and Bacteriology, 44x70, not finished.
 27. Preparation room for museum (Path. and Bact.), 17x16, not finished.
 28. Preparation room for museum (Hist. and Emby.), 18x32, not finished.
 29. Photographic laboratory (Hist. and Emby.), 22x46, not finished.
- There are needed for putting the above rooms into good working order at least the amounts stated below, and this is a very conservative estimate.

Room.	Department.	Cost.
1. Animal room.....	(Physiology.)	\$150
2. Preparation room.....	(Pathology.)	300
3. Special laboratory.....	(Pathology.)	300
4. Preparation room.....	(Histology.)	300
5. Experimental room.....	(Histology.)	300
6. Toilet room.....		20
7. Janitor's room.....		20
8. General store room.....		25
9. Workshop.....		150
10. General laboratory.....	(Histology.)	1,200
11. Assistant's room.....	(Histology.)	350
12. Research laboratory.....	(Histology.)	500
13. Library.....	(Histology.)	500
14. Private office.....	(Histology.)	100
14. General laboratory.....	(Pathology.)	1,200
17. Assistant's room.....	(Pathology.)	350
18 to 20.....	(Pathology.)	500
Books.....	(Pathology.)	500
21. Private room, Dr. Stewart.....		100
22. Demonstration room.....	(Physiology.)	200
23. Laboratory.....	(Physiology.)	500
24. Private office.....	(Physiology.)	100
25. Amphitheatre.....		500
26. Museum, fitting up, \$1,000; glassware, \$1,500.....		2,500
27. Museum preparation room.....	(Pathology.)	300
28. Museum preparation room.....	(Histology.)	300
29. Photographic laboratory.....	(Histology.)	500
Microscopes.....	(Histology.)	750
Microscopes.....	(Pathology.)	750

\$13,265

SUMMARY.

Pathology.....	\$1,200
Physiology.....	650
Histology.....	4,800
Building.....	3,215

\$13,265

This \$10,000 laboratory building, which is one of the largest on the campus, is at the same time the cheapest in proportion to its size, and may well serve as a model in a general way for securing the greatest amount of light and floor space for the least money. It has more available space than the \$80,000 physical and chemical laboratory, which is but very little larger. I know of no other laboratories for the same purposes in this country or in Europe with better light for microscopic work; and I have visited those which have cost \$100,000 and more. But what we do need and must have is money to fit up these laboratories, acting on the same conservative principle that I used in planning a large building for little money.

I have submitted estimates for some \$13,000. You will see that this sum is most moderate when you realize that that amount is much less than is expended in the laboratories of many of our leading institutions upon one subject. This sum will not supply all our needs for all time to come, but will allow us to make a beginning, so that we can make the University of Minnesota occupy the place she deserves in medical instruction.

We are so situated as to command an immense territory with railroads centering here. With increased facilities and a higher standard of entrance enforced we can draw the cream of the students of the Northwest, who now travel 1,500 to 2,000 miles away, to Johns Hopkins, Harvard, or Columbia to obtain that which we can give them at home.

Be it understood that even now with our relatively meager equipment we are ahead of many medical schools, abreast of others; but I feel that the state and its legislature wish the University of Minnesota to be the peer of the best in the land.

Dean Millard of the College of Medicine and Surgery fully concurs with Dr. Lee in his estimate of what is needed for the equipment of the laboratory of medical sciences. In addition to the \$13,000 for the laboratory \$2,000 are needed for the equipment of other parts of the college. The charges for tuition in the medical department having been raised, it is believed that hereafter the medical department will be self-supporting, as the law department has been almost from its organization.

CURRENT EXPENSES OF THE UNIVERSITY.

The university is conducted as economically as possible. Its expenditures are much less than those of many smaller institutions. But its expenditures are necessarily increasing from year to year, because the number of its students is increasing, and more teachers, more room, more apparatus, and more of every necessary provision for good work are needed. The resources of the institution are not equal to its necessary expenses, and there is no possibility of advancing till adequate provision shall be made. This is the most vitally necessary want of the university at present.

CYRUS NORTHROP,
President.

STATE NORMAL SCHOOL AT WINONA.

REPORT OF THE PRESIDENT.

To the Honorable Board of Directors of the State Normal Schools of Minnesota,

Gentlemen: I have the honor to submit, herewith, the following biennial report of the State Normal School at Winona for the academic years ending respectively July 31, 1895, and July 31, 1896:

ENROLLMENT BY COUNTIES.

Forty-one counties in Minnesota and ten other states are represented in the enrollment of the past two years, as follows:

	1895.	1896.		1895.	1896.
Anoka .....	...	1	Olmsted	29	18
Big Stone .....	...	2	Otter Tail	1	...
Becker .....	...	1	Pine	2	1
Brown	2	4	Ramsey	1	5
Carlton .....	...	1	Redwood	2	...
Cass	1	...	Rice	11	5
Cottonwood	1	...	Rock .....	...	1
Dakota	4	3	Polk .....	...	1
Dodge	7	6	Scott	2	2
Farmer	29	22	Stearns	1	1
Freshwater	1	1	Steele	2	3
Goodhue	8	11	St. Louis	1	2
Hennepin	17	38	Swift	1	2
Houston	9	11	Wabasha	35	30
Jacques	1	1	Waseca	2	1
Lake	2	1	Washington	5	3
Lyon	2	1	Watsonwan	1	...
McLeod	5	2	Winona	150	136
McLeod	3	2	Winnebago	1	...
Mower	5	5			
Nicollet	1	...	Totals	345	325
Nobles .....	...	1			

FROM OTHER STATES.

	1895.	1896.		1895.	1896.
Illinois	1	1	Pennsylvania .....	...	1
Iowa	4	9	South Dakota	9	6
Michigan	2	1	Washington .....	...	2
Missouri	1	...	Wisconsin	36	24
Montana	1	4			
North Dakota	2	1	Totals	56	49